



Bot. (Floras)

Vol 128a

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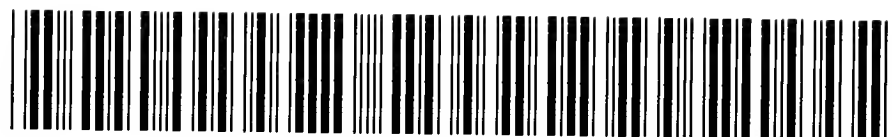
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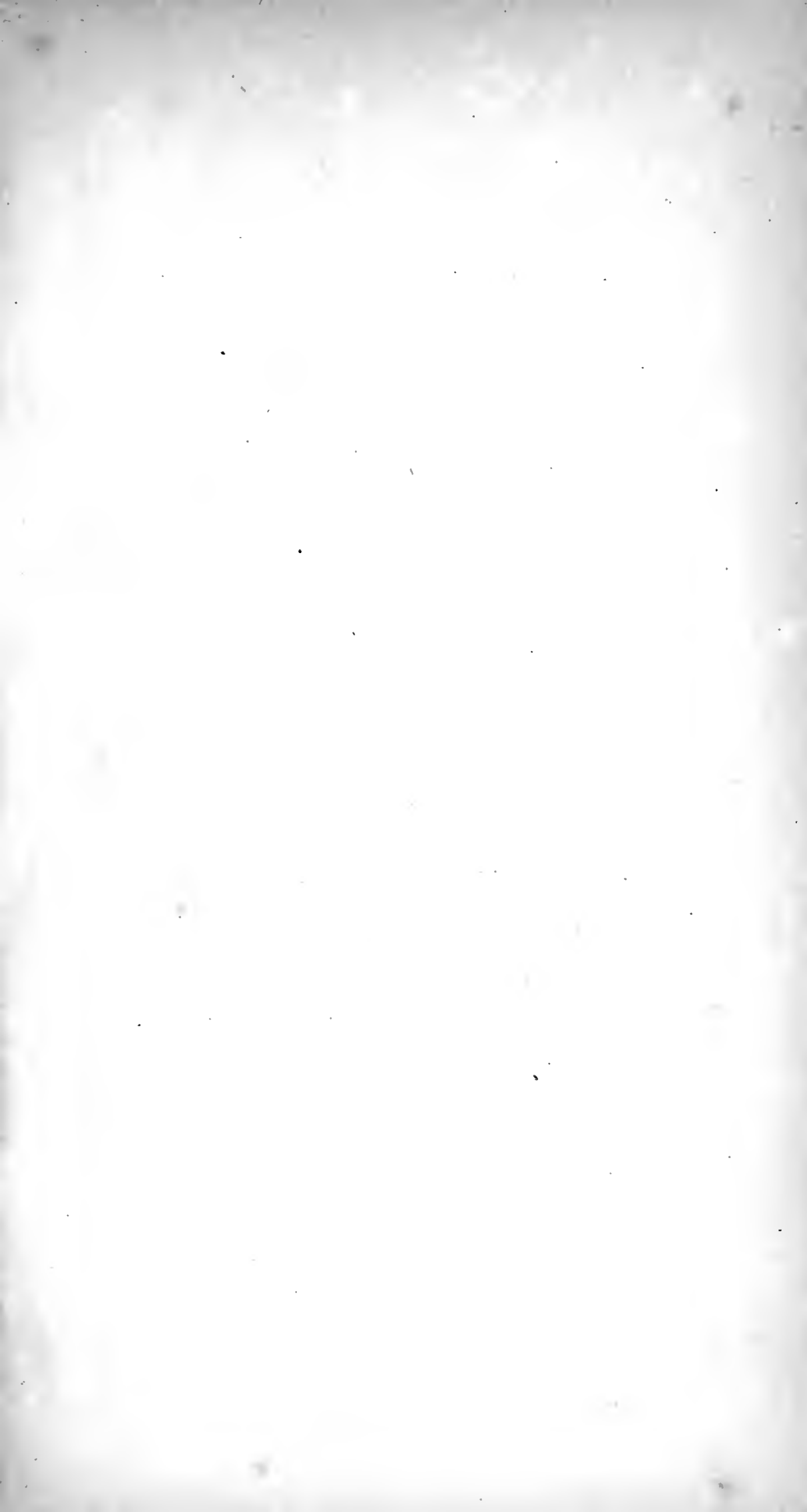
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THE

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FLORA OF FORFARSHIRE.

BY WILLIAM GARDINER.

“ Beautiful flowers ! to me ye fresher seem
From the Almighty hand that fashioned all,
Than those that flourished by a garden wall.”

LONDON :

LONGMAN, BROWN, GREEN, AND LONGMANS, 29 PATERNOSTER
ROW : ACKERMANN AND CO., 96 STRAND.

EDINBURGH :

DAVID MATHERS, 1 DRUMMOND STREET ; J. MENZIES, PRINCE'S STREET.
DUNDEE : F. SHAW AND W. MIDDLETON. PERTH : P. R. DRUMMOND.

1848.

DUNDEE: PRINTED BY M'COSH, PARK, AND DEWARS.

THE LAST OF THE THICKET.

FAVOURITE DUNDEE WALK.

Amongst the many choice spots near the city in which Dundonians of many generations have been wont to ramble on a summer's day none has been more largely frequented than the piece of wood and bush in the neighbourhood of Invergowrie known as "The Thicket." It would be difficult to find a more delectable place within walkable distance of the west end of the city, and since the extension of the tramways to Ninewells it has found visitors from more remote parts of the town. Its beauty lay (for they are now no more) in its trees, its bushes, and also in its paths, which meandered, rather than ran, through its shade. Everything there suggested peace and repose. It was a piece of wild Nature which agricultural improvements had providentially spared, while the builder in search of new districts to "open up," had not reached so far west. Birds nested in its trees, creeping things found a home amongst the grass, while birds and insects made the air audible with their singing and humming. Wild flowers in profusion decked the sward and lit up the green with their brighter colours. The student of natural history and the botanist, and also (it must be sorrowfully admitted) the boy whose only interest in the feathered tribe was the possession of their eggs, found ample scope for the exercise of their energies. Its situation was magnificent. It stood on the ground that rises out of the river, and the view of the estuary and its surroundings was not easy to surpass. But the axe of the woodman has been busy of late in "The Thicket." The trees have been converted into lumber and carted away. Their price has no doubt made the heart of some one glad, but those who only looked for Nature in its loveliness have other feelings. The place may still retain its name, and it may long be frequented by Dundonians as before, but its glory has departed, and its old associations are only a memory. That the trees were aged their dimensions sufficiently attest. One sturdy oak when cut down showed 128 rings, while some of its neighbours, especially the beeches, had a far greater diameter.

T AND GRATITUDE

O PRODUCE IT.

DUNDEE: PRINTED BY M'COSH, PARK, AND DEWAR.

with the "Westminster Gazette."

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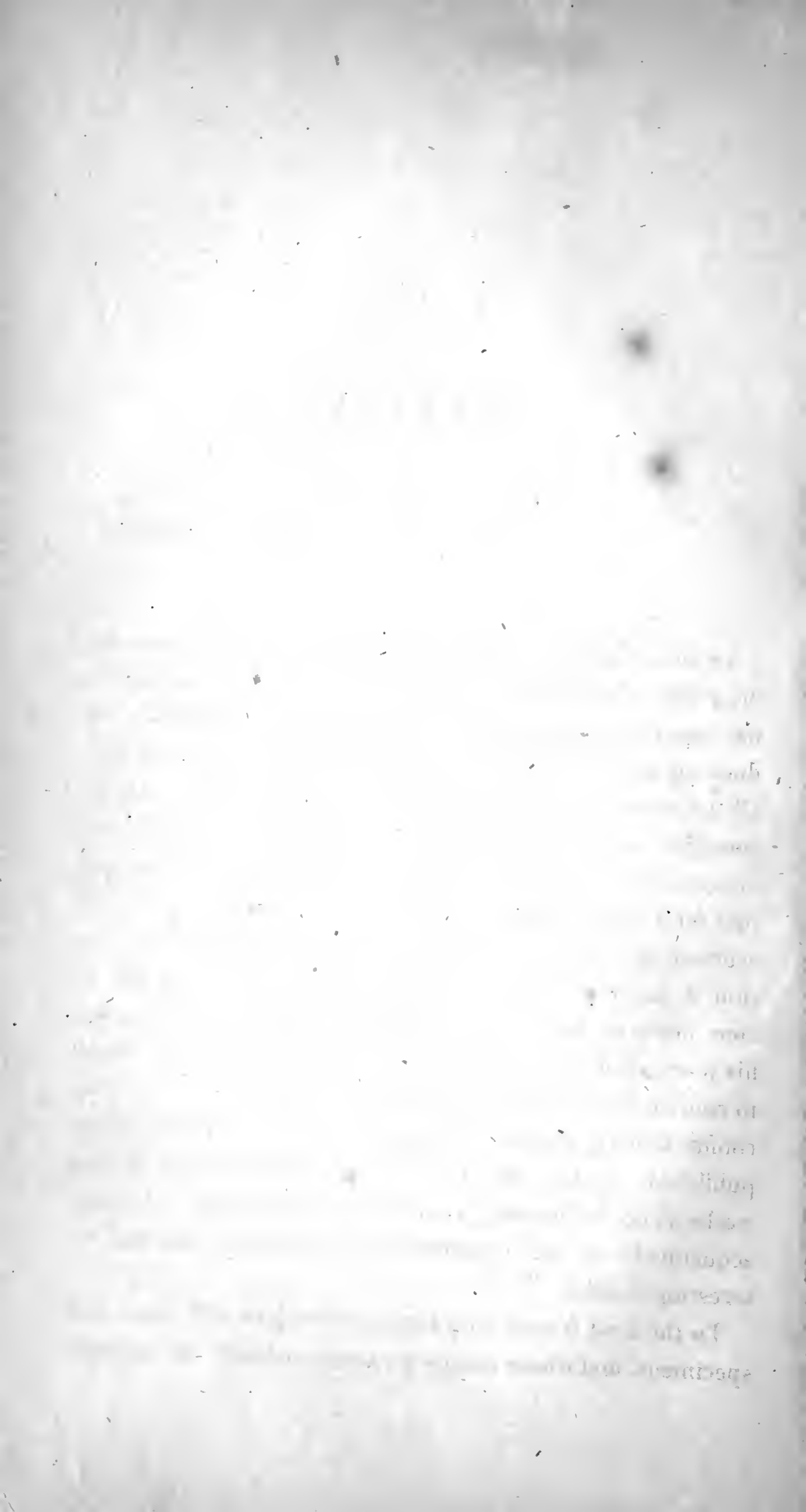
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WHO HAVE SO KINDLY ENABLED THE AUTHOR TO PRODUCE IT.

158 OVERGATE, DUNDEE.

NOV. 12TH 1847.

754603



P R E F A C E.

IN submitting the result of his labours to his patrons and the public, the author is not vain enough to suppose that he has completed the task of recording *all* the botanical productions that are to be found in his native county, nor even all the stations for the rare and less common plants. To accomplish this effectually every square inch of ground in the area comprised would require to be minutely examined, and that for a succession of seasons; but probably no one has ever had the leisure or patience thus to investigate any portion of the earth's surface. The object he had originally in view, however, has been accomplished to the fullest extent in his power, and he trusts that the following pages will be found to contain most of the facts connected with the botany of the county hitherto known. Many of these have not been before published, and the others were so scattered through various works as not to be easily available to those wishing to become acquainted with the vegetation of this peculiarly rich and interesting district.

To the kind friends who have assisted him with notes and specimens, and whose names are associated with the informa-

tion they have communicated, he tenders his best thanks; and his heartfelt wish is, that they may, through the blessing of heaven, continue to enjoy the pleasure which such pursuits always impart to those minds open to their refining and ennobling influences.

A supplementary part, embracing a brief view of the *Fauna* of the county, was promised in the prospectus, but from the amount of matter already accumulated, and a consideration of the numerous specimens yet to be examined, it has been deemed more prudent, rather than offer a garbled list of the Forfarshire animals, to publish this separately in a small volume, at as early an opportunity as circumstances will permit, and each subscriber to the *Flora* will be entitled to a copy. In the meantime any information on the subject, well authenticated, or specimens in any department of Zoology, that have been collected in the county, will be thankfully received and acknowledged. A supplement to the *Flora*, if any new facts are elicited, will be appended; and it is earnestly hoped that those having it in their power to contribute such will do so at their earliest convenience.

158, OVERGATE, DUNDEE,
Nov. 10, 1847.

INTRODUCTION.

THE uses of a local FLORA are threefold: Firstly, It enables a resident in the district, or a visitor, to know what plants may be found, and where. Secondly, It shows the comparative prevalence of certain species to that of other districts. And thirdly, It forms a depository of facts relative to the range of species, by indicating more numerous stations than could be done in a general FLORA; and affording more scope for allusion to the associations which various plants awaken in the mind,—and this part of the subject, which invests its study with a peculiar charm, is daily becoming more appreciated. In accordance with these views the following pages have been written.

The arrangement and nomenclature adopted are those of *Hooker's British Flora*;* and to prevent any confusion of names, the authority for each genus and species is given, together with the principal synonymes. The English name is added, and after it a reference to the page of the *British Flora* (H.), and to that of *Babington's Manual* † (B.), where the characters and descriptions of the species are to be found.

It is not in accordance with the rules laid down by some of our best botanists for the construction of a *local* Flora,

* *Hooker's British Flora*, 5th ed. London, Longman & Co. 1842.

† *Babington's Manual of British Botany*. London, Van Voorst. 1843. There is a new edition of this work published lately, and if it is referred to, the almanac weather rule may have in some instances to be applied, *viz.*, the page before or the page after.

that the plants should be described, which would only render the volume more bulky without adding to its usefulness. Every one studying British botany, it is presumed, is in possession of one or other of the standard Floras, and there the characters and descriptions of the various genera and species are detailed at length. With a descriptive Flora in the one hand, and a local one in the other, therefore, each will perform its legitimate part; and with these helps in the fields and woods, or on the mountains, the merest tyro in the study may soon become familiar with the native plants of his neighbourhood, or the places he may visit in the course of his peregrinations.

In the beautiful tribe of Ferns there is added a reference (N.) to the pages of *Newman's British Ferns*,* where the species are described and exquisitely figured; and to those of the *Phytologist*,† where that gentleman has published most admirable illustrated monographs of the *Lycopodiaceæ* and *Equisetaceæ*.

For descriptions of the *Mosses*, *Hepaticæ*, *Lichens*, and *Characeæ*, the pages of *Hooker's British Flora*‡ are referred to. In the same volume, from p. 248 to p. 415, the *Algæ* are described; and to part second (which forms a separate volume)§ references are made to the pages where a descriptive account of the Forfarshire *Fungi* may be found.

The period of flowering, where it differs from that in either of the above national Floras, must be understood to relate solely to what has been observed in this county. Experience teaches us that no general rule (or what we usually consider such) is exempt from numerous apparent exceptions; and in this case the variations of the seasons, and the

* A History of British Ferns, by Edward Newman, F.L.S. London, Van Voorst. 1840.

† The Phytologist, a Popular Botanical Miscellany. London, Van Voorst. Published monthly.

‡ Hooker's British Flora, vol. ii., part 1st. London, Longman & Co. 1833.

§ Hooker's British Flora, vol. ii., part. 2d. By the Rev. M. J. Berkeley. London, Longman & Co. 1836.

nature of the localities, exercise such an influence over vegetation, that no definite limits can be fixed for the inflorescence of various species. For example, *Cochlearia grælandica* is sometimes found in flower on the coast as early as April, and in other seasons not till June; while on the mountains its blossoms rarely appear before July, and in late seasons, not till August.

There is the same difficulty in respect to the Zonal range of vegetation. *Silene maritima*, *Statice Armeria*, *Lychnis diurna*, *Cardamine pratensis* and *hirsuta*, *Bryum trichodes*, *Weissia nigrita*, *Fegetella hemispherica*, and several others, might be placed either in the maritime or subalpine zone; and *Lychnis alpina*, although found indigenous only on the highest ground in the county, flourishes luxuriantly in our gardens a little above the sea-level.

Under these circumstances, it was deemed most prudent to leave to those, who possess greater experience, leisure and opportunity, with "all appliances and means to boot," to ascertain, if possible, or even to approximate, the latitudinal and altitudinal limits of the respective species; and merely to state such facts in connection with the subject as might, with tolerable confidence, be relied upon. There is no doubt a limit to every species of plant, as respects latitude, longitude, and altitude; but this is so much under the control of local circumstances, that no general rule can apply to every locality.

The comparative numbers of British and Forfarshire genera, species, and varieties, are given under each natural order; and those of the species and varieties are repeated under each genus; so that, at a glance, may be seen what proportion our county Flora bears to that of Britain. To render this comparison more complete, a table is given at the end of the book (p. 299) including all the British natural orders, in which those absent from Forfarshire are distinguished by being printed in italics.

The county of Forfar, or Angus, is situated between $56^{\circ} 27'$ and $56^{\circ} 56'$ N. lat., and between $2^{\circ} 28'$ and $3^{\circ} 22'$ W. long.

from the meridian of Greenwich. It is bounded on the N. and N.W. by Aberdeenshire, on the N.E. by Kincardineshire, on the E. and S.E. by the German Ocean, on the S. by the River Tay, and on the W. and S.W. by Perthshire. Its area is computed to contain 840 square miles, or 537,600 English acres, about 200,000 of which are under cultivation; and its surface is highly diversified, both as respects elevation and soil; hence the native vegetation is varied and interesting.

The Rev. Mr Headrick, in his survey of the county, divides it into four districts—the coast, the Sidlaw Hills, the valley of Strathmore, and that portion of the Grampian mountains which it includes. The maritime district extends from Invergowrie bay to the mouth of the North Esk, four miles N.E. from Montrose. From nearly Invergowrie to Craigo, two miles E. from Dundee, the banks of the Tay are abrupt and rocky; and near Broughty Ferry a singular ridge of rocks called the Hare Craigs, present some plants peculiar to the mountain district, as *Cochlearia grænlandica*, *Parmelia conspersa*, *Gyrophora polyphylla*, &c., intermingled with heaths and the usual coast-plants. From Broughty to Arbroath the coast is low and sandy; and one portion of it, the Sands of Barrie, extending from Monifieth to Carnoustie, forms a kind of delta, the extreme point of which, sea-wards, rises abruptly into a considerable sand-hill, known as “Button-ness.” These sands have formerly been under water, and no doubt, at some remote period, the base of the terrace that bounds them on the north was washed by the ocean waves. The surface is in some places flat and covered with pasturage, or marshy; in others, diversified with numerous swelling knolls and ridges, either of bare sand, or clothed with mosses, lichens, and maritime grasses. Cultivation is gradually advancing southwards over this sandy tract, and probably, in a few years, fields and gardens will occupy the place now claimed by *Juncus Balticus*, *Ammophila arundinacea*, and such like plants. At present, however, it affords a rich field to the botanist, who will here find,

besides the usual maritime vegetation, many rarities, as *Equisetum variegatum*, *Eryngium maritimum*, *Vicia lathyroides*, *Gentiana Amarella*, *Weissia nigrita*, *Bryum trichodes*, *Hypnum abietinum* and *lycopodioides*, &c.; and the entomologist will be gratified with such treasures as *Carabus nitens*, *Phyllopertha Frischii*, *Argynnis Aglaia*, &c.

From Arbroath to Montrose the undulating outline of the coast presents a series of pictures of the wildest grandeur. The sandstone rocks, so easily abraded by the continued action of the waves, are moulded into the most fantastic forms, and perforated in all directions, some of the perforations being indeed spacious caverns. The rocks and intervening bays are rich in maritime plants; and from the ocean-depths there are often cast upon the beach many beautiful sea-weeds, corallines, and other marine productions. At the small fishing-village of Auchmithie, three miles east from Arbroath, there are rocks where, at low water, various algæ and zoophytes may be picked in the living state, as *Himantholia lorea*, *Gigartina plicata*, *Chylocladia kalifornis*, *Ptilota plumosa* β ., *Chondrus mammillosus*, *Sertularia operculata*, *Corallina officinalis*, and many others.

Beyond Montrose another tract of sandy ground occurs, called the *links*, which extends to the mouth of the North Esk, and produces *Silene conica*, *Botrychium Lunaria*, and other good plants.

From the coast to the Sidlaw Hills the ground is undulating, mostly cultivated, and beautifully diversified with wood and water, being traversed by the Dighty, Feithy, Brothock, and various smaller streams.

The Sidlaw Hills, form the southern boundary of Strathmore, or the "Great Valley," and their two highest summits, are Craig Owl and the White Hill of Auchterhouse, the former 1700 feet, and the latter 1400 feet, above the sea-level. Near the pass or "glack" of Newtyle, a few miles west from the White Hill, there is a lower hill, named Kinpurny, on which a square tower was erected for an observatory; but never being applied to the purpose intended, has been de-

signated by the peasantry "*Castle Folly*." From this tower most extensive and interesting prospects of the surrounding scenery are to be obtained, and the muscologist will find on the ascent to it from the east *Diphyscium foliosum*. The whole range of the Sidlaw Hills is rich in cryptogamic plants, and the little glens and dells through which streams descend into Strathmore, have each their floral treasures.

Strathmore is a magnificent valley, and, in an agricultural point of view, is the pride of Scotland. That part of it within the county, called the *How* (or hollow) of Angus, is about 33 miles in length, by from 4 to 6 miles in breadth; and is watered by the Esk, Isla, and Dean, with their numerous tributaries. In the fields, meadows, and woods of this vast vale the botanist will of course find an exuberance of plants common to such situations; but on the banks of the streams that descend into it from the Sidlaws on the south, and the Grampians on the north, he will reap the richest harvest.

That portion of the Grampian range of mountains bounding Strathmore, and extending to the northern confines of the county, was formerly known as the Benchinnin Hills, and more recently as the Clova and Glen Isla mountains. Their average height is about 3000 feet, and they are intersected by several valleys, as Glen Clova, Glen Prosen, Glen Isla, &c.

These mountains have been rendered almost classic ground by the researches of *Mr G. Don*, and the numerous eminent botanists who have subsequently explored them. Mr Don, we are informed, was a very athletic man, and possessed of such a constitution that neither fatigue nor privation could easily break it down; and these qualities, combined with perseverance, and an ardent enthusiasm for his favourite study, rendered him peculiarly adapted for a good field-naturalist; and such by the result of his researches he proved himself to be.

In Forfar he served an apprenticeship to a watchmaker, and after that was out, in order probably to acquire more knowledge of his trade, removed to Glasgow. While in this

city his unbounded love for botanical pursuits began to show itself so prominently, that he obtained the situation of assistant to the Professor of Botany in the University, and this no doubt afforded many facilities for increasing his information and improving his taste. After remaining for some time in this place, he went to Edinburgh, where he soon became acquainted with the Messrs Dicksons, and these gentlemen introduced him to the notice of other votaries of the science, both Scotch and English, more particularly to Sir J. E. Smith, the President of the Linnæan Society, who took a great interest in him, and warmly patronised his efforts to extend the knowledge of British Botany. On his return to his native town, Forfar, he obtained a piece of ground, and established a small botanic garden, to which he gave the name of "Dove-hill," where he cultivated many rare plants, especially those indigenous to Scotland. To procure these he made many excursions among the mountains, and as the ground had been hitherto almost unexplored, he could not have failed to make numerous and important discoveries. The roots and seeds he collected were propagated in the garden, and plants sent out to various parts of the united kingdom; and the specimens dried and distributed in like manner. Frequently, it is said, he would spend weeks in these mountain explorations; and there being then no comfortable inns to bivouack in after the fatiguing labours of the day, he had just to munch his cheese and bread for supper, and lay himself down under the shelter of a rock for the night, with his knapsack and wallets as companions. Comforts and luxuries were sacrificed to a zeal for the love of Flora, and a desire to make her beauties known to those of kindred spirit, who lacked the opportunity to seek for them in these wild solitudes. Perhaps his last thoughts before laying down his head upon the moss-covered stony pillow, might be thus expressed—

" Blessed be God for flowers !
For the bright, gentle, holy thoughts
That breathe

From out their odorous beauty,
 Like a wreath
 Of sunshine on life's hours."

And on awakening in the morning, he might, in the spirit of Nicoll, have said,—

" I saw the hills living in sunshine,
 And the things that there, free and unfetter'd,
 Had made their mountain-homes of beauty rare,
 Where Peace seem'd laid to sleep 'mid mountain-flowers,
 While Joy reclined beside the blooming couch !"

And perhaps added in the same spirit, though the words of the gifted poet were then unknown,—

" The nameless flowers that budded up—
 Each beauteous desert child—
 The heather's crimson blossom spread
 O'er many a lonely wild :
 The lambkins sporting in the glens—
 The mountains old and bare—
 Seem'd worshipping ; and there with them
 I breathed my morning prayer."

How Mr Don managed to dry his specimens during these excursions, and keep them in a good condition under such circumstances, is matter of surprise ; especially as he must frequently have been overloaded with his collections of living plants. On these points we have no specific information, and must content ourselves with the fact that such collections of living and dried plants *were* made, and contributed much to extend the knowledge of our native vegetation.

Several plants have been named in compliment to him, as *Salix Doniana*, *Jungermannia Doniana*, *Grimmia Doniana*, *Gymnostomum Donianum*, &c., and these will serve to perpetuate his memory better than the finest sculptured marble.

As these mountains are annually visited by many from a distance, on account of their botanical riches, and the grandeur of the scenery, a few remarks on the different localities most frequented may not be deemed out of place in a book like this. Tourists from the south arriving either at Dundee or Arbroath, may proceed by Forfar to Kirriemuir, five

miles beyond which, at the village of Cortachy, is the entrance to Glen Clova.

Glen Clova is a beautiful pastoral valley, about 15 miles in length, with the South Esk winding through it. Both sides of the river are cultivated, and its banks are studded with numerous farms and cottages. The mountains that form its boundary gradually increase in altitude, and in the upper part few of the summits are below 3000 feet. The little hamlet named the Kirktown or Milltown of Clova, is ten miles above Cortachy and five below Acharne, and consists of a few cottages, a church, a mill, and a small inn. That little inn has, however, sheltered many a botanist, and no doubt many an eye has been gladdened by its sight after a long fatiguing ramble among the mountains.

Almost opposite to the Kirktown, on the west side of the Glen, rises the mountain of Carlowie, and farther up forming a part of the same range, the Bassies and the Scorie. Long ridges or "*shanks*" extend from these into Glen Prosen,* with intervening streams, whose rich verdant banks pasture many flocks. The summits are adorned with the beautiful *Azalea procumbens*, *Cetraria nivalis*, and other botanical rarities, and the rivulets descending their rocky fronts in numerous little waterfalls, are prolific in objects of interest to the enquiring mind.

Three streams descend from the mountain above the Kirktown of Clova, and unite before reaching the hamlet. The centre one is called the "*Deaf-burn*," on account of its channel being deepened towards the top, and choked up with vegetation. It has its source among some springs below Loch Brandy. The stream on the left is designated the "*Corrie-burn*," because it leaps over the rocks into the Corrie from the table-lands above; and that on the right is

* Glen Prosen is a lovely Highland glen, but its mountains being less steep and rocky than those of Clova, are consequently not so rich in the rarer alpine plants; the mountain at the head of the glen, called the Mair, is, however, apparently deserving of a better investigation than it has yet received.

named the "*Loch-burn*," as it issues directly from Loch Brandy. This interesting mountain lake is surrounded with wild and picturesque rocks, the accessible parts of which, as well as the streams descending from it, are rich in alpine vegetation. At its south-west corner there is a smaller lake where the *Isoetes lacustris* and *Lobelia Dortmanna* are found in profusion; and among the rocks where the Loch-burn leaves its parent-lake, the *Hypnum Silesianum* and other cryptogamic rarities are to be met with.

Rather more than a mile to the south-east of Loch Brandy, there is another mountain-lake called Loch Wharral. The rocks surrounding it are less wild, but on the left-hand side a stream dashes down over steep ledges where the rare *Alopecurus alpinus* was first detected in this county.

If a visit to the solitary Loch Lee is contemplated from Clova, the best way is to ascend the *Greenhill* on the right-hand side of Loch Brandy, and proceed along the crests or mountain-*riggins*, with a shepherd-guide if possible, who may save some extra walking, to the head of Inchmagrundle, where a fine view of the lake is obtained, with the ruins of Invermark Castle in the distance. Here also are the Craigs of Maskeldie, and a wild gorge through which the Eanach comes down to the lake.

"Rocks rise on rocks, and fountains gush between,"—

and probably a more careful exploration of them than can be made in a passing visit would well repay the trouble. It is in such a wild, yet to the naturalist inviting place as this, that one is tempted to exclaim with the Sherardian professor Dillenius, "Oh that some rich botanist, that has no relations or children, would build a house there!" The long walk leaves much too little time for investigation, and in returning,

"When breezy evening broods the listening vale,"

it is far from pleasant to be caught in the dense mist that so frequently invests these mountain-summits after sunset; nor will twilight be found a very safe guide through the scattered

rocks and boulders, and still more treacherous morasses that are so prevalent. During the day the mountain-rambler can see about him, and with the exception of fatigue, and hunger if he does not provide himself against it, has no discomfort to dread save a Highland shower, but this is sometimes no trifle. All of a sudden, without giving any prelusive warning drops, a cloud above him, dark and menacing, bursts at once, and a perfect deluge comes down roaring and raging like a mountain torrent, and in a few moments he is drenched to the skin. Sometimes, too, vivid lightnings flash athwart the gloom, and crashing thunder-peals are reverberated from mountain to mountain in fearful magnificence. Frequently the scene is as suddenly changed. The clouds are parted, and the sunbeams, with all their burning impetuosity, rush through the openings, impatient to revel amid the freshness and beauty of the earth. The effect is magical! The brightest sunlight and the darkest gloom seem contending for the mastery, but the latter soon gives way, leaving the former to drink the fragrance of the freshened heath, and to brighten the path and cheer the heart of the drenched flower-hunter.

Ben Red is the most conspicuous mountain to the west of Loch Brandy, and on its summit may be gathered *Azalea procumbens* and other plants of interest. Between this and the next summit, White Bent, there is the corrie of Ben Hard, into which a stream pours its fertilizing waters, and among its rocks many interesting plants may be found. At the back of the White Bent, between Bousties and Cairn Derg, the elegant *Splachnum vasculosum* grows in greater perfection than in any other station in Clova. A little beyond White Bent, is the Red Craig, with the farm of Bradooney at its base, and from thence there is a path up Glen Bradooney, and across the Capel Mount, to Deeside, passing the famed Lochnagar; and another path leading up Glen Bradooney to Bachnagairn and Loch Esk. Nearly opposite to the farm of Bradooney the Esk is joined by the Dole. The Esk is crossed by a wooden bridge, and passing the uppermost farm of Clova, Acharne, you enter the famed

Glen Dole. The front of the mountain facing you above Acharne is called Craig Mellon, and is conspicuous from the hamlet of Clova, in the mornings generally wearing a misty coronal, and in the evenings often surrounded with the undescribable glory of an alpine sunset. The path winds round the base of Craig Mellon, and about a mile and a-half above Acharne, the Phee falls into the Dole. Glen Phee is on the left, and at its head are waterfalls that attract the eye soon after leaving Acharne. The Garryburn rocks bound it on the south, and Craig Rennet on the north, both of which are rich in alpine plants. The principal front of Craig Rennet, however, looks into the upper part of Glen Dole, and farther up, on the same side of the glen, rises the bold rocky summit of Craig Maid. At the foot of this mountain, through a deep narrow gorge, the White Water pours down from the table-lands above, forming, in its descent, several beautiful waterfalls, which, though not of great magnitude, are rendered very picturesque from the romantic character of the scenery around. The vastness and grandeur of the rocky steeps above them diminish their effect upon the eye; and even the fall of Feula, which comes down dashing and foaming from the western shoulder of the mountain, looks at a distance like a silver thread suspended among the verdant and flower-garnished cliffs.

The rocks of Craig Rennet and Craig Maid, with the ravine of the White Water, and the table-lands above, form a paradise to the lover of alpine botany, as well as mountain scenery,—not a rocky shelf but displays some floral treasure, nor a glance on either side but imparts lofty and ennobling thoughts. In these mountain solitudes one feels, as it were, in the immediate presence of his Maker, and this feeling, while it enhances the pleasure of such a pursuit, gives to it an importance which can only be appreciated by those minds that are accustomed to trace the wisdom and goodness of the Creator in His works.

The lower parts of these mountains are composed of debris caused by the numerous descending streams and the

winter frosts. Every spring, when the snows begin to melt, vast masses of rock become detached from the heights above, and roll down their sides with a noise, the shepherds say, like that of the loudest thunder. The base of Craig Maid is strewn with multitudes of such rocky masses, which are now covered with mosses and herbage, and the intervening cavities they form often afford a secure shelter to prowling Reynard. To the prowling botanist they are even more attractive, presenting him with the beautiful *Linnæa borealis*, the rare *Hypnum Crista-castrensis*, *Jungermannia setiformis*, *Taylori*, and *concinata*, *Dicranum polycarpon*, and numerous other rarities. A number of old-fashioned birch trees, that have seen "the light of other days," are scattered about, and their trunks are invested with many mosses, lichens, and Hepaticæ. Among them may be noticed *Orthotrichum Drummondii*, *Sticta pulmonaria*, and *Jungermannia ciliaris* in fructification. Towards the foot of the cliffs the *Lycopodium annotinum* is plentiful, and in rocky crevices the elegant *Polystichum Lonchitis* spreads out its circle of rigid fronds. Higher on the cliffs hosts of rare things court the attention, as *Pyrola rotundifolia*, and *secunda*, *Veronica saxatilis*, and *alpina*, *Erigeron alpinus*, *Saussurea alpina*, *Sonchus alpinus*, *Potentilla alpestris*, with numerous *Carices*, *Grasses*, *Salices*, *Hieracia*, &c., and many rare cryptogamic plants.

The White Water and the Dole unite a little below a rocky abutment of Cairn Lunkar, and on the right hand side of this a steep rugged path called "*Jock's Road*," leads to the shieling of Lunkar. From this small domicile, where the botanist will find a hearty welcome to such shelter as it affords, excursions may be made to various interesting localities. The original station for *Carex rariflora* is in the immediate vicinity; and the Little Culrannoch, on which the *Lychnis alpina* grows, is little more than a mile to the south-west, and may be reached most easily by following the Feula Burn (where *Carex aquatilis*, *Phleum alpinum*, and *Splachnum vasculosum* may be gathered) for a mile or so,

then turning to the right after passing its junction with the Culrannoch Burn.

If it is intended to proceed to Canlochen after leaving the Culrannoch, hold right west, and cross the Red Burn and the Glashie Burn, both of which fall into Glen Caness, and if time permits, walk along the banks of the latter stream, and enter Glen Canlochen at its head by one or other of the numerous streams that pour their genial currents into that beautiful sequestered valley. The rocks about the head of the glen, and those on the south-west side, are richest in botanical rarities. Most of the Glen Dole plants are found there, with the addition of the exquisite *Gentiana nivalis* and other interesting treasures. The *Carex atrata* and *capillaris* are peculiarly abundant there; and on the banks of the streams a profusion of *Alopecurus alpinus*, *Phleum alpinum*, *Veronica alpina*, and *Epilobium alsinifolium*, &c. find homes.

About two miles from the head of the glen, at the foot of the mountain called the Learner, and opposite to another named Monega, not far from the confluence of the two streams that form the Isla, there is a shieling where the weary botanist is never denied a night's shelter. Although Canlochen be a deer-forest, and these beautiful animals abundant, they do not seem to be in the least afraid of flower-hunters, as they continue to graze in the utmost confidence, though passed within a few yards. Part of Caness and Canlochen have been planted with larches as a cover for the deer; and in the woodland glades the verdure is enamelled with numerous varieties of the *Viola lutea*, and various interesting *Equisetæ* and *Carices*.

The sloping declivity of the White Craig on the east side of Canlochen, is called the "*Ewe howes*," and pastures a considerable herd of cattle. The *Sibbaldia procumbens*, *Viola lutea*, *Veronica alpina*, and several other choice plants, are here in profusion; and on the banks of a stream that divides it from Cairn Curr, *Salix avenaria* is quite at home.

In returning to Clova, the route may be varied by ascending the last mentioned stream, and proceeding by the head

of Glen Cally, where Don found the rare *Hierochloe borealis*, to Glen Phee, and thence into Glen Clova. If it is not intended to return to Clova, a footpath leads from the head of Canlochen into Glen Callater, and from the foot of the loch, there is a cart road to the Castleton of Braemar. Strathmore may be reached by descending Canlochen into Glen Isla, at the foot of which, five miles below the Kirktown, is the beautiful waterfall called the Reeky Linn, at the head of the Den of Airlie, three miles distant from Alyth, and nine from the railway station at Newtyle; the walk or ride across the richly cultured vale or *How* of Strathmore affording a pleasant contrast to the wild grandeur of the rugged mountain scenery left behind.

THE PRINCIPALS OF AGRICULTURE

1. The soil is the foundation of the farm, and its fertility is the key to success. It must be kept rich and well-tilled, and the crops must be chosen to suit the soil and the season. The farmer must be careful to rotate his crops, and to use manure and other fertilizers to keep the soil in good heart.

2. The water of the farm is another important element, and it must be used wisely. It should be used for irrigation, and for other purposes, but it should not be wasted. The farmer should have a good system of waterworks, and should be able to control the water at will.

3. The labor of the farm is the third element, and it must be managed well. The farmer should have a good system of labor, and should be able to get the most out of his men and women. He should be careful to pay them well, and to treat them as he would wish to be treated himself.

4. The stock of the farm is the fourth element, and it must be kept well. The farmer should have a good system of breeding, and should be able to select the best animals for his farm. He should be careful to keep his stock healthy, and to protect them from disease and other dangers.

5. The buildings of the farm are the fifth element, and they must be well-constructed. The farmer should have a good system of buildings, and should be able to keep his crops and stock safe. He should be careful to build his buildings well, and to keep them in good repair.

The farmer and his family are the heart of the farm, and they must be well-cared for. The farmer should have a good system of education, and should be able to keep his family well. He should be careful to keep his family healthy, and to provide for their needs. He should be able to give his family a good education, and should be able to give them a good life.

With this new and improved system of agriculture, the farmer can now produce more food for his family, and for the world. It is a system that is simple, and easy to understand, and it is a system that will give the farmer the best results possible.

TABLE

OF THE

PRINCIPAL AGRICULTURAL WEEDS OF FORFARSHIRE.

Ranunculus acris	Artemisia vulgaris
repens	Tussilago Farfara
bulbosus	Senecio vulgaris
Papaver Rhœas	Jacobæa
Fumaria officinalis	aquaticus
Capsella Bursa-Pastoris	Bellis perennis
Camelina sativa	Chrysanthemum Leucanthemum
Cardamine pratensis	segetum
Sinapis arvensis	Convolvulus arvensis
Rapbanus Raphanistrum	Lithospermum arvense
Viola tricolor	Lycopsis arvensis
Agrostemma Githago	Myosotis arvensis
Spergula arvensis	Veronica serpyllifolia
Stellaria media	hederifolia
Geranium molle	agrestis
dissectum	arvensis
Ononis arvensis	Bartsia Odontites
Medicago lupulina	Rhinanthus major
Trifolium arvense	Mentha arvensis
procumbens	Galeopsis Tetrahit
Ervum hirsutum	versicolor
Scleranthus annuus	Lamium amplexicaule
Æthusa Cynapium	Stachys arvensis
Scandix Pecten	Anagallis arvensis
Sherardia arvensis	Plantago lanceolata
Fedia olitoria	Atriplex patula
Knautia arvensis	Polygonum aviculare
Sonchus arvensis	Convolvulus
Lapsana communis	Persicaria
Leontodon Taraxacum	Rumex Acetosa
Cnicus arvensis	Acetosella
Centaurea Cyanus	Euphorbia helioscopia
Scabiosa	Peplus

The genera and species of plants contained in the above table, though interesting to the botanist, are generally annoying to the farmer, and such of them as are proved to be injurious to his crops should be diminished by every possible means. With this view the following queries are put to the

farmers of Forfarshire, and it may be to their advantage carefully to attend to them.

On what soils do the plants in the above table generally grow? On wet or dry, rich or poor, clay, sand, alluvium, &c., and what kind of rocks does the soil rest upon?

What effect does draining, subsoil ploughing, rich manuring, &c., have upon the diminishing of such weeds; and how are they affected by the different kinds of soil and locality, the nature of the seasons, and the various modes of culture adopted?

Answers to these queries from the various cultivators of land in the county, might lead to some beneficial results, and if such are sent to the author, he will lodge them in the proper quarter.

To prevent mistakes, it might be as well to communicate specimens of the plants so commented on, and these will be preserved for future reference. Specimens also of the different kinds of *blight*, or *Fungi*, affecting various species of grain, with their comparative prevalence in different places and seasons, in connection with answers to the above queries, might be of importance to those who make the improvement of land their study.

FLORA OF FORFARSHIRE.

CLASS I.—DICOTYLEDONES.

SUB-CLASS I.—THALAMIFLORÆ.

ORD. I.—RANUNCULACEÆ, *Juss.*

Gen. Br. 15. *F.* 6. *Sp. and v. Br.* 42, *F.* 20.

THALICTRUM, *L.* Meadow-Rue.

Br. sp. and v. 4. *F.* 2.

T. alpinum, *L.* Alpine Meadow-Rue. *H.* 2, *B.* 3.—*F.* July. *P.*

Marshy banks, sides of streams, and wet rocks, among the Clova Mountains, not uncommon, and reaching to their summits, upwards of 3000 feet.

Found not only on the tops of the mountains, but in the alpine valleys. I have not seen it, however, descending into the plains, like many of our alpine plants, as *Oxyria reniformis* and *Alchemilla alpina*. *Rev. J. S. Barty.*

In Inverness-shire, *Mr Croall* has found it among the chingle of the sea-beach, associated with the *Steenhammera maritima* and other maritime plants.

T. minus, *L.* Lesser Meadow-Rue. *H.* 2, *B.* 3.—*F.* June August. *P.*

Sandy sea shores in various places, as Lunan Bay, and on the sandy beach to the west of Arbroath.

Sands of Barrie, *Rev. J. S. Barty.* Montrose Links,

Messrs Croall and Kerr. "In sandy, stony high lands, and by the sea side." *Mr G. Don.* He does not say in what part of the "high lands" it has been found, and, from my own experience, I cannot view it otherwise than as a coast plant. The *T. majus* of Jacquin, which is considered a var. of this, I have, however, gathered on the banks of Loch Tay, above Kenmore, Perthshire, but have not observed it in this county.

ANEMONE, *L.* Anemony, or Wind-flower.

Br. sp. and v. 4. F. 1.

A. nemorosa, *L.* Wood Anemony. H. 3, B. 4.—F. Apr. May. P.

Abundant in the woods, and on the hills and mountains, and often beautifully tinged with blue and crimson. Though loving the shady charms of the woodland, this elegant flower seems more partial to the open heath, where it can more easily hold communion with the flaunting breezes, and enjoy the genial sunshine.

I have often gathered it with flowers *deeply purple.* *Rev. J. S. Barty.*

When May's soft breezes fan the woods,
 And waft from May-flowers fragrance sweet,
 With what delight, thou lovely gem,
 Do we thy open blossoms greet!
 They speak of Friendship warm, sincere,
 Of Love that cannot prove untrue;
 Then oh! how beautiful, how dear,
 Thy white flowers, crimson-tinged and blue!

In woodland fresh, where warbling voice
 Of small birds charms the wanderer's ear,
 And green trees, waving in the wind,
 Make music, to his heart as dear;
 Thy lovely blossoms from the glade
 Look up towards the sunny sky;
 Then earthward turn their modest glance,
 As if afraid to look too high.

Their graceful forms, so bright, so fair,
 Arrest the wanderer's curious eye;
 Who cannot fail to learn from them
 The virtue of Humility.
 It is not, merely then, sweet flower,
 Thy only mission to impart
 Beauty and grace to heath and bower,
 But to instruct the human heart!

RANUNCULUS, L. Crowfoot, or Spearwort.

Br. sp. and v. 20. F. 13.

R. aquatilis, L. Water Crowfoot. H. 4, B. 5.—F. May, June. P.

In pools, ditches, and streams, frequent.

R. hederaceus, L. Ivy Crowfoot. H. 4, B. 5.—F. Summer. P.

In ditches, rather common.

R. lingua, L. Great Spear-wort. H. 4, B. 6.—F. July, August. P.

Not common, but met with on the margins of the Lakes of Rescobie, Balgavies, Lundie, &c.

East end of Forfar Loch, *Mr G. Don*. I have also met with it there. Loch of Balshandy, Lundie, about 200 yards east from the turnpike-road. *Rev. J. S. Barty*.

R. flammula, L. Lesser Spear-wort. H. 4, B. 6.—F. July, August. P.

Common in watery and marshy places, from the sea-coast to the mountains.

Var. β . *reptans*, *R. reptans*, Lightf.

Frequent by the sides of alpine streams and alpine lakes, as Loch Brandy, Clova, &c.

R. Ficaria, L. Pilewort Crowfoot, or Lesser Celandine. H. 5, B. 6.—F. March, May, P.—(*Ficaria ranunculoides*, DC.)

Wet and shady places, not uncommon. Sometimes the petals are white on the upper surface, except at the base (with no appearance of decay), the under surface retaining its usual dull-greenish hue.

R. alpestris, L. Alpine White Crowfoot. H. 5, B. 5.—F. May. P.

This beautiful plant was found, it is stated, "by sides of rills on the Clova mountains," by Don; but no particular station is specified, and it is doubtful whether any other botanical explorer has met with it. Indeed, its flowering in

May, when generally these mountains have not doffed their wintry garb of snow, may have operated in preventing its re-discovery, as it is usually in July and August that the lovers of Flora delight themselves with the pleasures, and encounter the fatigues of rambling amid these mountain solitudes.

R. auricomus, L. Wood Crowfoot. H. 5, B. 7.—F. April, May. P.

Frequent in Woods. Side of the Isla, at Reeky Linn.

Ruthven and Airlie Castle, also about Kettins, *Rev. J. S. Barty*. Kinnordy Woods, *Mr J. Donald*.

R. sceleratus, L. Celery-leaved Crowfoot. H. 5, B. 7.—F. June, July. P.

Occasionally in wet places. Banks of the Lakes of Forfar and Lundie, and side of a rill at Restenet. It was formerly found in the old quarry at Magdalen-yard green, Dundee, and in the old Meadows, but *improvement* has driven it from these stations.

Near the Lunatic Asylum, Montrose, and abundant on the west side of the Montrose Basin, &c., *Mr A. Croall*.

R. acris, L. Upright Meadow Crowfoot. H. 5, B. 7.—F. June, July. P.

The common *buttercups* of our meadows, and designated in this county "*yellow gowans*," probably because they are as abundant as their associates the daisies, *Bellis perennis*, which are popularly known by the name of "*gowans*." It occasionally occurs with full flowers.

R. repens, L. Creeping Crowfoot. H. 5, B. 7.—F. June, August. P.

Too common about the margins of fields.

R. bulbosus, L. Bulbous Crowfoot. H. 6, B. 7.—F. May, June. P.

Not uncommon, as on the Magdalen-yard green, Dundee, Lawhill, Balgay, Mains, Hare Craigs, near Arbroath, &c., Usan, *Mr A. Croall*. With full flowers on the south bank of the Lake of Forfar, *Mr G. Don*.

R. hirsutus, Curt. Pale Hairy Crowfoot. H. 6, B. 7.—F. June to Oct. A.—(*R. Philonotis*, Ehrh.)

On an embankment on the Forfar road, a little east from Rossie Toll, *Mr A. Croall*.

CALTHA, L. Marsh Marigold.

Br. sp. and v. 3. F. 3.

C. palustris, L. Common Marsh Marigold. H. 6. B. 8.
—F. April, June. P.

Common in marshy ground, and by the sides of streams, ornamenting the places of its abode with its abundance of elegant yellow blossoms and beautiful leaves. It occurs from the coast to half-way up the mountains, and in specimens gathered in Glen Dole, on the mountain Craig Maid, the leaves are *acutely* crenated. (*Var. β. minor*, Bab.)

Mr Croall has found it with full flowers.

Var. β. radicans, Hook. (*C. radicans*, Forst.)

“In a ditch that runs from the farm-house called Haltoun, on the estate of C. Gray, Esq., of Carse, Forfarshire, 1790,” *Mr Geo. Don*. No other botanist has, I believe, found this plant, but if the station is not destroyed, future research may determine whether it is not identical with *C. palustre, β. minor*, the alpine state of the common plant.

TROLLIUS, L. Globe-flower.

Br. sp. 1. F. 1.

T. Europæus, L. Mountain Globe-flower, or “*Lucken-Gowans*.” H. 7, B. 8.—F. June, July. P.

On a moist bank in Baldovan Woods, but not plentiful. Balkemnock Woods, rather abundant. Margin of a small loch on the west side of the White Hill, Sidlaw, and on the banks of a rill descending from the east side of the White Hill into a peat-bog, associated with *Galium boreale*. It was formerly abundant in Meric-moor Wood (now cut down), on the estate of Camperdown.

Fir-woods near Forfar, *Mr G. Don*. Banks of the Lochs of Rescobie and Balgavies, and at Restenet, *Mr J. Cruickshank*. Banks of the N. and S. Esk, frequent, *Messrs A. Croall* and *G. M. Farlane*. Den of Airlie, *Rev. J. S. Barty*. “I have picked this plant on the Forfarshire mountains at

the height of 3000 feet, but it seems a native of the plains, and is abundant on the streams coming from the Sidlaws, probably not above 100 feet higher than the sea-level. It is plentiful on the Isla, Esk, &c., but these rivers having alpine sources, the stations there would not prove the plant to be truly a lowland one," *Rev. J. S. Barty*.

I have frequently met with the elegant Globe-flower among the mountains in the counties of Forfar, Perth, and Aberdeen, but from its stunted appearance, could not look upon it otherwise than as an adventurer among these alpine rocks, its true home being apparently the moistest parts of shady woods.

Sometimes petaloid leaves occur on the stem a little below the flower.

AQUILEGIA, L. Columbine.

Br. sp. 1. F. 1.

A. vulgaris, L. Common Columbine. H. 8, B. 9.—F. June. P.

Mr G. Don enumerates this in his list, but gives no station for it. It occurs in Balgay Wood, near Dundee, but has there been planted, as well as *Saxifraga umbrosa*, &c.

On the banks of the N. Esk, on the Kincardine side, on the farm of Capa, opposite Strickathro, and in the Den of Morphie, the plant has been found by *Messrs Cruickshank and Croall*. In the Den of Morphie it appears to be indigenous, covering some acres of a steep *brae* never cultivated, and at a considerable distance from houses, and where I do not think it likely that any have ever been, *Mr A. Croall*. In one or two places on the Moor of Craigo, *Mr A. Kerr*.

ORD. II.—BERBERIDEÆ *Vent.*

Gen. Br. 2. F. 1. Sp. Br. 2. F. 1.

BERBERIS, L. Barberry.

Br. Sp. 1. F. 1.

B. vulgaris, L. Common Barberry. H. 9, B. 10.—F. June. S.

Hedges and shrubberies, as at the Burn, Kinnaird, Guthrie, &c.. *Mr A. Croall*. Likely in all cases planted.

ORD. III.—NYMPHÆACEÆ, DC.

Gen. Br. 2. F. 2. Sp. Br. 3. F. 2.

NYMPHÆA, L. White Water-Lily.

Br. sp. 1. F. 1.

N. alba, L. Great White Water-Lily. H. 10, B. 10.—
F. June, July. P.

In the lochs of Rescobie, Balgavies, Pitlyall, &c.
The water-lily loves best the quiet lake,

“Crowning the depths as with the light serene
Of a pure heart”—

Yet it is occasionally found in running waters.

“Mark where transparent waters glide,
Soft flowing o'er their tranquil bed—
There, cradled in the dimpling tide,
Nymphæa rests her lovely head.

But, conscious of the earliest beam,
She rises from her humid nest,
And sees, reflected from the stream,
The virgin whiteness of her breast.

Till the bright day-star to the west
Declines, in ocean's surge to lave,
Then, folded in her modest vest,
She slumbers on the rocking wave.”

NUPHAR, Sm. Yellow Water-lily.

Br. sp. 2. F. 1.

N. lutea, Sm. Common Yellow Water-Lily. H. 10. B.
11.—F. June, July. P. (*Nymphæa L.*)

In the lochs of Rescobie and Balgavies, frequent.
Pools above the Bridge of Dun, *Mr A. Croall*.

ORD. IV.—PAPAVERACEÆ, *Juss.**Gen. Br. 4. F. 2. Sp. and v. Br. 13. F. 4.*

PAPAVER, L. Poppy.

Br. sp. and v. 6. F. 3.

P. Argemone, L. Long Prickly-headed Poppy. H. 11. B. 11.—F. May, June. A.

Occurred at the west end of Will's Braes in 1841, on a bank which is now (1846) destroyed by the operations on the Perth railway.

Fields, rather common, *Mr A. Croall.*

P. Rhæas, L. Common Red Poppy. H. 12, B. 12.—F. June, Oct. A. Very abundant in the corn-fields, its brilliant scarlet corollas contrasting finely with the green corn; a contrast which, however, has no charms to the eye of the farmer.

P. dubium, L. Long smooth-headed Poppy. H. 11, B. 12.—F. July. A. Common in fields and waste places, but evanescent in its appearance, *Mr A. Croall.*

(*Chelidonium majus*, L. Common Celandine, is mentioned in the *New Stat. Account of Forf.*, as occurring in several parishes, but most likely in all cases garden escapes.)

ORD. V.—FUMARIACEÆ, DC.

Gen. Br. 2. F. 2. Sp. and v. Br. 9. F. 5.

FUMARIA, L. Fumitory.

Br. sp. and v. 6. F. 4.

F. capreolata, L. Ramping Fumitory. H. 13, B. 13.—F. May, August. A.

Near the Hare Craigs, Broughty Ferry, &c., but not common.

F. officinalis, L. Common Fumitory. H. 14, B. 14.—F. throughout the summer. A.

Plentiful in fields, and by way-sides. Var. β . (*F. media*, DC.) is frequently met with in similar situations.

F. micrantha, Lag. Small-flowered Fumitory. H. 14, B. 14.—Summer. A.

Airlie, *Dr Walker Arnott*.

CORYDALIS, DC. Corydalis.

Br. sp. and v. 3. F. 1.

C. claviculata, DC. White Climbing Corydalis. H. 15, B. 13.—F. June, July. A. (*Fumaria claviculata*, L.)

This is given in Don's list, but without any locality being specified. It is frequent in Perthshire.

ORD. VI.—CRUCIFERÆ, *Juss.*

Gen. Br. 31. F. 22. Sp. and v. Br. 82. F. 33.

CAKILE GÆRT. Sea Rocket.

Br. sp. 1. F. 1.

C. maritima, Willd. Purple Sea Rocket. H. 16, B. 30.—F. June, Sept. A.

Plentiful on the sandy sea-shores, the flowers generally more or less tinged with purple, though frequently white.

THLASPI, L. Penny-cress.

Br. sp. 3. F. 2.

T. arvense, L. Mithridate Mustard, or Penny-cress, H. 18, B. 28.—F. June, July. A,

In corn-fields, but rare, as near Brechin and Arbroath, *Mr G. Don*.

T. alpestre, L. Alpine Penny-cress. H. 18, B. 28.—F. June, July. P.

Rocks of Canlochen, *Prof. Graham*. I have also found it there, but sparingly.

CAPSELLA, DC. Shepherd's Purse.

Br. sp. 1. F. 1.

C. Bursa-pastoris, DC. Common Shepherd's Purse. H. 19, B. 29.—F. the whole Summer. A. (*Thlaspi*, L.) Abundant by way-sides and on waste ground.

TEESDALIA, *Br.* Teesdalia.*Br. sp. 1. F. 1.*

T. nudicaulis *Br.* Naked-stalked Teesdalia. H. 19, B. 28.—F. April, July. A. (*Iberis*, E. Bot.)

Plentiful on some parts of the sands of Barrie, particularly near the east end, and also a little to the eastward of Monifieth, varying much in size, and with the stems from simple to much branched. Hare Craigs, near Broughty Ferry, where I have seen its little buds opening in March.

On the estate of Pitruchie, about one mile south from Forfar, *Mr G. Don*. Montrose Links, *Mr G. Macfarlane*. Sandy ground a little to the north of Montrose, *Mr A. Bousie*. In a field near Charlton Wood, plentiful, *Mr A. Kerr*. Banks of the South Esk, near Kinnaird, *Mr John Laing*.

LEPIDIDIUM, *L.* Pepperwort.*Br. sp. 5. F. 2.*

L. campestre, *Br.* Common Mithridate Pepperwort. H. 20, B. 29.—F. May. August. A.

Sides of fields, about Ninewells, Invergowrie Bay.

L. Smithii, Hook. Smooth Field Pepperwort. H. 20, B. 29.—F. June, July. P. ?

Foot of the Balbeuchly incline, Newtyle Railway, sparingly.

Banks of the South Esk, at Kinnaird, *Mr A. Bousie*. Bridge of Dun, *Mr G. M'Farlane*.

COCHLEARIA, *L.* Scurvy-grass.*Br. sp. 5. F. 2.*

C. officinalis, *L.* Common Scurvy-grass. H. 21, B. 26.—F. May, August. A.

On the coast, in moist places among the rocks and braes, and on the beach, not uncommon, especially between Arbroath and Montrose.

C. Groenlandica, L. Greenland Scurvy-grass. H. 21, B. 27.—F. June, July. A. (*C. officinalis*, var. Hook. Scot. *C. off. β. alpina*, Bab.)

On the banks of Carnoustie Burn, near its confluence with the sea, growing in low, scattered tufts, and conspicuous on the saline sward from its profusion of flowers. In wet places, at the west end of the Hare Craigs, it was met with some years ago, but is not now to be seen there. Frequent by the sides of streams, among the higher mountains, and generally of greater size than on the coast. On the summit of the Little Culrannoch, Clova, 3200 feet above the sea-level, it grows, associated with the rare *Lychnis alpina*.

Sides of Montrose Basin, *Mr A. Croall*.

SUBULARIA, L. Awl-wort.

Br. sp. 1. F. 1.

S. aquatica, L. Awl-wort. H. 22, B. 30.—F. July, August. P.

In the little loch at the south-west corner of Loch Brandy, Clova, where the *Isoetes* grows. It may likely occur in some of the other alpine lakes, but has not, that I am aware, been observed.

DRABA, L. Whitlow-grass.

Br. sp. and v. 6. F. 3.

D. verna, L. Common Whitlow-grass. H. 22, B. 26.—F. Feb. May. A. (*Erophila verna*, DC.)

Abundant on walls, banks, sandy pastures, &c., varying from a quarter of an inch to three or four inches in height. Except in early seasons, its flowers do not expand till March, and it continues blossoming till the end of May.

D. incana, L. Twisted-podded Whitlow-grass. H. 23, B. 26.—F. June, July. B.

Mountain rocks of Clova and Canlochen, frequent. Spe-

cimens gathered in the corrie of Ben-Hard were a foot high, branched from the root, and throwing out a few flowering branches from the summit.

In a rocky ravine on the Capel Mount, not far from Bra-dooney, Clova, *Mr A. Croall*.

Mr G. Don mentions a var. β . found among rocks on the Clova Mountains, which is probably the branched state of the plant.

(*D. rupestris*, frequent on the Breadalbane range, has not, I believe, been found in the Forfarshire mountains, but should be carefully searched for among the highest rocky summits.)

D. muralis, L. Speedwell-leaved Whitlow-grass. H. 23, B. 26.—F. May. A.

About Forfar. *Hook. Br. Fl.*

CAMELINA, *Crantz*. Gold of Pleasure.

Br. sp. 1. F. 1.

C. sativa, *Crantz*. Common Gold of Pleasure. H. 23, B. 27.—F. June, July. A. (*Myagrum*, L. *Alyssum*, E. Bot.)

Among rubbish near the gas-work, Montrose, *Mr J. Cruickshank*. When a boy I noticed this plant very common among flax, along with the cultivation of which it has now almost disappeared from the district, *Mr A. Croall*.

Though occasionally naturalized, it has no claim to be considered indigenous.

ALYSSUM, L. Alyssum.

Br. sp. 1. F. 1.

A. calycinum, L. H. 24, B. 25.—F. May, June. A.

Links of Arbroath, *Miss E. Carnegie*. Field near a small farm-house about two miles east from Montrose, on the south side of the new road to Aberdeen, and nearly opposite the gate of Charlton, *Dr William Reid*. Also in a field directly south from the above station, on the south side of a road running parallel, and about half-way between it and the sea.

The field had been for some years in grass, and was then (1839) covered with broom. The Alyssum was growing in a spot extending over about twenty yards, but most plentifully by the side of a large bush of broom. Half of the specimens were left, and next year, 1840, I returned to the spot with the hope of benefitting from my lenity in the previous season; but after carefully searching the field on three different occasions, not a single plant could be found. In Dr Reid's locality I could never find it, but that field was more regularly cultivated than the other, and, though both sandy, the former is less elevated. *Mr A. Croall.*

CARDAMINE, *L.* Bitter-cress.

Br. sp. and v. 7. F. 3.

C. amara, *L.* Large-flowered Bitter-cress. H. 24, B. 22.—F. April, June. P.

Side of a rivulet, Kinaber, near Montrose, *Mr G. M'Farlane.* Ditch a little to the south of the "old kirk of Logie," *Mr A. Croall.* Den of Airlie, left bank, below the Castle. *Rev. J. S. Barty.*

C. pratensis, *L.* Common Bitter-cress. H. 25, B. 21.—F. May, June. P.

Plentiful in wet meadows, by the sides of streams, and ascending to a great elevation on the mountains. The flowers vary from white to lilac, and are occasionally full.

A curious monstrosity of this species was found on the Sidlaw Hills by *Mr G. Lawson*, which is fully described in the *Phytologist*, v. ii., p. 579.

C. hirsuta, *L.* Hairy Bitter-cress. H. 25, B. 21.—F. April, July. A.

(*C. flexuosa*, *With.* *C. sylvatica*, *Link.*) *Mr Babington* considers *C. sylvatica* a good species, and *C. flexuosa* a synonyme of it.

Wet banks, Ninewells. Ditch-banks, Auchterhouse. Ditches, Belmont, near Meigle. Reeky Linn. Sides of streams and moist places among the Clova Mountains.

Marten's Den, and the Dens of Fullerton, Dun, Middleton, &c., *Mr A. Croall.*

ARABIS, *L.* Rock-cress.*Br. sp.* 5. *F.* 2.

A. ciliata, *Br.* Fringed Rock-cress. H. 26, B. 20.—F. July. *B.* (*Turritis alpina*, *L.*)

On rocks in Glen Esk, near Lochlee. 1801, *Mr G. Don.*

This rare rock-cress *Mr Don* considered to be a new species at the time of its discovery, but *Mr Mackay*, on a visit to him at Forfar in 1811, identified it as the same he had gathered in Ireland; and *Sir J. E. Smith* pointed out its synonyme.

A. hirsuta, *Br.* Hairy Rock-cress. H. 26, B. 20.—F. May, July. *B.* (*Turritis hirsuta*, *L.*)

Not common, but widely distributed over the county. Wayside between Carnoustie and West Haven. Will's Braes, near Dundee. Lundie Craigs. Reeky Linn, north side. Rocks of Canlochen, flowering in July 1843, and in fruit July 1846, from five to sixteen inches high.

Rocks at Dysart, and near Ethie, *Mr A. Croall.* Banks of the South Esk, and pastures about Kinnaird, *Mr A. Bousie.* Den of Airlie, left bank, below the Castle, *Rev. J. S. Barty.* Capel Mount, Clova, *Mr A. Kerr.*

It is worthy of remark, that, for some years past, this plant has been rather scarce in the Will's Braes station, but since the rocks have been cut for the Perth Railway, in some places along the cutting, numerous young vigorous seedlings were coming up in January 1847.

TURRITIS, *L.* Tower Mustard.*Br. sp.* 1. *F.* 1.

T. glabra, *L.* Long-podded Tower Mustard. H. 26; B. 20.—F. May, June. *A.*

Near Kinnaird, *Mr G. Don.*

BARBAREA, *Br.* Winter-cress.*Br. sp.* 4. *F.* 2.

B. vulgaris, *Br.* Bitter Winter-cress, or Yellow Rocket. H. 26, B. 19.—F. May, August. (*B?* or *P.*)

Frequent in waste places and sides of fields.

B. arcuata, Reich. Curved-podded Winter-cress. H. (Intr. p. 37.) B. 19.—F. June.

In marshy ground about the old Priory of Restenet.

NASTURTIUM, *Br.* Cress.

Br. sp. 5. F. 2.

N. officinale, *Br.* Water-Cress. H. 27, B. 18.—F. June, July. P. (*Sisymbrium nasturtium*, L.)

Plentiful in ditches and wet places from the sea-shore to the mountain valleys.

N. terrestre, *Br.* Marsh-cress. H. 27, B. 19.—F. June, Sept. A. (*N. palustre*, DC. *Sisymbrium*, Willd. and E. Bot. *S. amphibium*, var. L.)

Near Forfar, on the Brechin road, but rare.

Loch of Forfar, *Mr G. M'Farlane*. Montrose Links, about the Lunatic Asylum, *Mr A. Croall*.

SISYMBRIUM, *L.* Hedge Mustard.

Br. sp. 4. F. 3.

S. officinale, *L.* Common Hedge Mustard. H. 28, B. 22.—F. June, July. A.

Abundant by almost every wayside.

S. Sophia, *L.* Fine-leaved Hedge Mustard, or Flaxweed. H. 28, B. 23.—F. June, August. A.

West end of Monifieth, in June 1831, but not since observed there.

Near the confines of Angusshire on the Perth road, *Mr G. Don*. I have searched for it in vain there, but some plants, especially annuals, are very inconstant in their appearance, even where neither alteration nor improvement lends their aid to eradicate them. Behind a garden west from the toll-bar, Montrose Links, *Mr A. Croall*.

S. thalianum, *Hook.* Common Thale-cress. H. 28, B. 23.—F. during the summer. (*Arabis*, *L.* *Conringia thaliana*, *R.*)

Abundant on dry rocky banks in many places; on the

coast, and at Will's Braes, as well as inland, about the Reeky Linn, &c.

ERYSIMUM, *L.* Treacle Mustard.

Br. sp. 4. F. 1.

E. Alliaria, *L.* Garlic Treacle Mustard, Jack-by-the-Hedge, or Sauce-alone. H. 29, B. 23.—F. May, June. B. (*Alliaria officinalis*, DC. *Sisymbrium Alliaria*, Koch.)

On the wayside between Montrose and Brechin.

Wayside east from the gate of Dun, and woods at Kin-naird, abundant, *Mr J. Cruickshank*.

CHEIRANTHUS, *L.* Wall-flower.

Br. sp. 1. F. 1.

C. Cheiri, *L.* Common Wall-flower. H. 29, B. 18.—F. April, August. S. (*C. fruticulosus*, *L.*)

Adorns the ruins of the Abbey of Arbroath, and one near the Baikie; also on rocks by the sea-shore, *Mr G. Don*. On the venerable and magnificent ruin first mentioned, I picked it both in flower and fruit in August 1839. On the grey walls of Airlie Castle, where it finds a secure abode in their crevices, and, in recompense for the shelter they afford it, sheds around them its beauty and perfume, *Rev. J. S. Barty*. Upper North Water Bridge, near Inglismaldie, *Mr A. Croall*.

The Wall-flower's associations are beautifully expressed in the following anonymous sonnet:—

THE WALL-FLOWER.

“Cheerful 'midst desolation's sadness—thou—
 Fair flower, art wont to grace the mouldering pile,
 And brightly bloom o'er ruin, like a smile
 Reposing calm on Age's furrowed brow.—
 Sweet monitor! an emblem sure I see
 Of virtue, and of virtue's power, in thee.
 For though thou cheerest the dull ruin's gloom,
 Still when thou'rt found upon the gay parterre,
 There thou art meetest—fairest of the fair;—
 So virtue, while it robs of dread the tomb,
 Shines in the crown that youth and beauty wear,
 Being best of all the gems that glitter there.”

HESPERIS, *L.* Dame's Violet.*Br. sp.* 1. *F.* 1

H. matronalis, *L.* Common Dame's Violet. H. 30, B. 22.—*F.* May, June. *P.*

In a field near the village of Ninewells, June 1833, but probably not indigenous.

On banks near Airlie Castle, *Mr G. Don.*

BRASSICA, *L.* Cabbage.*Br. sp.* 6. *F.* 1.

B. campestris, *L.* Common Wild Navew. H. 31, B. 24.—*F.* June, July. *A.*

Corn-fields near Forfar, *Mr G. Don.*

SINAPIS, *L.* Mustard.*Br. sp.* 5. *F.* 1.

S. arvensis, *L.* Wild Mustard, or Charlock. H. 31, B. 24.—*F.* May, August. *A.*

Too common in corn-fields in early summer often rendering their whole surface quite yellow. The flowers are known in this county by the name of "*scalies*." Oat-crops are most infested with it.

RAPHANUS, *L.* Radish.*Br. sp.* 2. *F.* 1.

R. Raphanistrum, *L.* Wild Radish, or Jointed Charlock. H. 32, B. 31.—*F.* June, July. *A.*

Fields, not uncommon.

ORD. VII.—RESEDACEÆ, *DC.**Gen. Br.* 1. *F.* 1. *Sp. Br.* 3. *F.* 2.RESEDA, *L.* Rocket.*Br. sp.* 3. *F.* 2.

R. Luteola, *L.* Dyer's Rocket, Yellow-weed, or Weld. H. 33, B. 32.—*F.* July, August. *A.*

Frequent along the coast. Particularly abundant on the porphyretic and sandstone rocks to the east and west of Dundee.

R. lutea, L. Base Rocket, or Wild Mignonette. H. 33, B. 31.—F. July, August.

Rocks between Arbroath and Montrose, *Mr G. Don.*

ORD. VIII.—CISTINEÆ, *Juss.*

Gen. Br. 1. F. 1. Sp. and v. Br. 6. F. 1.

HELIANthemUM, *Tourn.* Rock-Rose.

Br. sp. and v. 6. F. 1.

H. vulgare, Gaert. Common Rock-Rose. H. 34, B. 33.—F. July, Sept. P. (*Cistus Helianthemum*, L. *C. tomentosus*, E. Bot.)

Frequent along the coast, and extending to a considerable elevation on the mountains. One of the most beautiful of our rock-plants, and its racemes of delicate yellow flowers, are pleasantly fragrant. The leaves vary in breadth and pubescence. The filaments of the stamens, in the warm sunshine at least, are peculiarly irritable. If touched by a pin or the foot or proboscis of an insect on the inner side, they rapidly approach towards the pistil; if on the outer side, they again recede from it.

ORD. IX.—VIOLACEÆ, *DC.*

Gen. Br. 1. F. 1. Sp. and v. Br. 14. F. 8.

VIOLA, *L.* Violet.

Br. sp. and v. 14. F. 8.

V. hirta, L. Hairy Violet. H. 36, B. 34.—F. April, May. P.

Rather rare. Rocky bank, east end of Will's Braes, where it is associated with the cowslip, both generally in prime in April. It occurred in another spot farther west, but which

is now destroyed by the railway operations. Craigs of Lundie. Den of Balruddery, *Dr Addison*.

V. odorata, L. Sweet Violet. H. 36, B. 34.—F. March, April. P.

Den of Mains, but likely introduced there, though now quite naturalised.

In a hedge below Gayfield House, near Montrose, *Mr J. Cruickshank*. Hillside, Montrose, and near the cottage at Upper Mills, Kinaber, *Mr A. Croall*.

It is doubtful whether this lovely and fragrant blossom be truly indigenous in any of the stations indicated, but having been accustomed for a number of years to meet with it in "Main's flowery Den," when vernal airs mingled its odours with those of the primrose, it became a special favourite, as it generally is, and the following lines were elicited in consequence :—

THE SWEET PURPLE VIOLET.

No flower of the forest, though ever so bright,
Nor tropical bloom, though it dazzle the sight,
Hath charms that are half so endearing to me,
As the little lone violet beneath the hedge-tree.

Sweet gem of the spring-time ! though lowly its mein,
As it timidly peeps from its covert of green,
Yet Beauty delights in its blossom to dwell,
And its sweetness, what bee or what zephyr can tell ?

The bee knows the bank where the violet is found,
And the zephyr so softly comes sighing around :
Its nectar the bee sips—the zephyr doth share
Its fragrance, and still it hath sweetness to spare ;—

For the pale artizan, when he wanders abroad,
Seeking truth in the bright living volume of God,
Inhales its perfume as a balm to his heart,
Which the cold selfish world hath refused to impart.

And to him, in its beautiful eye, there appears
The fresh dews of morning, like Sympathy's tears ;
And he blesses the hand that created the flower,
And decreed such pure beauty and sweetness its dower.

The violet, so long as it brightens the ground,
Pours out its rich odours unceasing around ;
Yet its treasure decays not, till death nips its bloom,
And its last fading beauties are hid in the tomb.

Would but man take the lesson thus sweetly conveyed,
 What a heaven of pure joy could this sad world be made !
 No longer would Poverty cloud the pale brow,
 Nor Want, unrestrained, slay its thousands as now !

But that Plenty, which God hath to man kindly given,
 Would circle as free as the breezes of heaven !
 Diffusing its blessings on each and on all,
 Like the violet's perfume, ere its sweet blossoms fall.

V. palustris, L. Marsh Violet. H. 36, B. 33.—F. April, July. P.

In marshy places occasionally. Marshy banks of Rescobie Loch. Sidlaw Hills in various places, as at foot of Craig Owl and Lundie Craigs, and on the marshy banks of small lakes on the west side of White Hill, &c. Glen Isla, and in boggy places among the mountains, frequent.

Restenet, and in Charlton Woods near the sea, *Mr A. Croall*. Wood of Kinaber, and Langley Park, *Mr G. M'Farlane*. On Catlaw at about 1500 feet above the sea-level. *Rev. J. O. Haldane*.

V. canina, L. Dog Violet. H. 36, B. 34.—F. April, June. P.

A very common and beautiful ornament of our hedge-banks, woods, and hills. Under hedges it appears in full luxuriance, with large uniformly bright blue flowers; in the woods the plant is smaller, and the flowers more mixed with a lilac tint; and on the Sidlaw Hills the corolla varies from nearly white to the deepest tint of blue, and occasionally it is chequered with blue and white.

β, minor, Hook. (*V. flavicornis*, Sm. *V. canina γ pusilla*, Bab.)

Sands of Barrie, particularly near the mouth of the Bud-don Burn, in sandy pastures, varying much in luxuriance, some plants producing only a single flower, others five or six. The roots are generally long, and the spurs of the corolla deep yellow. It flowers commonly in May.

V. tricolor, L. Pansy Violet, or Heart's-Ease. H. 37, B. 35.—F. during the summer. A. ?

Very common in fields and in waste places. The fields are often quite covered with it; and it is a delightful treat to

the eye that loves the beautiful, to see, in some summers, both on the coast and in Strathmore, the glorious luxuriance of this elegant Violet, that invests the fields and meadows, though, perhaps, to the eye of the farmer, it may look *rather blue*.

β. Hook. (*V. arvensis*, Murr. *V. tricolor*, *β. arvensis*, Bab.)

Common in corn-fields and in shady woods, having flowers always smaller and paler than in *V. tricolor*.

V. lutea, Huds. Yellow Mountain Violet, or Yellow Pansy. H. 37, B. 34.—F. May, July. P.

(*V. grandiflora*, Huds. (not L.?) *V. Sudetica*, Willd.)

On the wooded Hill of Laws, near Drumsturdymoor. Lumley Woods. On several parts of the Sidlaw Hills, as near the foot of Craig Owl, south side, Lundie Craigs, Blacklaw Hill, &c. Near the Mill of Craig, Glenisla, and about Lintrathen. Glen Clova, extending all the way from Cortachy to the head of the glen at Acharne.

Near Guthrie, *Mr G. M'Farlane*. Hill of Dunbarrow, *Dr M'Nab*.

β.—*V. amœna*, Sym. Lawhill, Dundee, and grassy glades in the deer-forest of Canlochen. The various intermediate states of colouring of the corolla, from the palest yellow to the deepest purple, (see *Botanical Rambles in Braemar*, p. 18,) forming the transition from *lutea* to *amœna*, are found in both these localities.

In no place have I been more delighted to find the Yellow Mountain Violet, than in a small birch wood on the banks of the Esk, a little below the hamlet of Clova. Here it was flowering in great beauty, (July, 1846,) surrounded with everything that was pleasant. Indeed, each blossom seemed a spell that bound the spirit to the loveliness of that delicious spot; and no one visiting Clova should fail to spend an hour in this fragrant copse of birch. Some of the associations, linked with such a scene, are very pleasantly described in the following lines by a fellow-townsmen, *Mr J. Sime*:—

“Above my head the green trees wave their boughs,
A mossy carpet spreads beneath my feet;—

Here Nature's purest worship sweetly flows,
 And Meditation finds a calm retreat.
 Within these shades, Oh! how divinely sweet
 To roam, when morn has chased away night's gloom,
 And hear the woodland song, and the soft bleat
 Of sheep, borne on the breeze, that wafts perfume
 From mountain, grove, and lawn, where all is bliss and bloom.

A joyance seems to flood both earth and sky :
 Upon the boughs a thousand minstrels sing ;
 Like raptured spirits chaunting far on high,
 Larks with loud praises make heaven's portals ring :
 Gay insects flitting round me on gilt wing,
 Disport their rainbow hues in solar beam :
 From rock to rock the spirit-echoes spring,—
 Dew-drops, like angel's tears, on rose-leaves gleam—
 And underneath the shade glides slow a glassy stream."

ORD. X.—DROSERACEÆ, DC.

Gen. Br. 1. *F.* 1. *Sp. Br.* 3. *F.* 1.

DROSERA, L. Sun-dew.

Br. sp. 3. *F.* 1.

D. rotundifolia, L. Round-leaved Sun-dew. H. 38, B. 35.—F. July, August. P.

In marshy places abundant among the Clova mountains, and not uncommon among the Sidlaw Hills, as well as on the marshy banks of the Lakes, as Rescobie, Balgavies, Forfar, Lundie, &c.

This curious little plant is an object of great interest to the careful observer of Flora's beauties. Its round concave leaves have their upper surface covered with a profusion of scarlet hairs, each terminated by an oblong gland of the same colour, from which exudes a transparent and very glutinous juice, which is not evaporated in the warmest sunshine. It resembles a drop of dew, hence the plant derived the name of *Ros Solis* or Sun-dew. The hairs lengthen towards the margin of the leaf, and are more or less curved inwards. When an insect has the misfortune to alight upon a leaf it is held fast by the viscid fluid, and the hairs fold over it like the tentacula of a polypus. This irritability of the hairs has (in *Mag. Nat. Hist.*, vol. iv. p. 135, v. 26, 491, 755-7, and vi. 177-8) been controverted, some denying and others affirming it. I have witnessed the fact, but their motions are slow

compared to those of the stamens of the barberry and rock-rose. What benefit, if any, the plant derives from the decomposition of the insects thus captured, is a question that has sometimes been asked, but so far as I am aware, not yet satisfactorily answered.

ORD. XI.—POLYGALEÆ, *Juss.*

Gen. Br. 1. F. 1. Sp. and v. Br. 3. F. 1.

POLYGALA, *L.* Milkwort.

Br. sp. and v. 3. F. 1.

P. vulgaris, *L.* Common Milkwort. H. 39, B. 36.—
F. May, July. P.

(*P. amara*, *Don.*, *P. calcarea*, *Schultz*, and *P. oxyptera*, *Reichenbach*, are reduced by *Hooker* to *P. vulgaris*. *Babington* considers *P. amara*, *Don.*, to be the *P. calcarea*, *Sch.*, and *P. oxyptera* to be only a var. of *P. vulgaris*.)

Abundant in heathy places and pastures throughout the county, and varying much in size, the breadth of its leaves, and colour of its flowers. On the Sidlaw Hills I have picked it with white, pale blue, deep blue, rose-coloured, and deep red flowers. On the sands of Barrie a state or variety is found, which I have also gathered on the Braemar mountains, having the wings of the calyx pale-coloured, with green anastomosing veins, and the flowers blue, with occasionally a blue or pink tinge on the calycine wings also.

THE MILKWORT. *Polygala vulgaris.*

'Tis not alone in regal halls,
And mansions where with noble pride
ART lavishes her wondrous power,
That BEAUTY doth reside.
But oft upon the mountain's side,
Her lovely handiwork is seen,
On flower-enamelled heaths, where foot
Of man hath seldom been.

The Milkwort's little humble flowers,
Of red, and white, and blue,
With green moss intermixed, oft meet
The lonely wanderer's view.

And he, to Nature's dictates true,
 Admires the bright embroider'd sod,
 And all his soul in raptur'd joy,
 Breathes praises to his God!

ORD. XIV.—CARYOPHYLLÆ, *Juss.*

Gen. Br. 14. *F.* 10. *Sp. and v. Br.* 83. *F.* 47.

DIANTHUS, *L.* Pink.

Br. sp. and v. 7. *F.* 3.

D. Armeria, *L.* Deptford Pink. *H.* 42, *B.* 40.—*F.* July, August. *A.*

In fields near the estate of Charles Grey, Esq. of Carse; the only place I have seen it in Scotland, *Mr G. Don.* Roman Camp, near Forfar, 1840, *Dr W. Reid.*

D. deltoides, *L.* Maiden Pink. *H.* 43, *B.* 41.—*F.* June, August. *P.*

On rocky banks along the coast from Arbroath to Montrose, not unfrequent. At the east end of Hare Craigs a tuft or two was observed for several successive years, but has now disappeared.

On the north bank of the Loch of Forfar, as also on dry ground near the north-west corner of the Loch, *Mr G. Don.*

It grows plentifully upon the summit of the Red Head, and while gathering it there, and considering the gracefulness and delicacy of its form, in connection with the name that has been so appropriately bestowed upon it, could not resist making comparisons, and even attempting to express these in verse, as a humble tribute to the pretty flower, and as affording us a useful moral.

THE MAIDEN PINK. *Dianthus deltoides.*

Upon the Red-Head's dizzy brink
 The Maiden Pink doth take her stand,
 Like some fair nymph, whose ardent eye
 Looks forth upon the ocean bland.

'Tis summer, and the gentle waves
 Flow smoothly on towards the shore;
 And that fond maiden looks, and hopes,
 And sighs, for him she doth adore.

Yet, though so near his native land,
 And she he loves within his view,
 A storm may burst, and, in the deep,
 Engulf the ship and all its crew!

Then, Maiden Pink, thou teachest us,
 That joys in prospect may deceive us;
 Till Time his passport hath bestowed,
 To that bright land where nought shall grieve us.

The Red-Head is a stupendous promontory on the coast to the west of Lunan Bay, and rises perpendicularly from the beach to the height of about 250 feet. It is composed of the old red sandstone, being the eastern termination of an immense bed of that rock traversing the whole valley of Strathmore, and forms a prominent land-mark to mariners approaching the coast. To the botanist it offers many interesting coast plants, and the ornithologist will find ample scope for observation among the vast number of sea-birds that frequent it, breaking, with their continued clamours, the still monotony of the scene.

The view from the summit of this frightful precipice oceanwards is grand, but on looking over its brink to the beach below, one feels a thrill of terror running, like an electric shock, through every nerve. The little fishing-village of Torrens-haven nestles at the foot of the rocks between this and Lunan Bay; and at the mouth of the Lunan, on a small insular hill, stands the venerable ruins of Red Castle, an edifice consisting of a large massy quadrangular tower, with remains of extensive outbuildings, supposed to have been built under the auspices of William-the-Lion.

D. Caryophyllus, L. Clove Pink, Carnation, or Clove Gillyflower. H. 42, B. 41.—F. July. P.

On a dry stony bank about a mile above the Bridge of Dun, rather plentiful, and did not appear as if it had been cultivated, 1840, *Mr A. Croall*. It had probably been naturalised.

SILENE, *L.* Catchfly.

Br. sp. and v. 14. *F.* 9.

S. acaulis, L. Moss Champion. H. 44, B. 43.—F. June to August, but in early seasons (as 1846) out of flower early in July. P.

On the higher mountains growing in dense masses, and covered with an exuberance of beautiful rosy flowers, but humble in its growth, scarcely rising above the soil.

S. inflata, Sm. Bladder Campion. H. 44, B. 33.—F. June, August. P. (*Cucubalus Behen*, E. Bot.)

Waysides and waste ground, plentiful.

β . *hirsuta*, Leight. Not unfrequent. In June 1837 specimens were gathered on Powrie Brae, three miles north from Dundee on the Forfar road, forming a link betwixt α . and β , the calyx and upper leaves being glabrous, while the lower leaves and branches only are pubescent. In the same place in June 1843 the normal form was flowering, the var. being only in bud.

S. maritima, With. Sea Campion. H. 44, B. 43.—F. June, August. P. (*S. inflata*, β . Hook. Scot.)

Abundant on the rocky coast from Arbroath to Montrose, growing in dense tufts, and ornamenting the rocks and braes with its profusion of large white flowers. I have not yet met with it among the Forfarshire mountains, but have received specimens from Glen Tilt in Perthshire, exactly like our coast plant. No intermediate states between it and *S. inflata* occur.

S. Anglica, L. English Catchfly. H. 44, B. 42.—F. June, August. A.

Links near Arbroath, August 1838, *W. F. L. Carnegie, Esq.* *Links* is a term applied in Scotland to those tracts of sandy downs that stretch along the sea-shore, and are more or less covered with a maritime pasturage.

S. nutans, L. Nottingham Catchfly. H. 45, B. 42.—F. June, July. P.

Rocks to the eastward of Red-head, plentiful.

Boddin, *Mr G. M'Farlane*. Duninald, *Mr A. Croall*. Between St Skae and the Den of Duninald, frequent, *Mr A. Kerr*. Rocky coast, Dysart, *Mr A. Bousie*.

Its flowers, like those of *S. noctiflora*, *Lychnis vespertina*, &c., exhale their fragrance more freely after sunset.

S. conica, L. Striated Corn Catchfly. H. 45, B. 43.—F. June. A.

Sandy pastures, Montrose Links, *Messrs M'Farlane, Croall, Kerr, &c.* Plentiful in some seasons, in others scarce.

S. noctiflora, L. Night-flowering Catchfly. H. 46, B. 43.—F. July, August. A.

Occasionally along the coast in corn-fields.

Sandy corn-fields near the Havens or *Ha'ens* by the seaside, *Mr G. Don.* Sides of fields near East Haven, *Mr A. Croall.* Near Arbroath, *W. F. L. Carnegie, Esq.* Montrose Links, rare, *Mr G. M'Farlane.*

S. alpestris, Jacq. Austrian Catchfly.

“A specimen of this plant, gathered by *Mr G. Don* ‘on a rock on a mountain to the east of Clova, Angus-shire,’ is in Mr Borrer’s herbarium.”—*Babington.*

LYCHNIS, *L.* Champion.

Br. sp. and v. 6. F. 6.

L. Flos-Cuculi, L. Meadow Lychnis, or Ragged Robin. H. 46, B. 44.—F. May, July. P.

Abundant in marshy ground, by the sides of streams, and in ditches, from the coast to the mountain valleys.

L. Viscaria, L. Red German Catchfly. H. 46, B. 43.—F. May, June. P.

Rocks on the banks of the Melgum, in great abundance, *Rev. J. O. Haldane.* Den of Airlie, on the left bank, below the Castle, *Rev. J. S. Barty.* With white flowers, on dry banks, near Airlie Castle, *Mr G. Don.*

It occurs sparingly in the Den of Foulis, a beautiful wooded ravine, six-miles north-west from Dundee, on the confines of the neighbouring county of Perth.

L. alpina, L. Red Alpine Champion. H. 46, B. 44.—F. June, July. P.

On the summit of the Little Culrannoch, a mountain 3200 feet high, situated between the head of Glendole, Clova, and

the head of Caness, Glenisla. It grows scattered over a limited tract of wet stony ground, associated with *Armeria maritima*, $\beta.$, and *Cochlearia Grænländica*. In July 1843 it was abundant, and I had the pleasure of gathering it in fine condition amidst a terrific hail storm. In July 1846 it was rather scanty, but most of it past flowering, and many young plants just coming up. The long tract of dry weather had probably deprived the ground of that degree of moisture necessary to give efficient sustenance to the plants.

This interesting plant was first discovered on the above mountain by the indefatigable *Mr G. Don*, and has since been gathered there by *Sir John Ogilvy, Bart.*, *Mr M'Nab*, and the late *Prof. Graham*. *Prof. Balfour*, and many other botanists, have visited the spot, and found it more or less plentiful according to the nature of the season.

L. dioica, L. Red or White Campion. H. 47, B. 44.

$\alpha.$ *L. diurna*. Sibth. Red Campion. F. May, July. P.

In various places from the coast to nearly the summits of the mountains. Seaton Den near Auchmithie. Banks of Feithy, north from Claypots Castle. Woods near Baldovie. Dens of Mains, Foulis, Glamis, Airlie, and other moist and shady situations; and its bright red masses of flowers are conspicuous high on the rocks of Canlochen, and several of the Clova mountains.

$\beta.$ *L. vespertina*, Sibth. White Campion. F. May, Sept. P.

Banks of the Tay in various places from Invergowrie to Arbroath, chiefly about the borders of corn-fields. Powrie Brae, and other places inland.

Near Usan, and Dens of Bonnington and Duninald, *Mr A. Croall*. Its fragrance is very pleasant, and seems to be given out much more copiously when

“ — Meek Evening wakes her temperate breeze,
And moon-beams glimmer through the tremkling trees.”

$\gamma.$ *intermedia*. With rose-coloured flowers, and occasionally hermaphrodite, the pistilla however being small. Invergowrie Bay, June 1834. *L. diurna* is not found in that vicinity, though common on the opposite side of the Tay, in Fifeshire: *L. vespertina* is plentiful. In July the same

year, on the height a little to the north of Baldovan Woods, on the *old* Glammiss road, I observed *L. diurna*, *vespertina*, and the intermediate var., all growing within the circle of a yard, and in flower, but have not noticed either of them in the spot since. They were growing among furze and broom, and it is possible may have been rooted out with some of these. In this instance the idea of hybridity would naturally suggest itself, but I rather incline to agree with Babington, that variations in colour are common to both species.

AGROSTEMMA, *L.* Cockle.

Br. sp. 1. F. 1.

A. Githago, *L.* Corn Cockle. H. 47, B. 44.—F. June, August. P. (*Lychnis Githago*, Lam. Bab.)

Very plentiful in wheat-fields, but seldom seen among other cereal crops.

SAGINA, *L.* Pearl-wort.

Br. sp. and v. 7. F. 3.

S. procumbens, *L.* Procumbent Pearl-wort. H. 48, B. 45.—F. May, Sept. P.

Plentiful from the coast to the summits of the mountains.

S. maritima, Don. Sea Pearl-wort. H. 48, B. 45.—F. May, Sept. A. (*S. stricta*, Fries.)

Sands of Barrie, in wet places near the sea, frequent.
Montrose Links, *Mr G. M'Farlane*.

S. apetala, *L.* Annual Small-flowered Pearl-wort. H. 48, B. 45.—F. May, Sept. A. (*S. ciliata*, Fries.)

In waste places, and on the coast. Rare, *Mr G. Don*.

SPERGULA, *L.* Spurrey.

Br. sp. and v. 6. F. 4.

S. arvensis, *L.* Corn Spurrey. H. 49, B. 46.—F. June, August. A. (*S. pentandra*, E. Bot. *S. sativa*, Boeningh.)

Plentiful in corn-fields, as well as among turnips and other crops.

S. nodosa, L. Knotted Spurrey. H. 49, B. 46.—F. July, Sept. P.

Abundant on the coast, in moist places, as at Ninewells, Sands of Barrie, Montrose, &c. and extending inland as far as the highland valleys. Plentiful on the margins of the Lakes of Rescobie, Forfar, &c.

Banks of the N. and S. Esk, *Mr A. Croall*.

S. subulata, Sw. Awl-shaped Spurrey. H. 50, B. 46.—F. July, August. P. (*S. saginoides*, Curt. *S. laricina*, Lightf. *Sagina procumbens*, β . L.)

Frequent on dry ground on the Clova Mountains, as about Loch Brandy, &c.

Monroman Moor, *Mr A. Croall*. Hare Craigs near Broughty, *Rev. J. S. Barty*.

S. saginoides, L. Pearl-wort Spurrey. H. 50, B. 46.—F. July, August. P.

On the Clova Mountains occasionally.

Mr G. Don, in his list, mentions, as a new species, *S. maxima*, which is not noticed in Hooker nor Babington, but may probably be *S. macrocarpa* of Reichenbach.

The Spurries have been highly spoken of as nutritious food for cattle, sheep, and poultry. The agriculturist should attend to this, and if true, not treat them as unprofitable weeds, but adopt means for the improvement of their culture.

STELLARIA, L. Stitchwort.

Br. sp. and v. 11. F. 6.

S. nemorum, L. Wood Stitchwort. H. 50, B. 47.—F. May, June. P.

Rare. By the side of a mountain stream above Drumtochty Castle, *Mr A. Croall*.

S. media, With. Common Chickweed. H. 50, B. 47.—F. the whole year. A. (*Alsine media*, L.)

Very common in fields and waste places, and in woods, varying much in size, generally procumbent, but more or less ascending, and the stems frequently reddish. It is popularly

known in this county by the name of "*Chickenwort*," and is extensively used to vary the food of small birds in cages.

β. major, Koch. (Bab. 47) distinguished by its larger size, broader and more flaccid leaves, is common in woods.

S. holostea, L. Greater Stitchwort. H. 51, B. 48.—
F. May, June. P.

On the banks of streams, and in woods and dens, in many places. Abundant in the dens of Mains, Glammiss, Airlie, &c., and on the banks of the Dighty, Feithy, Isla, and Esk. Rossie Mills, *Mr A. Croall*.

S. graminea, L. Lesser Stitchwort. H. 51, B. 48.—
F. May, Nov. P.

Rather common on ditch banks, and in woody places.

S. uliginosa Murr. Bog Stitchwort. H. 51, B. 49.—
F. May, July. A. (*S. graminea*, *β. L. Larbroea aquatica*, St Hill.)

Abundant in ditches, marshes, and bogs, from the coast to the summits of the Clova Mountains. It varies in height from 16 or 18 inches on the coast, to less than 2 on the mountain summits.

ARENARIA, L. Sandwort.

Br. sp. and v. 14. F. 6.

A. peploides, L. Sea-side Sandwort. H. 52, B. 50.—
F. July, August. P. (*Alsine peploides*, Wahl. *Adenarium*, Rafus. *Honckenya*, R.)

On the sandy sea-shore, in various places, from Invergowrie Bay to the mouth of the North Esk, rather plentiful where it does occur; the principal stations observed being a little to the east of the ruins of Invergowrie Church, to the east of Monifieth, and at Carnoustie; also on Montrose links.

Basin of Montrose, and near Usan, *Mr A. Kerr*.

A. trinervis L. Three-nerved Sandwort. H. 52, B. 50.—
F. May, June. A. (*Mæhringia trinervis*, Clairv.)

Den of Airlie, on the left bank, below the castle, *Rev. J. S. Barty*. Near Reeky Linn, but not in flower, May 1846.

A. serpyllifolia, L. Thyme-leaved Sandwort. H. 52, B. 49.—F. May, June. A.

On old walls and banks frequent.

A. fastigiata, Sm. Level-topped Sandwort. H. 54, B. 51.—F. June. A. (*Alsine fastigiata*, Bab. *A. fasciculata*, Jacq. (not Gouan). *Minuartia*, R.)

Clova Mountains, *Mr G. Don.*

A. rubra L. Purple Sandwort. H. 54, B. 50.—F. June, July. A. (*Alsina rubra*, Wahl.)

About waysides frequent. Powrie Brae, and between Dundee and Broughty Ferry, &c., plentiful.

Near Guthrie, and Marten's Den, *Mr A. Croall.*

A. marina, Oeder. Sea-side Spurrey Sandwort. H. 54, B. 50.—F. June, August. A. or B. (*Alsine marina*, M. and K. *Arenaria rubra*, β . L.)

In various places along the coast, from Invergowrie to the Basin of Montrose.

CERASTIUM, L. Mouse-ear Chickweed.

Br. sp. and v. 12. F. 9.

C. vulgatum, L. Broad-leaved Mouse-ear Chickweed. H. 55, B. 52.—F. April, September. A. (*C. viscosum*, Huds. *C. glomeratum*, Thuil. Bab.)

Plentiful in fields, on ditch banks, &c.

C. viscosum, L. Narrow-leaved Mouse-ear Chickweed. H. 55, B. 52.—F. June, September. P. (*C. triviale*, Link. *C. vulgatum*, Huds. and Fries.)

Not uncommon along the coast, as at Will's Braes, and in various places between that and Auchmithie.

West side of the *Inch*, &c., Montrose, *Mr A. Croall.*

C. semidecandrum, L. Little Mouse-ear Chickweed. H. 55, B. 52.—F. April, May; in fruit, June. A.

Abundant on the Sands of Barrie, &c., and varying from half-an-inch to 4 or 5 inches in height. *C. pumilum*, Curt., given as a synonyme by *Hooker*, *Babington* considers a good species.

C. tetrandrum, Curt. Four-cleft Mouse-ear Chickweed. H. 55, B. 53.—F. May, August. A. (*Sagina cerastoides*, E. Bot.)

Near the mouth of the North Esk.

Rocks by the sea between Montrose and Usan, *Mr J. Cruickshank*.

On roofs of houses in Forfar, and common on the sea-coast, *Mr G. Don*.

C. arvense, L. Field Chickweed. H. 56, B. 54.—F. June, July. P.

Abundant on the embankment of the Arbroath and Forfar Railway, near the Clocksbriggs station.

About half-way on the Loandykes road near Montrose, near Charlton on the Aberdeen road, and by the railway near Easthaven, *Mr A. Croall*. Near Charlton and Newbigging, *Mr J. Cruickshank*. Airlie, *Rev. J. S. Barty*. Ruthven, *Rev. P. Barty*. Pretty common on gravelly soil in the parish of Kingoldrum, *Rev. J. O. Haldane*.

C. alpinum, L. Hairy Alpine Chickweed. H. 57, B. 53.—F. June, August. P. (*C. latifolium*, Lightf.)

Not uncommon among the Clova and Canlochen mountains.

C. latifolium, L. Broad-leaved Alpine Chickweed. H. 57, B. 54.—F. July, August. P.

Clova mountains, *Mr G. Don*. Less frequent than *C. alpinum*.

C. atrovirens, Bab. Dark-green Mouse-ear Chickweed. H. 56 (foot-note), B. 52.—F. May, June. A.

Banks of the Tay at Will's Braes. Sea-coast east from Arbroath, and other places.

C. aquaticum, L. Water Chickweed. H. 57, B. 49.—F. July, August, P. (*Malachium aquaticum*, Fries. Bab. *Stellaria*, Ed. Cat. *Larbrœa*, Ser.)

Near Dundee, but rare, *Mr G. Don*. This I have not yet found.

CHERLERIA, *L.* Cyphel.*Br. sp. 1. F. 1.*

C. sedoides, *L.* Mossy Cyphel. H. 57, B. 54.—F. June, August. P.

Canlochen, *Prof. Balfour*. This, though seemingly rare on the Forfarshire and Aberdeenshire mountains, is very abundant on the Breadalbane range in Perthshire.

ORD. XV.—LINEÆ,

*Gen. Br. 2. F. 2. Sp. and v. Br. 6. F. 3.*LINUM, *L.* Flax.*Br. sp. and v. 5. F. 2.*

L. usitatissimum, *L.* Common Flax. H. 58, B. 63.—F. July. A.

In fields occasionally, but certainly not indigenous.

It was formerly much cultivated in the county, and scarcely a farmer or *cottar* was without his field or patch of *Lint*; but most of the remaining Lint-ponds one meets with now are covered with Ducksmeat and Water-crowfoot.

L. catharticum, *L.* Purging Flax. H. 59, B. 64.—F. June, August. A.

Pastures and heaths abundant, from the sea-shore to the summits of the mountains.

A very graceful little plant, and an excellent laxative, deserving more attention than is bestowed upon it.

RADIOLA, *Gmel.* Flax-seed.*Br. sp. 1. F. 1*

R. Millegrana, *Sm.* Thyme-leaved Flax-seed. H. 59, B. 64.—F. July, August. A. (*Linum Radiola*, *L.* *Radiola linoides*, *Gmel. DC.*, &c.)

Abundant on the road-side between Forfar and Brechin, and between the former place and Montrose, and also frequent on moors between Montrose and Guthrie, and in simi-

lar situations between Brechin and Slateford, *Prof. Balfour*. Monroman and Guthrie moors frequent, *Mr A. Croall*. Parish of Kirkden, *Rev. D. Carruthers*.

ORD. XVI.—MALVACEÆ.

Gen. Br. 3. F. 1. Sp. and v. Br. 7. F. 3.

MALVA, *L.* Mallow.

Br. sp. and v. 4. F. 3.

M. sylvestris, *L.* Common Mallow. H. 60, B. 55.—F. June, September. P.

Frequent about the coast, and on the banks of the Newtyle Railway, &c.

Near Arbroath, Redcastle, and Edzell Castle, *Mr A. Croall*.

M. rotundifolia, *L.* Dwarf Mallow. H. 60, B. 55.—F. June, September. P. (*M. vulgaris*, Fries.)

Plentiful about Broughty-Ferry, Monifieth, and other places along the coast.

About the Lunatic Asylum, Montrose, *Mr A. Croall*.

M. moschata, *L.* Musk Mallow. H. 60, B. 54.—F. July, August. P.

Ninewells, and banks of Bullion Burn, both above and below the bridge at the toll-bar of Invergowrie; plentiful in former years, but in August, 1846, scarcely any of it to be seen. Probably most of the plants have been grubbed up by herbalists. Side of the Arbroath road, several miles from Dundee, 1829, and near Carnoustie.

Wayside west from Guthrie, *Mr A. Croall*.

ORD. XVII.—TILIACEÆ.

Gen. Br. 1. F. 1. Sp. Br. 3. F. 1.

TILIA, *L.* Lime.

Br. sp. 2. F. 1.

T. Europæa, *L.* Common Lime or Linden Tree. H. 61, B. 56.—F. July. T. (*T. intermedia*, DC.)

Not uncommon, but probably in all cases planted.

ORD. XVIII.—HYPERICINÆ.

Gen. Br. 2. F. 2. Sp. Br. 14. F. 6.

(*Parnassia* is placed in this order by Hook., but in *Droseraceæ* By Bab.)

HYPERICUM L. St John's Wort.

Br. sp. 13. F. 5.

H. quadrangulum, L. Square-stalked St. John's Wort. H. 62, B. 57.—F. July. P. (*H. tetrapterum*, Fries, &c.)

Banks of a stream north side of Sidlaw Hills crossed by the new Glammis road.

Banks of the North and South Esk, not rare, *Mr J. Cruickshank*. Marshes about Rescobie, *Mr A. Croall*.

H. perforatum, L. Common Perforated St John's Wort. H. 63, B. 58.—F. June, August. P.

Plentiful along the coast, particularly about Ninewells and Will's Braes. Mains, but introduced.

Moor above the Bridge of Dun, *Mr A. Croall*.

H. humifusum, L. Trailing St John's Wort. H. 63, B. 58.—F. June, August. P.

In various places throughout the county, though not very constant in its appearance, caused, no doubt, in some instances, by the more aspiring growth of other plants preventing its vegetation. Hedgebank, "*Forfar Loan*," a road leading from Stobswell to Trottick, by Mains Castle. Ditch banks near Gray, not far from the gardener's house. In both these stations I have found it more or less plentifully, but in 1846 failed to meet with it in either of them. By the wayside between Brechin and Finhaven. Near Auchmithie, in the vicinity of the "*Gaylet Pot*." The place thus named is a vast hollow in a field adjoining the rocky shore, and into the bottom of which the foamy ocean surges through a magnificent subterraneous passage which it has cut for itself through the sandstone rock.

Ditch-banks about a mile south-east from "*Dun's Dish*," ditch-banks about Guthrie, and one mile east from Guthrie Castle, and there plentifully, the only locality in which I

have never failed to find it so, *Mr A. Croall*. "*Dun's Dish*," a little to the west of Balnillo Wood, in the parish of Dun, is a lake covering about forty acres of ground, the water of which is collected from the adjoining fields and springs for the use of mills. Parish of Kingoldrum, *Rev. J. O. Haldane*. Kettins, *Mr James Gibb*.

The sepals, though not invariably so, are generally fringed with black glands.

H. hirsutum, L. Hairy St John's Wort. H. 64, B. 58.—F. July, August. P.

On Will's Braes plentiful, but the station now destroyed by the railway. It occurs, though sparingly, in other places along the coast.

Boddin, *Mr G. M'Farlane*.

H. pulchrum, L. Small Upright St John's Wort. H. 64, B. 59.—F. June, July. P.

Not uncommon on heaths, and in woods, on the coast, as well as on the hills, and even ascending to a considerable elevation on the higher mountains. It is a beautiful little flower, and awakens many pleasant thoughts, some of which are feebly expressed in the following lines:—

THE SMALL UPRIGHT ST JOHN'S-WORT. *Hypericum pulchrum*.

When summer-morning's earliest beams
 Come dancing o'er the dimpled streams,
 And seek the fragrant woodland bowers,
 To dally with the wakening flowers;
 Or through the clustering green leaves creep
 And kiss the ring-dove in its sleep;
 Or stray through broomy, ferny dell,
 Where many a wild-flower loves to dwell;
 Or laughing scour the mountain side,
 'Midst blooming heather, Scotland's pride!—
 How many charms these beams disclose!—
 What beauties, scarcely known to those
 Who seldom from their smoky home,
 Can with the morning sunbeams roam.
 Yet oh! how sweet at morning-tide,
 To climb the heathy mountain's side,
 And breathe the fresh and healthful air,
 That ever circles freely there;
 And mark the blooms of varied hue,
 Where sunlight seeks the balmy dew.
 The daisy, on whose honied breast,
 The wild-bee fondly takes its rest;

The rose all scent, the heather bell,
 And creeping yellow pimpernel;
 Trollius, with swelling orbs of gold,—
 And many a blossom here untold,
 Attracts the eye and warms the soul
 With love to Him who formed the whole.

Yet one among this beauteous throng
 Has oft been overlooked in song,
 Though bright as sunlight in the sky,
 When dipt in morning's orient dye.

What time the lark on buoyant wing
 Mounts the clear heavens its joy to sing,
 And from tree-top the mellow thrush,
 And linnet gay from flowering bush,
 Pour out their soul in music sweet,
 The cheering smiles of morn to greet:—
 If thou perchance in rambling mood,
 May pierce the mazes of the wood,
 Or quaff the air that purer breathes
 Upon the open upland heaths,—
 The small St John's-Wort's bud and bloom,
 Though gifted not with sweet perfume,
 Will glad thy eye with many a gem,
 That decks its little upright stem.
 Its polished heart-shaped leaves, with grace
 Fondly the upright stem embrace;—
 So may thy heart with fondness cling
 To uprightness in every thing.
 Its crimsoned buds, its golden flowers,
 Mock the most skilful artist's powers:
 No eastern prince did e'er possess
 Such beauty in his costliest dress.
 Though Art with Nature may contest,
 Yet is the hand of God confest
 In humblest bloom that paints the heath,
 Or lurks the woodland shades beneath.
 If Beauty, then, can charm thy heart,
 And high and holy thoughts impart,—
 'Tis not in vain that heath and bower
 Display the small St John's-Wort's flower.

PARNASSIA, *L.* Grass of Parnassus.

Br. sp. 1. F. 1.

P. palustris, *L.* Common Grass of Parnassus. H. 64,
 B. 36.—F. July, Oct., P.

Plentiful in moist and marshy places throughout the county, varying from one to twelve inches in height, but generally five or six. On the sands of Barrie it is very abundant, many of the plants not reaching an inch in height, and often bearing a single flower, from the fourth of an inch to more

than an inch in diameter. I have noticed it frequently in the lower woods, among the Sidlaw Hills, and on the Clova and Canlochen Mountains, at a great elevation.

This curious and beautiful plant has been arranged under *Droseraceæ* by Babington, and *Saxifrageæ* by Lindley; but with neither of these, nor the present order, does it seem to have a perfect affinity. By its four stigmata being sessile, and the want of circinate vernation, it differs from *Drosera*; its four-celled capsule, and want of styles, keep it apart from *Saxifraga*; and while, in *Hypericum*, the stamens are numerous and generally polyadelphous, or united into bundles, the *Parnassia* has only five. In some of its characters it agrees with each of these orders, yet differs from them all, and more especially in the remarkable form of its glandular nectaries.

ORD. XIX.—ACERINEÆ.

Gen. Br. 1. *F.* 1. *Sp. Br.* 2. *F.* 2.

ACER, *L.* Maple.

Br. sp. 2. *F.* 2.

A. Pseudo-platanus, *L.* Greater Maple, or Sycamore. *H.* 65, *B.* 59.—*F.* May, June. *T.*

Not uncommon; but probably neither this nor the following have any claim to rank as natives.

In former times, the poor in this vicinity (Montrose) made a wine from the sap of this species, which flows very copiously in the spring. *Mr. A. Croall.*

A. campestris, *L.* Common Maple. *H.* 65, *B.* 59.—*F.* May, June. *T.*

Wood at Mains of Halkerton, *Mr. J. Cruickshank.*

ORD. XX.—GERANIACEÆ.

Gen. Br. 2. *F.* 2. *Sp. and v. Br.* 18, *F.* 11.

GERANIUM, *L.* Crane's-bill.

Br. sp. and v. 15. *F.* 10.

G. sanguineum, *L.* Bloody Crane's-bill, or Crimson-flowered Geranium. *H.* 66, *B.* 61.—*F.* May, July. *P.*

Frequent along the coast from Will's Braes to Montrose. Near Kettins, *Mr James Gibb*.

The most handsome of our native species, and, when cultivated in circular clumps, forms an elegant border ornament in gardens.

G. phæum, L. Dusky or Brown-flowered Crane's-bill. H. 66, B. 60.—F. May, July. P.

Very plentiful in the Den of Mains, but probably introduced at some remote period as well as the *Doronicum*, which grows along with it. I have found there a white-flowered var., and it is likely that the plant mentioned in the *Brit. Flora*, as being found on the Sands of Barrie, had been from this station, as the latter is not the kind of place for such a plant to grow in, and I never observed it in that vicinity.

To some of my southern readers the term *Den* may require explanation. In the east of Scotland it is applied to deep hollows or ravines formed by streams, and the rocky banks of which are very generally planted with trees. The shade afforded by these is conducive to vegetation, and we consequently find in such places a great exuberance of flowers, as well as ferns, mosses, and other cryptogamic plants.

The Den of Mains (or Mains of Claverhouse) is a small ravine formed by a stream that falls into the Dighty, a little to the west of the toll-bar on the Forfar road. On the south side of it stands the old Castle of Mains, said by some to have been built in the twelfth, and by others in the sixteenth century. The old oaks, and other trees around the Castle, indicate considerable antiquity; and particularly a magnificent beech on the south side, which is of great dimensions, and is popularly known as "*The muckle Tree o' the Mains*." The old church-yard of Mains or Strathdighty occupies the bank on the north side, conjointly with the garden of the schoolmaster, and the stream is crossed by an old one-arched bridge, which connects the two banks of the ravine. At the base of the rocks beneath the Castle there issues a clear spring of delicious water, surrounded with golden saxifrages. It is called Sinavey, and is said formerly to have been so overshadowed with trees and shrubs, that the sun never shone on it. A little below the Castle, the

stream falls over a sloping ledge of rocks, forming a small but very picturesque cascade, and in which the *Hypnum ruscifolium* grows profusely, and produces abundance of capsules, even amid the continual turmoil of the foamy waters. In this little dell, under the shade of its trees, the *Geranium phœum* and *Doronicum Pardalianches* flourish beautifully; but though appearing perfectly at home, there is a suspicion that they may have been introduced by some of the early inhabitants of the Castle, as such plants grow only in the vicinity of these old buildings. The Dighty flows at the foot of the Den, and on its opposite bank a busy *meal-mill* adds to the picturesqueness of the scene.

In a soft spring morning, when the dew is on the primroses and violets, and the small birds all in song; or in a warm summer evening, when the golden sunset pours its scattered glories through the green foliage of the embowering trees, it is pleasant to loiter in this delightful spot, reclining on its flowery banks, or wandering by its lucid stream; and, eschewing the cares of the world for a time, give the rein to sweet meditation. Childhood seems to have come from the past, lured back by the flowers and the birds; but the birds and the flowers of the present awake loftier thoughts and deeper feelings, while the crumbling ruins, and the repository of the dead, speak of the future in a language not to be misunderstood, that all things on earth are mutable.

G. sylvaticum, L. Wood Crane's-bill. H. 66, B. 60.—
F. June, July. P.

Banks of the Isla and South Esk, frequently. Very plentiful in Glen Clova, about the banks of the Esk and the streams falling into it.

Banks of the North and South Esk, from [near?] their sources to the sea, *Mr A. Croall*. With white flowers, *Mr G. Don*.

G. pratense, L. Blue Meadow Crane's-bill. H. 67, B. 60.—F. June, July. P.

Frequent on the Sidlaw Hills, in the Dens of Airlie, Glamis, &c. In the latter place, with pale pink flowers.

Den of Fullerton, *Mr J. Cruickshank*.

G. lucidum, L. Shining Crane's-bill. H. 67, B. 62.—
F. Apr. July. A.

Not common. Den of Airlie, in various places. Den of Mains, sparingly, and likely introduced. Old walls near Foulis. Bullion Burn, near Invergowrie. Rocky banks of a rill near Kinnordy, south side.

Den of Balgavies, near the bridge, *Mr A. Croall*.

G. Robertianum, L. Stinking Crane's-bill, or Herb-Robert. H. 67, B. 62.—F. during the summer months. A.

Not unfrequent in waste places, from the coast to the mountain-valleys.

G. molle, L. Dove's-foot Crane's-bill. H. 67, B. 62.—
F. Apr. Augt. A.

Abundant by waysides, in meadows, and on the hills. Very variable in size. With white flowers on the banks of the Tay, at Ninewells.

With white flowers on a loose sandy bank at the Stanner-gate, two miles east from Dundee, *Messrs G. Lawson and D. Jackson*.

G. dissectum, L. Jagged-leaved Crane's-bill. H. 68, B. 61.—F. May, July. A.

On ditch-banks, and by waysides frequent.

G. columbinum, L. Long-stalked Crane's-bill. H. 68, B. 61.—F. June, July. A.

On the beach to the westward of Hare Craigs, and among rocks on Balgay Hill, but in small quantity in both places.

G. pusillum L. Small-flowered Crane's-bill. H. 68, B. 61.—F. June, Sept. A.

Links of Montrose, not common, *Mr. J. Cruickshank*. Forfar road, near Rossie Mill, *Mr G. M'Farlane*.

ERODIUM, *L'Hérit.* Stork's-bill.

Br. sp. 3. F. 1.

E. cicutarium, Sm. Hemlock Stork's-bill. H. 68, B. 62.—F. summer months. A. (*Geranium*, L.)

Plentiful in sandy places along the coast, occasionally with white flowers. On the 30th October 1846, observed it still flowering at the east end of Broughty Ferry.

ORD. XXI.—BALSAMINEÆ.

Gen. Br. 1. F. 1. Sp. Br. 2. F. 1.

IMPATIENS, *L.* Balsam.

Br. sp. 2. F. 1.

I. *Noli-me-tangere*, *L.* Yellow Balsam, or Touch-me-not. H. 69, B. 64.—F. July, Augt. A.

Den of Dun, plentiful, but naturalized, *Mr A. Croall.*

ORD. XXII.—OXALIDEÆ.

Gen. Br. 1. F. 1. Sp. Br. 3. F. 1.

OXALIS, *L.* Wood-sorrel.

Br. Sp. 3. F. 1.

O. *Acetosella*, *L.* Common Wood-sorrel. H. 70, B. 65.—F. May, June, and till Augt. on the mountains.

In the woods and shady dens, as well as on the hills, and the Clova and Glen Isla mountains. In the lower districts it is generally in fruit in July.

SUB-CLASS II.—CALYCIFLORÆ.

ORD. XXV.—LEGUMINOSÆ.

Gen. Br. 19. F. 16. Sp. and v. Br. 90. F. 42.

ULEX, *L.* Furze.

Br. sp. and v. 4. F. 2.

U. *Europæus*, *L.* Common Furze, Whin, or Gorse. H. 73, B. 68.—F. throughout the year. S.

The glory of our moors and lower hills, though rarely ascending high on the mountains. In May and June it is in

greatest perfection, when its spiny branches are perfectly loaded with blossoms ; but it flowers at all seasons, and it is not uncommon to see its cheerful bloom peeping from the deep snow of mid-winter.

It is plentiful on the Sands of Barrie, and in early summer the sheep and cattle eat the young shoots, and trim the plants into beautifully rounded forms, as if they had been prepared by the hands of a Dutch gardener, to ornament his geometrical parterre.

M. nanus, Forst. Dwarf Furze. H. 74, B. 69.—F. Autumn. S.

Forfarshire, *Mr G. Don* ; but no station is given.

GENISTA, L. Green-weed.

Br. sp. and v. 4. F. 1.

G. Anglica, L. Needle Green-weed, or Petty Whin. H. 74, B. 70.—F. May, June. S.

Frequent on heaths throughout the county.

CYTISUS, L. Broom.

Br. sp. 1. F. 1.

C. scoparius, DC. Common Broom. F. 75, B. 69.—F. Mar. June. S. (*Spartium*, L. *Genista*, Lam. *Sarothamnus*, Wimm.)

Abundant on the lower hills, in woods, on moors, and on the sea-coast.

There are many pleasing associations that the “lang yellow broom” awakens in the mind ; but to the lover of Flora, perhaps one of the dearest is the remembrance that the gorgeous luxuriance of its golden blossoms so enraptured the illustrious Linnæus, when he first beheld it *in profusion*, on his visit to England, that he fell down upon his knees in an ecstasy of pleasure, to enjoy such a glorious sight. And as the mind of that eminent naturalist was endued with a deep sense of the goodness of his Creator, we cannot doubt but that he then breathed a prayer of gratitude to the benevolent Being who had furnished him with the gratifying spectacle.

ONONIS, *L.* Rest-harrow.*Br. sp. and v. 3. F. 1.*

O. arvensis, *L.* Common Rest-harrow. H. 75, B. 70.
—F. June, Augt. P.

Corn-fields frequent, generally without spines, procumbent, ascending, or upright. With spines, and occasionally with white flowers, on the Sands of Barrie.

Though sometimes scentless, it generally has a rank, disagreeable smell. The flowers are so handsome, that you are tempted to cull them for your nosegay; but when their nauseating odour comes in contact with the olfactory nerves, you discard it with a sigh, regretting that so much beauty should be coupled with so noxious a quality. But this, too, reads us a lesson.

ANTHYLLIS, *L.* Kidney-vetch.*Br. sp. and v. 2. F. 1.*

A. Vulneraria, *L.* Common Kidney-vetch, or Lady's Fingers. H. 76, B. 70.—F. June, Augt. P.

Plentiful throughout the county, but more prevalent towards the coast.

Lady's Fingers are generally prone to do good and kind actions, so that this plant has not been inappropriately named, the application of its leaves to a fresh wound instantly checking the hæmorrhage.

MEDICAGO, *L.* Medick.*Br. sp. and v. 7. F. 2.*

M. sativa, *L.* Purple Medick, or Lucerne. H. 76. B. 71.—F. June, July. P.

On the Links between Arbroath and East Haven. Near Dundee, *Mr G. Don*. I have never seen it in this vicinity, Dysart, *Mr J. Cruickshank*. Bushy places west from the Den of Fullerton, *Mr A. Croall*. Bonnington, near Montrose, *Mr G. M^rFarlane*. Carnoustie, *Rev. J. O. Haldane* and *Rev. J. S. Barty*.

M. lupulina, L. Black Medick, or Nonsuch. H. 77, B. 71.—F. May, Augt. A.

Common on banks, and in waste places.

MELILOTUS *Tourn.* Melilot.

Br. sp. 2. F. 2:

M. officinalis, Lam. Common Yellow Melilot. H. 78, B. 72.—F. June, July. A? (*Trifolium Melilotus*, L.)

In cultivated fields occasionally. North from Mains, &c. Near Kinblethmont, *Mr G. M'Farlane*.

M. leucantha, Koch. White Melilot. H. 78, B. 72.—F. July, August. P. (*M. vulgaris*, Wild. *Trifolium officinale*, β . L.)

By the wayside, Baldovan Woods, some years ago, but not observed since.

On loose earth excavated from the railway, Easthaven, *Mr A. Croall*. Both species have probably been introduced.

TRIFOLIUM, L. Trefoil.

Br. sp. and v. 25. F. 9.

T. ornithopodioides L. Bird's-foot Trefoil. H. 78, B. 75.—F. June. A. (*Trigonella*, DC.)

Between the Sands of Barrie and Broughty Ferry, *Mr G. Don*. The exact station has not been pointed out.

T. repens, L. White Trefoil, or Dutch Clover. H. 79, B. 75.—F. during the summer months. P.

T. pratense, L. Common Purple Trefoil. H. 79, B. 72.—F. during the summer months. P.

The red and white clover are both extensively cultivated in our meadows and fields, but probably neither of them really indigenous.

T. medium, L. Zigzag Trefoil. H. 79, B. 72.—F. June, September. P.

Not uncommon in the woods, and on the hills and mountains, and seems to be truly a native.

T. arvense, L. Hare's-foot Trefoil. H. 80, B. 73.—F. June, September. A.

Plentiful along the coast on dry sandy banks, as well as in upland pastures. Abundant on the Sands of Barrie, varying much in size.

Plentiful on Montrose Links, *Mr A. Croall*.

T. scabrum, L. Rough rigid Trefoil. H. 80, B. 74.—F. May, July. A.

Redhead, *Rev. J. O. Haldane* and *Rev. J. S. Barty*. Sea-coast at Dysart, *Mr A. Bousie*. Montrose Links, *Mr G. M'Farlane*.

T. striatum, L. Soft-knotted Trefoil. H. 81, B. 73.—F. June. A.

On rocky banks on the coast, from Invergowrie to Montrose, frequent.

T. procumbens, L. Hop trefoil. H. 81, B. 76.—F. June, August. A.

Frequent on banks and in fields, but always where there is or has been cultivation.

T. filiforme, L. Lesser Yellow Trefoil. H. 82, B. 76.—F. May, July. A.

On banks frequent.

LOTUS, *L.* Bird's-foot Trefoil.

Br. sp. and v. 9. F. 2.

L. corniculatus L. Common Bird's-foot Trefoil. H. 82, B. 76.—F. July, August. P.

Abundant throughout the county, from the sea-shore to the mountains. It loves particularly to adorn the maritime rocks, and its flowers often assume a deep orange, or red colour, though generally yellow, with a slight dash of orange when young. The orange tint frequently turns green in drying.

L. major, Scop. Narrow-leaved Bird's-foot Trefoil. H.

83, B. 77.—F. July, August. P. (*L. corniculatus*, γ . Fl. Br.)

Not uncommon on ditch banks.

OXYTROPIS, DC. Oxytropis.

Br. sp. 2. F. 2.

(*Astragalus*, L.)

O. Uralensis, DC. Hairy Mountain Oxytropis. H. 84, B. 77.—F. July. P.

Montrose, *Hook. Br. Fl.* Duninald and Usan, *Rev. J. Brewster.*

O. campestris, DC. Yellowish Mountain Oxytropis. H. 84, B. 77.—F. July, August. P.

Near Bradooney, Clova, on rocks with a southern exposure, *Hooker, Greville, Burchell, Drummond, Brand, Balfour, &c.*

ASTRAGALUS, L. Milk Vetch.

Br. sp. 3. F. 3.

A. glycyphyllus, L. Sweet Milk-vetch. H. 84, B. 78.—F. June, July, P.

On rocky banks along the coast, frequent, from Will's Braes to Montrose.

Between Usan and Duninald, *Mr G. M'Farlane.* Dy-sart, *Mr John Laing.* Den of Balruddery, *Dr Addison.* Banks of the Melgum, and on the Isla about a mile above the Castle; also at the mill of Quiech, below the Den of Airlie, *Rev. J. S. Barty.*

A. hypoglottis, L. Purple Mountain Milk-vetch. H. 85, B. 78.—F. May, Augt. P.

Frequent along the coast, as well as on the Sidlaw Hills and Clova Mountains, varying much in size. It is particularly plentiful on the Sands of Barrie and Links of Montrose.

Dry pastures, north from Kinnaird, *Mr A. Bousie*.
On the rocks to the east of Arbroath, a state with very pale flowers occurs.

A. alpinus, L. Alpine Milk-vetch. H. 85, B. 78.—F. July. P. (*Phaca astragalina*, DC.)

On the 30th of July 1831, this beautiful little plant, new to the British Flora, was discovered on a cliff near the head of Glen Dole, Clova, by *Prof. Graham*, *Dr Greville*, and *Mr Brand*. It was subsequently found in abundance by *Dr Barry*, and has since been noticed by various other botanists visiting these mountains. In the station discovered on Little Craigindal, Braemar, by *Prof. Balfour*, however, it is in greater profusion, forming a turf over many yards of the mountain summit.

ORNITHOPUS, L. Bird's-Foot.

Br. sp. 1. F. 1.

O. perpusillus, L. Common Bird's-Foot. H. 85, B. 83.—F. June. A.

Near Newtyle, but rare, *Mr G. Don*.

VICIA, L. Vetch.

Br. sp. and v. 13. F. 7.

V. sylvatica, L. Wood Vetch. H. 87, B. 79.—F. July, Augt. P.

Abundant on the rocks about the Red-Head, and other places along the coast.

On rocks between Usan and Lunan Bay, *Mr A. Croall*. Between Boddin and the Den of Duninald, *Mr G. M'Farlane*. Den of Airlie, abundant on the right bank (which is not visited by mere tourists and admirers of scenery), and absolutely covers large portions of the rugged steeps with its trailing festoons of beautifully pencilled flowers, *Rev. J. S. Barty*.

I have also observed it near the *Slugs of Auchrannie*, remarkable waterfalls about half-way down Airlie Den. There are several of them, but the most interesting is the upper

one, which is thus described :—“ Here the river is suddenly contracted by stupendous cliffs into a space scarcely exceeding three yards in breadth. Through this frightful chasm the deep boiling flood forces itself with tremendous power, and, in curling wreaths of foam, thunders down a steep broken channel, of considerable length, into a gloomy but spacious ravine, walled by rocks quite perpendicular, and of great altitude. These are surmounted by a profusion of trees, exceedingly rich and varied in their foliage, which the hand of man never planted.”

V. Cracca, L. Tufted, or Hedge-Vetch. H. 87, B. 79.
—F. June, Augt. P.

Abundant in hedges, thickets, and on ditch banks. In hedges it often climbs to the height of five or six feet, mingling its bright blue flowers with the green foliage and fragrant clustering blossoms of the hawthorn.

V. sativa, L. Common Vetch. H. 87, B. 81.—F. May, June. A.

In fields frequent.

V. angustifolia, Sibth. Narrow-leaved Crimson Vetch. H. 87, B. 81.—F. May, June. A. (*V. sativa* β . and γ . Fl. Brit. *V. Bobartii*, Forst.)

Banks Ninewells, Balgay, Lawhill, &c.

The *Lawhill* rises immediately behind Dundee, to the height of 550 feet. Much of it is cultivated, but the upper portion is covered with verdure, and is a delightful resort of the inhabitants for air and exercise, as well as the enjoyment of the extensive and highly diversified prospect it commands. Its botanical productions are rather numerous, and some of them interesting; as the *Viola lutea*, with its varieties, *Gentiana campestris*, *Lecanora glaucoma*, &c.

V. lathyroides, L. Spring Vetch. H. 87, B. 81.—F. Apr. June. A.

Sands of Barrie, most plentiful about the east end, scattered over the sandy hillocks, and its procumbent stems varying from two to six inches in length.

Montrose Links, *Mr A. Croall*. Near Forfar, *Mr G. Don*.

V. lutea, L. Rough-podded Yellow Vetch. H. 88, B. 80.—F. June, July. P.

Between Boddin and Den of Duninald, *Mr G. M'Farlane*. Probably the same station in which Don found it.

V. sepium, L. Bush Vetch. H. 88, B. 80.—F. June, Augt. P.

Not uncommon about hedge-banks, in woods, &c.

With white flowers a little to the eastward of the head of Fullerton Den, *Mr A. Croall*.

ERVUM, L. Tare.

Br. sp. and v. 4. F. 2.

E. hirsutum, L. (*Vicia*, Koch., Bab.) Hairy Tare. H. 88, B. 78.—F. June, July. A.

Plentiful in corn-fields.

E. tetraspermum, L. Smooth Tare. H. 89, B. 78.—F. June, July. A.

Rare, found on the coast to the eastward of Arbroath, by *Dr G. Macnab*.

LATHYRUS, L. Vetchling, and Everlasting Pea.

Br. sp. and v. 9. F. 2.

L. pratensis, L. Meadow Vetchling. H. 89, B. 82.—F. July, Augt. P.

Common on ditch-banks, and in meadows, and frequently associated in hedges with the *Vicia Cracca*. Its clusters of handsome yellow flowers are agreeably fragrant.

L. sylvestris, L. Narrow-leaved Everlasting Pea. H. 90, B. 82.—F. July, Augt. P.

This truly elegant plant is rather rare on the coast, but adorns some of the rocks about the Red-Head. It has been

gathered there by *Mr G. Don*, *Mr J. Cruickshank*, and others.

OROBUS, *L.* Bitter-Vetch.

Br. sp. and v. 4. F. 4.

O. tuberosus, *L.* Tuberos Bitter-vetch, or Heath Pea. H. 91, B. 82.—F. June, July. P.

Plentiful on heaths, and in woods, from the coast to nearly the summits of the mountains.

β . *O. tenuifolius*, *Roth.* Near Kinnaird, *Mr G. Don.* In June 1831, I gathered it sparingly on a wooded hill south from Brechin.

O. niger, *L.* Black Bitter-vetch. H. 91, B. 83.—F. June, July. P.

This rare and very curious plant is said to have been originally discovered in the Den of Airlie by *Mr Drummond*, but its station was lost sight of, till re-discovered in 1844 by the *Rev. J. S. Barty.* He remarks that the station is about 300 yards from the foot of the den on the left bank of the Isla, and six yards from the margin of the river, the situation somewhat rocky, but very accessible.

Mr Barty very judiciously adds, that “the patch is not large; and if botanists do not use their trowels tenderly, it runs the risk of being exterminated.” This is a most important circumstance to be borne in mind, especially by young botanists, who, in their enthusiasm, are sometimes tempted to impoverish the locality of a rare plant, for the mere sake of filling their vasculums with rarities, though these may probably never be turned to any good account. With collectors of plants, it should be a stern and fixed principle to endanger no locality of a rare plant, by culling too freely where the supply is scanty; and what is gathered over supplying one’s own herbarium, should be made available to others whose opportunities do not admit of their collecting such themselves.

O. sylvaticus, *L.* Wood Bitter-vetch. H. 91, B. 79.—F. June. P. (*Vicia Orobus*, *DC.*, *Bab.*)

Reeky Linn, on the northern bank, rather plentiful, but not extending over a large space.

Near the Sloughs (or Slugs) of Auchrannie, also on the right bank of the Isla, where the river debouches from the ravine, and near the Kaims of Airlie, *Rev. J. S. Barty*. In the *New Statistical Account of Forfarshire*, it is mentioned as occurring in the parishes of Glammis and Kirkden, but no stations are given.

The Den of Airlie is not only interesting on account of its diversified and romantic scenery, and the historical associations connected with its venerable castle, but to the botanist is a perfect treasury, from the profusion of rare and beautiful plants it contains. And while he threads the mazes of its leafy shades, or scrambles among its rocky banks and braes, he feels an additional charm from the recollection that it has been the nursery of botanical enthusiasm, for there Don made some of his earliest discoveries, and Drummond, with his keen, cryptogamic eye, explored its nooks and crannies, and brought to light many hidden beauties.

The Den is a deep winding ravine, about four miles in length, through which the Isla descends from Glenisla into Strathmore. Most of it is richly wooded, and the rocks in many places rise to a great height, and, from their inaccessibility, afford safe nestling places to various hawks and other birds of prey.

The Melgum, rich in cascade-scenery, descends from Lintrathen through a smaller ravine, and joins the Isla at the base of the bold promontory on which the castle stands. Below this, as well as at the head of the Den, many beautiful walks have been formed among the woods, from which the most interesting features of the scenery can be viewed to advantage.

The Isla forms, in its course through this gorge, a number of waterfalls, the most considerable of which is the Reeky Linn at the top of the Den, near to which the *Orobus sylvaticus* grows. In this noble fall, the whole waters of the Isla are precipitated into the Den in three magnificent leaps. "The noise of the falling torrent is heard at some distance, and a misty vapour continually arises, like a smoke (*Scottice*, reek), hence the name, caused by a jutting rock, at the base of the cliffs, obstructing the force of the waters ere they have finally reached the bottom of the dark abyss below. The rocky steeps around are bright with a gay garniture of ver-

ture and flowers, and crowned with overshadowing trees, through which the sun's beams come wandering in search of hidden beauties. Fine walks are laid out on the southern bank, from which various views of the fall and adjacent scenery are obtained; but it is seen to most advantage from a projecting cliff a little way down the northern bank, where the eye at a glance embraces not only the whole majesty of the foaming cataract, with its surrounding rocks and woods, but also the Bridge of Craig, and the distant hills of Glen Isla, which form an appropriate background to the picture."*

The vicinity of the Linn is extremely rich in vegetation, and, to the cryptogamic botanist especially, affords much gratification. Mosses, lichens, and hepaticæ, are abundant, and many species of each may be gathered in an hour's exploration. I have there found, among other rarities, the curious *Jungermannia Blasia* in fructification, which is very seldom found in that state, and the true *Stereocaulon nanum*, a lichen new to the British Flora. Indeed, the Den, besides its rarer phænogamic plants, such as the two *Orobi* above mentioned, *Convallaria verticillata*, *Lychnis Viscaria*, *Melican utans*, *Chrysosplenium alternifolium*, and others that will be noticed in their proper places, and a great exuberance of more common flowers, displays through its whole extent an ample and varied cryptogamic vegetation.

The Reeky Linn is distant from Newtyle about nine miles, the road leading to it passing through Meigle and Alyth.

ORD. XXVI.—ROSACEÆ.

Gen. Br. 19. *F.* 15. *Sp. and v. Br.* 116. *F.* 55.

PRUNUS. *L.* Plum and Cherry.

Br. sp. and v. 7. *F.* 5.

P. domestica, *L.* Wild Plum-tree. *H.* 92, *B.* 86.—*F.* Apr. May. *T.*

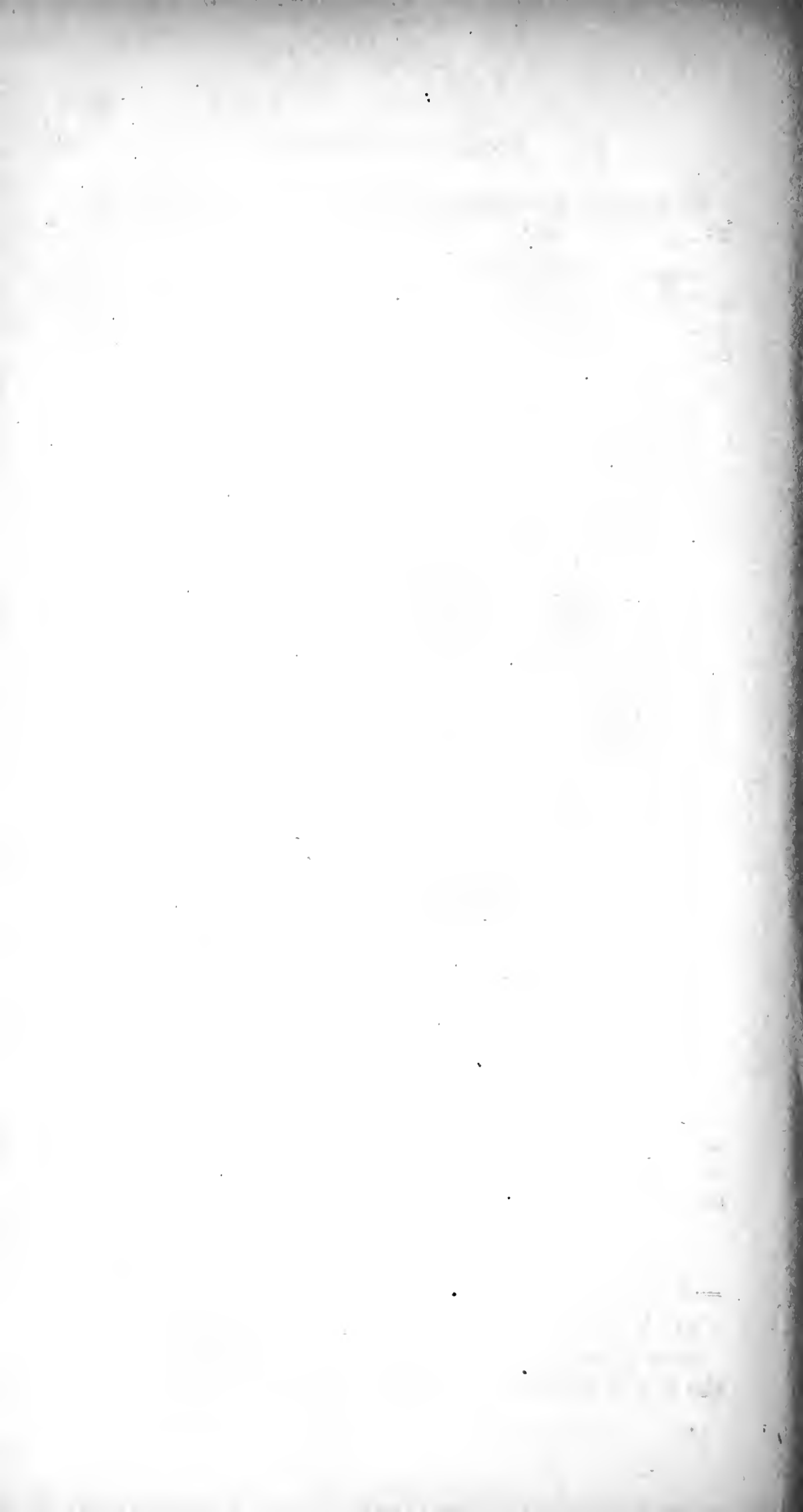
In hedges, *Mr G. Don.* Probably in most cases planted.

* *Botanical Rambles in 1844.*



W. & A. G. B. & C. 1851

Drawn & Engraved by G. Cumming Dalziel



P. spinosa, L. Black-thorn, or Sloe. H. 92, B. 86.—
F. Apr. May. S.

Abundant along the river side, from Dundee to Invergowrie, generally covered with flowers in April, before many of the leaves appear. I have never seen the fruit (termed the *Slæ*) ripen in this county.

P. Padus, L. Bird-Cherry. H. 92, B. 86.—F. May. T.
(*Cerasus*, DC.)

Balgay Wood, but undoubtedly planted. Around Glamis Castle, and in various woods, but perhaps in most cases introduced by the agency of man.

P. Cerasus, L. Wild Cherry. H. 92, B. 86.—F. May, T.
(*Cerasus avium*, Moench. *Prunus avium*, L.)

On the banks of the Tay at Ninewells, and other places on the coast. Woods of Balgay, Invergowrie, Baldovan, Glamis, &c., as well as in the Den of Airlie, and other similar inland situations.

P. insititia, L. Wild Bullace-tree. H. 92, B. 86.—F. May. S.

Found in the county by *Mr G. Don*, but it is questionable whether really indigenous.

SPIRÆA, L. Dropwort, or Meadow-sweet.

Br. sp. 3. F. 3.

S. salicifolia, L. Willow-leaved Spiræa. H. 93, B. 87.—
F. July. S.

Mr G. Don gives this in his list, but without indicating any station. Near Kinaber, on the side of the *Mill-lead*, between the Mills and Marten's Den, *Mr A. Kerr*. In plantations, but not wild, *Mr A. Croall*.

S. Filipendula, L. Common Dropwort. H. 93, B. 87.—
F. June, July. P.

On Will's Braes, and Hare Craigs, frequent.

Sea-coast at Dysart, *Mr A. Bousie*. Between Usan and the Den of Duninald, rare, *Mr A. Kerr*.

S. Ulmaria, L. Meadow-sweet, or Queen of the Meadows. H. 93, B. 87.—F. June, Augt. P.

Abundant by the sides of streams, in ditches, marshes, and wet meadows, from the sea-shore to the alpine valleys. The flowers exhale a sweet but very powerful odour.

DRYAS, L. Mountain Avens.

Br. sp. and v. 3. F. 1.

D. octopetala, L. White-flowered Mountain Avens. H. 94, B. 87.—F. June, July. P.

Craig Maid, Glen Dole, and plentiful on the rocks of Canlochen.

Its large white blossoms form an elegant ornament of the rocks, but are very fragile, and like those of the little Rock-Speedwell, soon fall after being gathered. To preserve good specimens, the collector would require to be provided with a field-book, and lay them out in paper on the spot, or the likelihood is, that on returning to his inn or *shieling*, he will find all the petals of his *Dryas* scattered among the other contents of his vasculum.

GEUM, L. Avens.

Br. sp. and v. 3. F. 3.

G. urbanum, L. Common Avens, or Herb Bennet. H. 94, B. 88.—F. June, August. P.

Waysides, hedge-banks, and in woods, plentiful.

With semi-double flowers in the Den of Glammis, *Mr G. Lawson*.

G. rivale, L. Water Avens. H. 94, B. 88.—F. May, July. P.

Banks of streams and wet places abundant in the lower part of the county, and ascending the mountains to between 2000 and 3000 feet, where it becomes scarcer, and more stunted. It frequently occurs with semi-double flowers.

An intermediate variety, or possibly a hybrid between this and *G. urbanum*, which may be *G. intermedium*, Ehrh. (Bab. 88), is of frequent occurrence on the banks of Feithy-water and elsewhere. In *G. rivale* the petals are purplish,

broadly obovate, emarginate, or deeply notched; in *G. intermedium* they are yellow, mostly rounded at the apex, and with a shorter claw. The flowers are generally rather smaller and less drooping than in *G. rivale*, but much larger than in *G. urbanum*. After the examination of numerous specimens, I find the comparative lengths of the upper and lower joints of the awn, as well as of their glabrous points, variable. In this, as well as in *G. rivale* and *urbanum*, the cauline leaves are either ternate or three-lobed. These observations, of course, apply solely to the plants as seen in this county.

RUBUS L. Bramble.

Br. sp. and v. (18 Hook. 32 Bab.) F. 6.

(Neither the brambles nor the roses of Forfarshire have been well investigated, and the county lists of these may therefore be far from complete. Both genera require long and patient examination *in the growing state*, and that at different stages of their growth, and under various conditions; and even after many years close observation, botanists are found to differ widely as to their specific distinctions.)

R. idæus, L. Raspberry. H. 95, B. 92.—F. May, June; and in July on the mountains. S.

Plentiful in woods, and by waysides, and ascending more than half-way up the Clova mountains. The fruit ripens in July and August, and in shady woods is occasionally white, and of large size.

R. suberectus, And. Upright Bramble. H. 95, B. 92.—F. June, August. S.

Near the Kirkton of Clova, and in other places in the valleys and on the mountains.

R. fruticosus, L. Common Bramble. H. 96, B. 94.—F. July, August. S.

Abundant on the banks of the Tay, and in woods, thickets, and by waysides. The flowers are generally pure white, but occasionally more or less tinted with rose-colour, and on a bush or two at Dudhope, Dundee, I have seen the petals almost red.

Though puzzling to botanists from the variableness of its

form, and little cared for by the passing observer, from its being so common and so humble, the bramble is nevertheless a favourite with some minds, and the following beautiful lines by Elliot will invest this shrub with a deeper interest than any that science could confer upon it:—

“ TO THE BRAMBLE FLOWER.

Thy fruit full well the school-boy knows,
Wild bramble of the brake!
Go put thou forth thy small white rose:
I love it for his sake.

Though woodbines flaunt, and roses glow
O'er all the fragrant bowers,
Thou need'st not be ashamed to show
Thy satin-threaded flowers;

For dull the eye, the heart is dull
That cannot feel how fair,
Amid all beauty beautiful,
Thy tender blossoms are!

How delicate thy gaudy frill!
How rich thy branchy stem!
How soft thy voice when woods are still,
And thou sing'st hymns to them!

While silent flowers are falling slow,
And, 'mid the general hush,
A sweet air lifts the little bough,
Lone whispering through the bush!

The primrose to the grave is gone;
The hawthorn flower is dead;
The violet by the mossed grey stone
Hath laid her weary head!

But thou, wild bramble! back dost bring,
In all their beauteous power,
The fresh green days of life's fair spring,
And boyhood's blossoming hour.

Scorned bramble of the brake! once more
Thou bidd'st me be a boy,
To gad with thee the woodlands o'er,
In freedom and in joy.”

R. corylifolius, Sm. Hazel-leaved Bramble. H. 97, B. 95.—F. July, August. S.

Hedges and woods, frequent.

R. saxatilis, L. Stone Bramble. H. 97, B. 97.—F. June, July. P.

Rocks of Glen Dole and Canlochen, frequent.

Den of Airlie, on the left bank, below the Castle, *Rev. J. S. Barty*. Burn, and old Castle of Edzell, *Mr J. Cruickshank*. Banks of the West Water opposite Edzell Castle, *Mr A. Croall*.

R. Chamæmorus, L. Cloudberry. H. 97, B. 98.—F. June, July. P.

Rather plentiful on boggy heaths on all the higher mountains, and generally ripening its fruit in July and August. In early seasons none of the flowers remain in July, but much of the fruit comes to maturity. The berries are called by the shepherds *Avrons*; at first they are red, but, when fully ripe, of a yellowish colour, large, juicy, and nutritious.

FRAGARIA, L. Strawberry.

Br. sp. 2. F. 2.

F. vesca, L. Wood Strawberry. H. 98, B. 92.—F. May, June, and in July on the mountains. P.

Common in woods, on banks, occasionally by the sides of streams, and on rocks high among the mountains, as on Craig Maid, Glen Dole. The flowers are often more or less tinged with rose-colour.

F. elatior, Ehrh. Hautboy Strawberry. H. 98, B. 92.—F. June. P. (*F. moschata*, Duchêsne, Lindl.)

Side of a rill a little to the north of Baldovie Toll-bar. Balgay Wood. Near a bridge, about half-way up the Balbeuchly Incline, on the Newtyle Railway. Into all these stations the plant *may* have been introduced, but is now at least thoroughly naturalized.

COMARUM, L. Marsh Cinque-foil.

Br. sp. 1. F. 1.

C. palustre, L. Purple Marsh Cinque-foil. H. 98. B. 92.—F. July. P. (*Potentilla Comarum*, Nest.)

Very abundant in marshes and ditches throughout the county.

POTENTILLA, L. Cinque-foil.

Br. sp. and v. 14. F. 10.

P. anserina, L. Silver-weed. H. 98, B. 90.—F. May, July. P.

The common form, with the leaves green above and silky beneath, is very abundant by waysides, and along the coast, often adorning the arid sands with its elegant pinnated leaves and bright yellow flowers, that are delicately fragrant.

β. sericea, Koch. This variety, having the leaves clothed on both sides with a silvery pubescence, is frequent along the coast, and I have picked it in various places from Ninewells to Auchmithie.

P. argentea, L. Hoary Cinque-foil. H. 99, B. 90.—F. June. P.

On rocks not far from the *Loups of Kenny*, rare; but common on rocks on Sidlaw Hills, *Mr G. Don*. On some particular part of these hills Don must have met with this plant rather abundantly, but I have not yet detected it in my perambulations.

The *Loups of Kenny* are a series of very beautiful waterfalls on the Melgum between Lintrathen and Airlie, and the rocky banks being richly wooded, tend much to increase their picturesque effect.

P. verna, L. Spring Cinque-foil. H. 99, B. 91.—F. April, May. P.

Hare Craigs near Broughty Ferry. Craigie Braes east from Dundee. On a sloping grassy bank at Will's Braes west from Dundee, but the station now nearly destroyed by the cutting of the rocks for the Dundee and Perth railway.

P. alpestris, Hall. fil. Orange Alpine Cinque-foil. H. 99, B. 91.—F. July. P. (*P. aurea*, E. Bot. (not L.) *P. Salisburgensis*, Jacq, Hænke, &c. *P. verna*, var. Wahl.)

Frequent on the mountain rocks of Glen Dole, and Canlochen.

P. opaca, L. Saw-leaved Hairy Cinque-foil. H. 99, B. 90.—F. June. P. (*P. intermedia*, Nestl.)

Clova mountains, *Mr G. Don*.

P. reptans, L. Common Creeping Cinque-foil. H. 100, B. 91.—F. June, August. P.

Plentiful on the banks of the Tay, as at Ninewells, Will's Braes, and west end of the Magdalen-yard Green, and in many places along the coast.

Near Arbroath, *Mr G. Don*. Between Montrose and Usan, *Messrs Croall, Cruickshank, M'Farlane, and Kerr*.

β. sericea, Bab. Usan, *Mr Lindsay Carnegie*.

P. tridentata, Soland. Three-toothed Cinque-foil. H. 100, B. 91.—F. May, June. P.

On Werron Hill, Clova, *Mr G. Don*. This hill has since been searched by *Mr Kerr* and a party from Montrose, but without success. It may, however, have occurred only in one spot, and such a spot may elude again and again the keenest researches of the mountain Rambler. An authentic specimen, gathered by Don, is in *Mr Kerr's* herbarium; and there is also a specimen among the remains of an herbarium formed by *Mr Douglas Gardiner* in 1813, which had likely been given to him by Don, as they were intimate friends. *Cherophyllum aureum*, and other of Don's discoveries, are in the same collection, but none of them localized.

P. Fragariastrum, Ehrh. Strawberry-leaved Cinque-foil. H. 100, B. 92.—F. April, May. P. (*P. Fragaria*, Poir. *Fragaria sterilis*, L.)

Rocky banks of streams, Sidlaw Hills, and in the Dens of Airlie, Glammis, Hatton, Foulis, &c., abundant.

Marten's Den, *Mr A. Croall*. Banks between Marten's Den and Kinaber Mills, plentifully, *Mr A. Kerr*.

The place called *Marten's Den*, a favourite haunt of the Montrose botanists, and the lovers of rural scenery in that quarter, is thus described by Mr Croall:—"This beautiful and secluded spot is situated at the southern extremity of the reservoir, or *mill-dam*, which confines the waters of the North Esk for the use of the mills of Morphie and Kinaber, and is about four miles north from Montrose. About half-way up the ravine a stream issues from a spring called the "boiling well," and flows towards the Esk, forming the boundary-line between the Rosemount and Craigo estates. The Den is richly wooded, and its bowery shades afford a cool retreat from the hot beams of a summer day, while the profusion of

flowers with which it is filled, many of them loading the air with their fragrance, furnish the lover of Flora with abundant occupation. Among the rarer of its productions may be mentioned *Carex dioica*, *riparia*, and *acuta*, *Cardamine amara*, *Lemna trisulca*, *Geranium sylvaticum*, *Myhrris odorata*, *Listera cordata*, *Scirpus sylvaticus*, &c.”

TORMENTILLA, L. Tormentil.

Br. sp. and v. 2. F. 1.

T. officinalis, Sm. Common Tormentil. H. 100, B. 91.—F. June, July. P. (*Potentilla Tormentilla*, Sibth., Nesl., Bab., &c.)

Abundant in woods and on heaths in the low grounds and on the hills and mountains. In cases of dysentery I have known a decoction of the root used with great efficacy, but being a very powerful astringent, caution must be used in its administration.

SIBBALDIA, L. Sibbaldia.

Br. sp. 1. F. 1.

S. procumbens, L. Procumbent Sibbaldia. H. 101, B. 90.—F. July. P.

Plentiful on most of the Clova and Glen Isla mountains, on their summits, and rarely descending more than half-way down. It is found in finest condition a short distance below the summits, and this remark applies to many other mountain plants, as *Carex rigida*, *Juncus trifidus*, &c., which, though stunted and starved-like when exposed to the frequently recurring storm, display a more thriving and luxuriant aspect under a moderate degree of shelter.

AGRIMONIA, L. Agrimony.

Br. sp. 1. F. 1.

A. Eupatoria, L. Common Agrimony. H. 101, B. 89.—F. June, August. P.

Sparingly distributed along the coast from Invergowrie to Montrose, generally where it is rocky. In some of the places

where it does occur it is rather plentiful, as at Ninewells, and on the rocks to the east of Lunan Bay.

Frequent near Montrose, *Mr G. M'Farlane*. Dysart rocks, Den of Morphie, &c., *Mr A. Croall*. Banks near Marten's Den, *Mr A. Kerr*. Parish of Kingoldrum, *Rev. J. O. Haldane*. Kingoldrum is about 24 miles from the coast.

ALCHEMILLA, L. Lady's Mantle.

Br. sp. and v. 5. F. 5.

A. vulgaris, L. Common Lady's Mantle. H. 102, B. 89.—F. April, July. P.

Abundant on ditch-banks, and by waysides, as well as in pastures, and ascending to the summits of the mountains, where it is more pubescent, and becomes the β . *minor*, Hook. (*A. hybrida*, Pers., *A. vulgaris*, β . *subsericea*, Koch.) Varies in height from two inches on the mountains, to nearly two feet on shady banks in the lowlands.

A. alpina, L. Alpine Lady's Mantle. H. 102, B. 89.—F. June, August. P.

This beautiful plant almost literally covers the higher mountains with a mantle of silvery foliage, and descends the valleys of the Isla and Esk to their entrance into Strathmore. It is in greatest perfection and luxuriance about those little waterfalls so prevalent on alpine streams; and often amid these mountain solitudes, "afar from the busy haunts of men," it suggests many instructive and soul-humbling ideas.

Where Alpine Lady's Mantle bends its stems,
And throws the shadow of its silvery leaves
O'er fresh green mosses, dwellers of the rock,
That drink the tiny cascade's nurturing spray,
And freely share it for the shelter given,—
I love to sit, and hear the pleasing tones
That come from falling waters, mountain birds,
And bees in foxgloves' bells, all mingling sweet
In one pure song of gladness and of peace :
And there contrast the quiet and innocence,
And healthful influence that fills the air,
With city's sickening pestilential breath,
And din, and turmoil, and unceasing strife
For wealth and honour, that are in themselves
Oft valueless. And then I wish that men,
Bearing the image of the Mighty God,
Would wisdom take from Nature's simplest things,
That Nature's teachings might not be in vain.

Abundant on the rocky banks of the North Esk at Gan-nachy Bridge, *Messrs A. Kerr* and *A. Bousie*. West Water, near Edzell, *Mr A. Croall*. Near Inglismaldie, *Mr J. Cruickshank*. On one of the Sidlaw Hills, NNE. from the White Hill of Auchterhouse. The station is, if I mistake not, under the lowest altitude where the plant has, by other observers, been seen to grow in situations not in the vicinage of alpine districts. It was first found in this station in a lonely ramble in 1844, *Mr G. Lawson*.

A. conjuncta Bab. United-leaved Alpine Lady's Mantle. H. 102, B. 89.—F. June, July. P. (*A. argentea*, G. Don's MSS.)

Clova Mountains, *Mr G. Don*. A specimen is in Mr Borrer's herbarium, but I have never been able to recognise it among the hundreds of specimens of *A. alpina* examined for that purpose.

A. arvensis, Sm. Field Lady's Mantle, or Parsley Piert. H. 102, B. 90.—F. May, July. A. (*A. Aphanes*, Willd. *Aphanes arvensis*, L.)

Wall-tops and in dry fields, not uncommon.

SANGUISORBA, L. Burnet.

Br. sp. and v. 2. F. 1.

S. officinalis, L. Great Burnet. β . *media*, Sm. H. 102, B. 89.—F. August. P.

Naturalized in the Den of Mains.

ROSA, L. Rose.

Br. sp. and v. 34. F. 12.

(*Br. sp. and v. 26, Bab.—Hook. Fl. Scot. 15.*)

R. spinosissima, L. Burnet-leaved Rose. H. 104, B. 99.—F. May, June. S. (*R. pimpinellifolia*, L.)

Plentiful along the coast, and extending to a good elevation on the mountains.

The juice of the ripe fruit diluted with water dyes silk and muslin of a peach colour; and, with the addition of alum, of a deep violet, *Douglas Gardiner*.

R. Sabini, Woods. Sabine's Rose. H. 105, B. 99.—F. June, July. S.

This, with the var. β . *doniana*, Woods, is frequent in the mountain valleys.

R. villosa, L. Villous Rose. H. 105, B. 99.—F. June, July. S. (*R. mollis*, E. Bot., Lindl. *R. mollissima*, Willd. *R. heterophylla* and *pulchella*? Woods.)

Occasionally along the coast, and extending far up the Highland valleys.

R. tomentosa, Sm. Downy-leaved Rose. H. 185, B. 99.—F. June, July. S.

Frequent throughout the county.

R. tomentosa and β *scabriuscula* are enumerated as indigenous to the county by *Mr G. Don*, but he specifies no localities.

R. rubiginosa, L. Sweet-briar, or Eglantine. H. 106, B. 100.—F. June, July. S. (*R. eglanteria*, Woods. *R. suavifolia*, Lightf.)

Not common, but occurs in various places rather plentifully, as on the beach at Ninewells, Invergowrie Bay, where its fragrant bushes grow in profusion, intermingled with *R. canina*, *villosa*, *tomentosa*, *spinosissima*, wild-cherry, hawthorn, sloe, &c., and a great luxuriance of flowers, forming a little bloomy wilderness, through whose balmy mazes a summer morning or evening walk, by the town-recreant or botanical student, is fraught with pleasure and interest. Spot after spot, however, of this kind, is rapidly disappearing from the vicinity of large towns, and this will likely soon share the same fate.

It is frequent in the hedge-rows about Temple-lands, near Drumsturdy-moor, and in hedges in various other places, as Glammis, &c. On the Sands of Barrie, near Monifieth, it covers little sandy hillocks, and grows in clumps in several places among the arid sand, its roots, however, striking deep into the stiff clay beneath.

Wayside, half a mile from the Upper Mills of Kinaber, and near Marten's Den, *Mr A. Croall*.

It is plentiful on the borders of the neighbouring county

of Perth, as between Meigle and Alyth, and in the Carse of Gowrie.

A curious freak of nature, in a flower of the sweet-briar, was observed at Ninewells, in June 1829. In this instance the corolla was exterior to the calyx, and many of the stamens were petaloid, some of the filaments being surmounted by little rose-coloured petals, and others expanded into the form of petals, having their margins bordered with anthers.

R. canina, L. Common Dog-Rose. H. 106, B. 100.—
F. June, July. S.

The most common species throughout the county, but very variable, and the varieties so difficult to define, that one would almost require to devote his attention to them exclusively, in the living state, for several seasons, and even then he might not be able to satisfy himself of their identity as distinct species, varieties, or forms, or whatever else he might choose to call them. The Roses are perhaps the most beautiful plants that exist in any clime, and are always pleasant to the eye that loves beauty, but to the botanist they often offer as many thorns as flowers.

♂ *dumetorum* (*R. dumetorum*, "Thuil." Woods.) Invercarrity, *C. Lyell, Esq. of Kinnordy.* (Hook. Fl. Scot.)

R. cæsia, Sm. Glauous Dog-Rose. H. 107, B. 101.—
F. June, July. S.

R. systyla, Woods. (*R. collina*, E. Bot.) Close-styled Dog-Rose. H. 107, B. 101.—F. June, July. S.

Both these species are given in Don's list, but without localities.

R. arvensis, Huds. Trailing Dog-Rose. H. 108, B. 101.—F. June, July. S.

Near Dun's Bridge, *Mr A. Croall.*

CRATÆGUS, L. Hawthorn.

Br. sp. and v. 2. F. 2.

C. Oxyacantha, L. Hawthorn, Whitethorn, or May. H. 109, B. 101.—(*Mespilus*, Gært.) F. May and June,

and the red mealy berries termed "*Haws*," ripen in September and October. S.

Abundant, and very generally planted for fences. The *C. monogyna* of Jacquin Mr Babington is disposed to think may be specifically distinct, but makes it in his var. β . of *C. Oxycantha*.

PYRUS, L. Pear, Apple, and Service.

Br. sp. and v. 9. F. 4.

P. communis, L. Wild Pear-tree. H. 109, B. 102.—F. April, May. T.

Rocks of Craig Maid, Glen Dole, Clova, undoubtedly wild, August 1842,—out of flower.

Hedges near Glammiss, *Mr G. Don*.

P. Malus, L. Crab-Apple. H. 110, B. 102.—F. May, June. T.

Den of Glammiss, Balgay Wood, &c., but probably introduced.

Hedges near Glammiss, *Mr G. Don*.

P. aucuparia, Gært. Rowan-tree, Mountain Ash, or Quicken-Tree. (*Sorbus*, E. Bot.) H. 110, B. 102.—F. May, June, fruit ripe in Autumn. T.

Mountain rocks frequent, as those of Glen Dole, Canlochen, &c. In specimens gathered on these rocks, the leaflets are very slightly downy underneath, and chiefly along the mid-rib, with the branches of the corymbs tomentose. This tree is not uncommon in woods and thickets in the lower parts of the county, but cannot be considered truly indigenous, except upon the mountain rocks.

It is called in this quarter *Ran-tree* (a corruption of Rowan), and the popular superstition connected with it is, that a twig of the tree twisted round with red thread, and carried about the person, prevents or counteracts the influence of witchcraft; hence the distich:—

“Ran tree and red thread
Gars the witches tak' their speed.”

Hooker says, “the tree is often planted near houses and villages in the Highlands, to protect them from evil spirits.”

It were to be wished that the Lowlanders were as wise ; for then those evil spirits of carbonic acid gas, miasmatic and sulphuric vapours, &c., might, to some extent, be exorcised by the genial and life-giving spirit of oxygen, if vegetation was more prevalent in populous towns, and the health and comfort of their denizens would be thereby promoted. It is strange, indeed, that our ancestors, with all their superstitions, should have been so far in advance of the promoters of improvement of the present day, in using precautionary measures for the preservation of health ; but such was the case, from whatever motive it may have sprung.

P. *Aria*, Sm. White Beam-tree. H. 110, B. 102.—F. May, June. T. (*Cratægus*, L.)

Strathmartin Woods, and other places, but likely planted.

ORD. XXVII.—ONAGRARIÆ.

Gen. Br. 4. F. 2. Sp. and v. Br. 17. F. 12.

EPILOBIUM, L. Willow-herb.

Br. sp. and v. 14. F. 10.

E. angustifolium, L. Rose-bay Willow-herb, or Jacob's Ladder. H. 111, B. 104.—F. July, August. P.

Among the mossy rocks at the foot of Craig Maid, Glen Dole. Banks of a stream leading from Craig Owl into Glen Ogilvy.

Banks of the North Esk about Gannachy Bridge, *Mr A. Bousie*.

At the junction of the Melgum with the Isla, abundant on the right bank of the Isla at Ruthven, and in other places on the banks of the Isla, *Rev. J. S. Barty*. Parish of Kingoldrum, *Rev. J. O. Haldane*.

E. hirsutum, L. Great Hairy Willow-herb. H. 111, B. 105.—F. July, Sept. P.

In various places, though not common. Ninewells. Den of Linlathen. Banks of Bullion Burn, Feithy Water, and a stream below Balluderon, on the old Glamis road.

At Usan and Boddin, *Mr G. M'Farlane*. Below the

Mains of Dun, Marten's Den, Den of Duninald, &c. *Mr A. Croall*.

E. parviflorum, Schreb. Small-flowered Hairy Willow-herb. H. 111, B. 105.—F. July. P.

Near the beach, between Roodyards and Stannergate, east from Dundee. Banks of the Dighty, opposite the flower-mills on the *old* Glammis road.

Coast between Boddin and Duninald, *Mr G. M'Farlane*.

E. montanum, L. Broad Smooth-leaved Willow-herb. H. 111, B. 105.—F. July. P.

Frequent throughout the county.

E. roseum, Schreb. Pale Smooth-leaved Willow-herb. H. 112, B. 106.—F. July. P.

Waste ground about Kinnaird, *Messrs A. Bousie and John Laing*.

These enterprising young votaries of the science, during two years' location at Kinnaird Castle (between Montrose and Brechin), as gardeners, exerted themselves to investigate the botany of the neighbourhood, and their researches were amply rewarded. In that period they collected upwards of 500 species of phænogamic and cryptogamic plants, independant of others in the adjoining counties, and including the rare *Epi-lobium* above-named, *Galium erectum*, *Corallorhiza innata*, *Phascum alternifolium*, *Anthoceros punctatus*, and many other interesting plants. When it is considered that these explorations were made chiefly when the day's labours were over, and that they often walked seven or eight miles after six o'clock in the evening, botanizing till twilight departed, and returning home with their floral acquisitions under the shadow of night, their zeal in the prosecution of this study is most exemplary; and no one in their profession, it is believed, ever regretted devoting some portion of leisure time to the study of botany. Indeed, every gardener ought to be, to some extent, a botanist; and perhaps the day is not far distant when some knowledge of that subject will be deemed an essential item in the qualifications of a gardener.

E. tetragonum L. Square-stalked Willow-herb. H. 112, B. 106.—F. July, August. P.

In ditches and marshy places frequent.

E. palustre, L. Narrow-Leaved Marsh Willow-herb. H. 112, B. 105.—F. July, August. P.

Plentiful in ditches and marshes. A slender state, from four inches to a foot high, is not unfrequent on the marshy banks of streams among the Clova mountains, associated with the alpine *Epilobii*.

E. alsinifolium, Vill. Chickweed-leaved Willow-herb. H. 112, B. 106.—F. July, August. P.

Frequent by the sides of streams, and on marshy banks among the Clova and Glen Isla mountains. Very abundant about Feula, and the streams descending from Loch Brandy and the Corrie of Clova, in flower and fruit, and much of it only in bud, July 1846. Varies in height from two inches to a foot, and in the breadth of its leaves: some of them are flat, others are more or less concave. Some of the smaller flat-leaved specimens approach so nearly to *E. alpinum*, that various bontanists have felt doubtful to which species they should be referred; but, though closely allied, and their distinctive character difficult to express in words, there can be little doubt that both are good species.

E. alpinum, L. Alpine Willow-herb. H. 112, B. 106.—F. June, July. P.

In marshy places, and by the sides of nearly all the streams and rills among the Clova and Glen Isla mountains, more common than *E. alsinifolium*, but sometimes associated with it.

CIRCÆA, L. Enchanter's Nightshade.

Br. sp. and v. 3. F. 3.

C. Lutetiana, L. Common Enchanter's Nightshade. H. 103, B. 107.—F. June, August. P.

Near Finhaven, *Mr G. Don*.

C. alpina L. Alpine Enchanter's Nightshade. H. 114, B. 107.—F. July, August. P.

Rocky banks of streams above Drumtochty Castle in profusion, *Mr J. Cruickshank*. Stony places by the side of Loch Lee, *Prof. Balfour*. (*Mr G. Don* mentions *C. alpina* and var. β . *intermedia*, but gives no stations.)

Loch Lee is a solitary but beautiful lake among the moun-

tains at the head of Glen Esk. The Craigs of Maskeldie at its head are wild and picturesque, and, to the botanist, might prove interesting, if well examined, but being so far from the hamlet of Clova, little in this way could be done without gipseying it. At the foot of the lake stands the venerable ruins of Invermark Castle, and near it the humble cottage where, for many a year, lived "The Bard of Loch Lee," Mr Alexander Ross, the gifted schoolmaster of the parish, whose writings are well known to almost every lover of the Scottish muse. The lake, thus associated with the memory of the author of "The Fortunate Shepherdess," obtains an interest in the heart, apart from the admiration of its own beauty. With what a spirit of enchantment, as it were, has not the genius of Scott invested Loch Katrine, and that of Byron Lochnagar? And, though of a humbler cast, the genius of Ross will give to Loch Lee a deathless fame.

ORD. XXVIII.—HALORAGEÆ.

Gen. Br. 3. F. 3. Sp. and v. Br. 9, F. 5.

HIPPURIS, *L.* Mare's Tail.

Br. sp. 1. F. 1.

H. vulgaris, L. Common Mare's Tail. H. 114, B. 108.
—F. June, August. P.

Margins of the Lakes of Rescobie, Balgavies, and Forfar, plentiful; and in ditches and marshes near them.

Pools near Guthrie, *Prof. Balfour*. Restenet, *Mr A. Croall*. Mill-dam, Farnell, *Dr White*. Kingoldrum, *Rev. J. O. Haldane*.

MYRIOPHYLLUM, *L.* Water-Milfoil.

Br. sp. 3. F. 1.

M. spicatum, L. Spiked Water-Milfoil. H. 114, B. 108.—F. July, August. P.

In pools frequent, as well as in streams. In the Esk at Milltown of Clova, in dense floating masses 2 or 3 feet long, but without flowers, July, 1846.

ORD. XXIX.—CERATOPHYLLÆ.

Gen. Br. 1. F. 1. Sp. Br. 2. F. 1.

CERATOPHYLLUM, *L.* Hornwort.

Br. sp. 2. F. 1.

C. demersum, *L.* Common Hornwort. H. 116, B. 104.
—F. July. P.

In the lakes of Rescobie and Balgavies, plentiful.

ORD. XXX.—LYTHRARIÆ.

Gen. Br. 2. F. 1. Sp. and v. 5. F. 1.

PEPLIS, *L.* Water-Purslane.

Br. sp. 1. F. 1.

P. Portula, *L.* Water-Purslane. H. 117, B. 103.—F.
June, Augt. A.

The only station in which I have found this little plant is a small marsh in a fir-wood north-east from Forfar.

ORD. XXXIII.—PORTULACÆ.

Gen. Br. 1. F. 1. Sp. and v. Br. 2. F. 2.

MONTIA, *L.* Blinks.

Br. sp. and v. 2. F. 2.

M. fontana, *L.* Water-Blinks, or Water Chickweed.
H. 119, B. 110.—F. May, Augt. A.

Abundant in wet and marshy places, from the sea-shore to the summits of the higher mountains, particularly loving to luxuriate about the boggy sources of alpine springs and rivulets. Such a spot is termed a “*well-ee*,” and is generally filled with mosses and flowering plants peculiar to marshes.

β. major, Willd, is not unfrequent, and I gathered it in the old shieling at Loch Wharral in July 1846.

ORD. XXXIV.—PARONYCHIEÆ.

Gen. Br. 5. F. 1. Sp. and v. 9. F. 2.

SCLERANTHUS, *L.* Knawel.

Br. sp. 2. F. 2.

S. annuus, *L.* Annual Knawel. H. 121, B. 112.—F. —June, July. A.

Common in fields and on wall-tops.

S. perennis, *L.* Perennial Knawel. H. 121, B. 112.—F. June, Oct. P.

Near Forfar, *Hook. Br. Fl.*

ORD. XXXV.—CRASSULACEÆ.

Gen. Br. 5. F. 3. Sp. and v. Br. 17. F. 8.

SEMPERVIVUM, *L.* House-leek.

Br. Sp. 1. F. 1.

S. tectorum, *L.* Common House-leek. H. 122, B. 114.—F. July. P.

Frequent on the roofs of cottages, &c., but generally planted. Known in this county under the name of “*Foo’s*.”

SEDUM, *L.* Orpine and Stone-crop.

Br. sp. and v. 12. F. 6.

S. Telephium, *L.* Orpine, or Live-long. H. 123, B. 113.—F. June, July. P.

Rather local. Side of a field Easter Clepington, near Dundee. Banks of Bullion Burn. Near the village of Mericmoor, Camperdown. Near the Bridge of Finhaven, in abundance, &c.

Kinblethmont, *W. F. L. Carnegie, Esq.* Bridge of Dun, and in a wood three miles from Montrose on the south side of the Brechin road, *Mr A. Kerr.*

S. Anglicum, *Huds.* English Stone-cress. H. 123, B. 114.—F. June, August. A. ?

On the Hare Craigs, near Broughty Ferry, abundant, the only spot where I have observed it in the county. The flowers have frequently a tinge of red.

S. album, L. White Stone-crop. H. 123, B. 113.—F. July, August. P.

Roofs of houses in Forfar, *Mr G. Don*. Glammiss, *Mr Simpson*. Brechin, *W. F. L. Carnegie, Esq.*

S. villosum, L. Hairy Stone-crop. H. 123, B. 113.—F. June, July. P.

Wet banks of the Dighty where it empties itself into the sea at the Milltown of Monifieth, and on marshy banks of a small stream between that and Broughty, in rather small quantity in both places. Clova mountains, not frequent.

S. acre, L. Biting Stone-crop, or Wall Pepper. H. 124, D. 114.—F. June, July. P.

On the sandy sea-shores, on walls, roofs of houses, and rocky banks, throughout the county, abundant.

S. reflexum, L. Crooked Yellow Stone-crop. H. 124, B. 114.—F. July, August. P.

On roofs of houses in Forfar, *Mr G. Don*.

RHODIOLA, L. Rose-root.

Br. sp. 1. F. 1.

R. rosea, L. Rose-root. H. 125, B. 113.—F. June, July. P. (*Sedum Rhodiola*, DC., Bab.)

Plentiful among the Clova and Canlochen mountains, loving to grow in the moist shady crevices of rocks. The roots, especially when fresh, have a smell like that of roses. Like the *Sedum Telephium*, its leaves turn yellowish in drying, and readily drop off.

ORD. XXXVI.—GROSSULACEÆ.

Gen. Br. 1. F. 1. Sp. and v. Br. 6. F. 2.

RIBES, L. Currant and Gooseberry.

Br. sp. and v. 6. F. 2.

R. rubrum, L. Common, or Red Currant. H. 125, B.

115.—F. May, June. S. β . *petræum*, Hook. (*R. petræum*, Sm.)

Meriemoor Wood, the station now destroyed.

Woods near Airlie Castle, by the river side, *Hook, Fl. Scot.* It was originally discovered by *Mr G. Don*, and is to be found a little below the Low Garden, *Rev. J. S. Barty.*

R. Grossularia, L. Common Gooseberry. H. 126, B. 115.—F. April, May. S.

Waysides, waste ground, and in woods, not unfrequent, in many places apparently quite indigenous.

ORD. XXXVII.—SAXIFRAGÆÆ.

Gen. Br. 2. F. 2. Sp. and v. 32. F. 16.

SAXIFRAGA, L. Saxifrage.

Br. sp. and v. 30. F. 14.

S. umbrosa, L. London Pride, None-so-Pretty, or St Patrick's Cabbage. H. 127, B. 116.—F. May, June. P.

Balgay Wood, evidently either planted, or an escape from the garden.

Den of Fullerton, *Mr John Laing.* Probably also introduced there.

S. stellaris, L. Starry Saxifrage. H. 127, B. 117.—F. June, August. P.

Marshy banks and sides of mountain streams very frequent. Generally from three to six inches high, but on the summits of the mountains, in merely moist spots, sometimes not exceeding half-an-inch. The flowers are from one to six, and in ordinary seasons are in perfection in July.

S. nivalis, L. Clustered Alpine Saxifrage. H. 128, B. 119.—F. July. P.

Rare. Corrie of Ben Hard, Clova. Rocky cave, head of Canlochen.

Front of the Bassies, *Mr A. Croall.*

S. oppositifolia, L. Purple Mountain Saxifrage. H. 128, B. 119.—F. April, August. P.

Plentiful on rocks among the Clova and Glen Isla mountains, adorning them with its wide spreading or trailing masses of ciliated foliage, its large crimson flowers being in perfection in early summer, though frequently met with sparingly in July and August.

S. aizoides, L. Yellow Mountain Saxifrage. H. 128, B. 117.—F. July, Sept. P.

The most common of the mountain saxifrages, and descending lower than any of the others. Almost every stream and rill on the mountains and in the intervening valleys, is margined with the golden flowerage of this plant; and in marshy places, and on the wet ledges of rocks, it is not uncommon. In drains by the side of the Newtyle and Glamis railway, August 1842, the most southern station in the county where it has been observed.

Frequent by the side of the North Esk near Gannachy Bridge, *Mr A. Kerr*.

S. granulata, L. White Meadow Saxifrage. H. 128, B. 119.—F. May, June. P.

Not uncommon on grassy banks, and on old walls in many places, as Will's Braes, Hare Craigs, near Montrose, Hunters' Hill near Glamis, Den of Airlie, &c. It varies in height from two to twelve inches.

A var. with scarlet-tipt petals, and another with the petals very acute, were found at Hare Craigs, near Broughty, by *Mr Douglas Gardiner*, but no date nor specimens have been preserved.

S. rivularis, L. Alpine Brook Saxifrage. H. 129, B. 119.—F. July, Sept. P.

Clova mountains, July 1824, *Hooker*, *Greville*, *Burchell*, and *Drummond*. It has also been found on these mountains by *Mr G. Don*, no particular stations indicated. It grows in considerable abundance on the wet shelving rocks on the south side of Lochnagar, in the neighbouring county of Aberdeen.

S. tridactylites, L. Rue-leaved Saxifrage. H. 129, B. 119.—F. May, June. A.

Not common. Hare Craigs. Den of Mains, probably introduced.

Tops of houses at Wormiehills, *Mr G. Don.* Tops of thatched houses near Arbroath, *Mr G. M'Farlane.* *Mr John Laing.*

S. hypnoides, L. Mossy Saxifrage. H. 129, B. 118.—F. May, July. P.

Plentiful on rocks and by the sides of streams among the mountains. Near the Reeky Linn, Den of Airlie. Very variable; several of its varieties have been considered by some, good species, while others doubt whether the different forms it assumes can be deemed either permanent species or varieties.

β. *S. platypetala*, Sm.

Clova mountains, *Mr G. Don.*

S. denudata, Don.

S. lætevirens, Don. H. 130, B. 118.

Both found on the Clova mountains by *Mr G. Don.*

S. elongella, Sm.

Upon a wall top under a hedge near Airlie, May 1845.

Banks of a rivulet not far from Airlie Castle, *Mr G. Don.*

S. pedatifida, Ehrh. Pedatifid-leaved Saxifrage. H. 130, B. 118.—F. May. P.

“Rocks near the head of Clova,” *Mr G. Don.*

CHRYSOSPLENIUM, L. Golden-Saxifrage.

Br. sp. 2. F. 2.

C. alternifolium, L. Alternate-leaved Golden-Saxifrage. H. 131, B. 120.—F. April. P.

Marshy banks in various places, not common. Reeky Linn, and foot of the Den of Airlie, on the east bank of the Isla.

Wood to the west of Kinnaird Mills, *Mr A. Bousie.* Den of Auldbar, *Mr A. Croall.* Den of Fullerton, *Dr Reid,* and *Messrs J. Cruickshank* and *A. Kerr.*

C. oppositifolium, L. Common Golden-Saxifrage. H. 131, B. 120.—F. April, July. P.

More abundant than the last, growing by the sides of streams, springs, and in moist shady dens, covering the wet rocks and banks with its luxuriance of leaves and curious flowers. I have found it on the sea-shore, and in springy places near the summits of the Clova mountains.

ORD. XXXVIII.—UMBELLIFERÆ.

Gen. Br. 42. *F.* 24. *Sp. and v. Br.* 71. *F.* 29.

HYDROCOTYLE, *L.* White-rot.

Br. sp. 1. *F.* 1.

H. vulgaris, *L.* Common White-rot, or Marsh Pennywort. *H.* 132, *B.* 125.—*F.* May, June. *P.*

Plentiful in marshy places from the coast to nearly the summits of the mountains.

SANICULA, *L.* Sanicle.

Br. sp. 1. *F.* 1.

S. Europœa, *L.* Wood Sanicle. *H.* 133, *B.* 125.—*F.* May, July. *P.*

Gannachy Woods, *Mr John Laing.* Castle of Edzell, *Mr J. Cruickshank.*

ERYNGIUM, *L.* Eryngo.

Br. sp. 2. *F.* 1.

E. maritimum, *L.* Sea Eryngo, or Sea Holly. *H.* 133, *B.* 126.—*F.* July, Sept. *P.*

Sands of Barrie, rare, occurring only in two or three spots on the sandy hillocks, near the beach, not far to the westward of the lighthouses.

Sand-hills at the lighthouse, Montrose, very rare, *Mr. J. Cruickshank.* Montrose Links, rare, *Mr G. M'Farlane.* To the eastward of Arbroath, plentiful, *Mr G. Don*; but he specifies no stations.

CONIUM, *L.* Hemlock.*Br. sp. 1. F. 1.*

C. maculatum, *L.* Common Hemlock. H. 134, B. 137.
—F. June, July. B.

Frequent in waste ground, and by waysides. Abundant between Dundee and Broughty Ferry. Near Invergowrie, and many other places.

Near Usan, and about the Montrose Lunatic Asylum, *Mr A. Croall*.

This plant exhales a very nauseous odour, which becomes much more perceptible when the leaves are bruised or rubbed between the fingers. Its dark green leaves and spotted stems have a forbidding aspect, and speak to the observant eye of its possessing powerful and life-destroying qualities. In former times it was associated with the ridiculous though tragical hallucination of witchcraft, for Shakspeare tells us that,

“ Roots of Hemlock, dug i' th' dark,”

were among the noxious ingredients of the mystic cauldron. Now that such a mischievous phantasy no longer disfigures the moral and intellectual features of our country, and prejudice being discarded, the Hemlock is left to say that the wise Creator has made nothing in vain. Its application in medicine is highly esteemed by those who know how to administer it properly. It is a powerful narcotic: its properties in this respect have long been known. A poultice formed of its leaves is a popular application to cancerous ulcerations, and rarely fails in giving temporary relief to the sufferer.

There is one interesting though painful association linked with the Hemlock. In the earlier ages it was well known as a poison: Phocion, a virtuous Athenian governor and statesman, perished by its effects; and it was the drinking of its juice that destroyed the famous heathen philosopher Socrates, who was condemned to that death by the corrupt Athenians, as a reward for his spotless virtue, and the exertion of his eminent talents in endeavouring to elevate the moral status of his country. Thus furnishing a melancholy proof—if such indeed was needed—that in all ages the evil passions of our nature have been intolerant of virtue, which alone can dig-

nify it, and prepare us for properly contemplating the awful majesty of our Creator.

CICUTA, L. Cowbane.

Br. sp. 1. F. 1.

C. virosa, L. Cowbane, or Water Hemlock. H. 135, B. 126.—F. June, August. P.

Margins of the Lakes of Rescobie, Balgavies, Forfar, &c., generally growing in the water.

Réstenet, *Mr A. Croall*.

This very poisonous plant is appropriately named *Cowbane*, and *Mr G. Don* relates that “cattle, when allowed to browse by the sides of the lakes in the winter months, are sometimes deceived, by its smell being very weak at that season; and when once they have eaten it, it generally proves fatal in two or three hours. The late *Mr Dickson* of Cloak’s-bridge lost three cows in one afternoon by this plant. When the summer is a little advanced, the odour of the plant warns the cattle, and then they carefully avoid it.” Were farmers acquainted with this and such like plants, and making them known to their herd-boys, it might be much to their advantage.

HELOSCIADIUM, Koch. Marsh-wort.

Br. sp. 3. F. 1.

H. inundatum, Koch. Least Marsh-wort. H. 137, B. 127.—F. May, July. B. ? (*Sium inundatum* Wigg. *Sison inundatum*, E. Bot.)

In wet and marshy places occasionally. Marshy pool, Sands of Barrie. Small marsh a little to the north of the Lawhill, &c.

In pools and ditches on Guthrie and Rossie moors, *Mr A. Croall*. Monroman moor, *Mr J. Cruickshank*.

ÆGOPODIUM, L. Goutweed.

Br. Sp. 1. F. 1.

A. Podagraria, L. Goutweed. H. 138, B. 128.—F. May, July. P.

Under hedges, by waysides, and in waste places, abundant.

CARUM, *L.* Caraway.*Br. sp. 3. F. 1.*

C. Carui, *L.* Common Caraway. H. 138, B. 128.—F. June. B.

Wayside between Strathmartin and Balluderon, in one spot, where probably the seeds had been dropped. Don mentions it as the most common umbelliferous plant in the vicinity of Arbroath; I have never been able to detect it there, except cultivated about cottages; and *Mr Croall* says, "I have examined almost every spot around Arbroath, many of them repeatedly, but never observed a single plant." Some plants are very ephemeral in their appearance, and it may have been that in Don's time the plant was common in that district. It is much cultivated for the sake of the seeds, which are used in the county to give a flavour to cheese and oaten cakes.

BUNIUM, *Koch.* Earth-nut.*Br. sp. 1. F. 1.*

B. flexuosum, *With.* Common Earth-nut. H. 139, B. 128.—F. May, June. P.

Very plentiful in meadows and on grassy banks. The tuberous roots have a flavour much akin to that of the hazelnut, and are well known to school-boys and country urchins, being extensively dug up and eaten under the name of "*Luci-earnuts*."

PIMPINELLA, *L.* Burnet Saxifrage.*Br. sp. 2. F. 1.*

P. Saxifraga, *L.* Common Burnet-Saxifrage. H. 139, B. 129.—F. July, Sept. P.

Frequent from the coast to the highland valleys.

Very variable in size, the stems and leaves more or less pubescent. The var. or state with pinnatifidly-cut radical leaves, occurs at Will's Braes, and Den of Bonnington, near Montrose, &c.

SIUM, *L.* Water-Parsnep.*Br. sp. 2. F. 1.*

S. angustifolium, *L.* Narrow-leaved Water-Parsnep. H. 140, B. 129.—F. July, August. P.

Rare. Ditch near Denmill, west from Lochee.

East end of the Loch of Forfar, *Mr A. Croall*. Ditches and margins of *the pond* at Kinnaird, *Mr A. Bousie*.

ŒNANTHE, *L.* Water-Dropwort.*Br. sp. and v. 6. F. 2.*

Œ. fistulosa, *L.* Common Water-Dropwort. H. 141, B. 130.—F. July, Sept. P.

“To the west of Dundee,” *Mr G. Don*. I have not yet met with it.

Œ. crocata, *L.* Hemlock Water Dropwort. H. 142, B. 131.—F. July. P. (*Œ. apiifolia*, Brot. ?)

Wet places near Ninewells, at Will's Braes, and between Broughty and Monifieth.

ÆTHUSA, *L.* Fool's-Parsley.*Br. sp. and v. 2. F. 1.*

Æ. Cynapium, *L.* Common Fool's-Parsley, or Lesser Hemlock. H. 143, B. 131.—F. July, August. A.

Frequent in waste ground, and particularly in weedy gardens. It not uncommonly grows in cultivated beds of the common parsley, and, being very poisonous, no one would use it with the other, *if he knew it*. But how many consider it *foolery* to waste their time upon studying botany, although a little knowledge of it may often be the means of saving life, and we have many melancholy records of the want of such causing death. We daily see man punished for his ignorance of his Creator's works, and this is a powerful reason why we should bestir ourselves to become acquainted with them. Man is alike responsible for his ignorance as his knowledge, when that knowledge is within his reach.

FŒNICULUM, *Hoffm.* Fennel.*Br. sp. 1. F. 1.*

F. vulgare, Gært. Common Fennel. H. 143, B. 131.—F. July, August. P.

“On rocks on the foreside of Sidlaw Hills, the only habitat I know for it in Scotland,” *Mr G. Don.* I have failed to meet with it there, but that is no reason why it should not be re-found.

LIGUSTICUM, *L.* Lovage.*Br. sp. 1. F. 1.*

L. Scoticum, *L.* Scottish Lovage. H. 144, B. 132.—F. July. P.

On the sea-beach at Auchmithie, sparingly, and between that and Arbroath.

Sea-shore, Dysart, and rocks in the sea near Duninald, *Mr A. Croall.* Rocks between Usan and Boddin, *Mr G. M'Farlane.*

MEUM, *Tourn.* Spignel.*Br. sp. 1. F. 1.*

M. athamanticum, *Jacq.* Spignel, Mew, or Bald-Money. H. 145, B. 132.—F. June, July. P. (*Ligusticum Meum Crantz Athamanta Meum L.*)

Glen Clova, and pastures in most of the Highland valleys; called by the Highlanders “*micken*,” and highly esteemed as a carminative, as well for its aromatic taste and smell.

Banks of the Islay at Reeky Linn, likely brought down by the river from the higher grounds.

Banks of the North Esk, in Glenesk, and moor above the Bridge of Dun, *Mr A. Croall.*

ANGELICA, *L.* Angelica.*Br. sp. 2. F. 1.*

A. sylvestris, *L.* Wild Angelica. H. 146, B. 133.—F. June, August. P.

Not uncommon in watery places, especially such as are shaded with trees.

HERACLEUM, *L.* Cow-Parsnep.

Br. sp. and v. 2. F. 2.

H. Sphondylium, L. Common Cow-Parsnep, or Hogweed. H. 147, B. 134.—F. June, Sept. B.

Common by waysides, under hedges, in woods, and on rocky banks along the coast.

β .—*H. angustifolium, Sm.*, is not uncommon; there are intermediate states.

If it is true that this plant affords "wholesome and nourishing food for cattle," it is worthy the attention of the farmer, and might repay him for its cultivation in poor soils better than other crops.

DAUCUS, *L.* Carrot.

Br. sp. 2. F. 1.

D. Carota, L. Wild Carrot. H. 148, B. 134.—F. July, August. B.

In fields and by waysides occasionally. This is the origin of our garden carrot, and is sometimes called *Bird's-nest*, from its umbels being concave, especially when in fruit.

TORILIS, *Adans.* Hedge-Parsley.

Br. sp. 3. F. 2.

T. Anthriscus, Gært. Upright Hedge-Parsley. H. 149, B. 135.—F. July, August. A. (*Caucalis, Huds.*)

Waysides and ditch-banks frequent.

T. nodosa, Gært. Knotted Hedge-Parsley. H. 150, B. 135.—F. May, July. A.

Montrose Links, near the Lunatic Asylum, *Mr A. Croall.*

SCANDIX, *L.* Shepherd's Needle.*Br. sp. 1. F. 1.*

S. Pecten, *L.* Shepherd's Needle, or Venus' Comb. H. 150, B. 135.—F. June, Oct. A.

Not uncommon in corn-fields and in waste places.

ANTHRISCUS, *Pers.* Beaked Parsley.*Br. sp. 3. F. 2.*

A. sylvestris, *Koch.* Wild Beaked Parsley, or Wild Chervil. H. 151, B. 136.—F. April, June. P. (*Chærophyllum*, *L.*)

Abundant by the sides of fields, hedges, and in waste places.

A. vulgaris, *Pers.* Common Beaked Parsley. H. 151, B. 136.—F. May, Oct. A. (*Scandix Anthriscus*, *E. Bot.*)

By waysides along the coast frequent. Smell, when bruised, strong and disagreeable.

CHÆROPHYLLUM, *L.* Chervil.]*Br. sp. 3. F. 3.*

C. temulentum, *L.* Rough Chervil. H. 151, B. 136.—F. June, July. P. (*C. temulum*, *L. (Bab.) Myrrhis temulenta*, *E. Fl.*)

Mr G. Don says it is rare, but I have found it very frequently in ditches and wet places, especially towards the coast.

C. aureum, *L.* Tawny-seeded Chervil. H. 152, B. 136.—F. June. P.

“ I discovered this plant some years ago by the side of corn-fields between Arbroath and Montrose,” *Mr G. Don.*

C. aromaticum, *L.* Broad-leaved Chervil. H. 152, B. 136.—F. June. P.

“ I discovered this in 1810, by the side of the river called

Lunan and Vennie, not far from Guthrie, in a truly wild state," *Mr G. Don*.

Neither of these two plants have, I believe, been re-found.

MYRRHIS, *Tourn.* Cicely.

Br. sp. 1. F. 1.

M. odorata, Scop. Sweet Cicely, or Myrrh. H. 152, B. 137.—F. May. P.

Den of Glammiss, near the mill-dam. Side of the Dean at the bridge between Glammiss and the railway station. Den of Foulis, &c.

Den of Bonnington, *Mr John Laing*. Below Marten's Den, *Mr A. Croall*.

The "sweet-smelling myrrh" is frequently planted about cottages, and in cottage-gardens, for the sake of its agreeable scent.

Oft by the peasant's cot, the humble myrrh,
His meet companion, doth unfold its leaves
Of pleasant green, and umbels of fair flowers,
That through his casement, and around his door,
Shed richest fragrance, sweetening those few hours
That toil allows him home-born joys to share.
And what it gives it grudgeth not, but, like
The true and feeling heart, dispenseth still,
So long as it hath aught that can convey
Pleasure to temper care, or give to grief
Sweet balm, or drooping sorrow cheer.

ORD. XXXIX.—ARALIACEÆ. *Juss.*

Gen. Br. 2. F. 2. Sp. Br. 2. F. 2.

ADOXA, L. Moschatell.

Br. sp. 1. F. 1.

A. moschatellina, L. Tuberos Moschatell. H. 153, B. 138.—F. April, May. P.

In moist shady places, not common. Dens of Airlie, Glammiss, and Mains.

Den of Laurieston, plentiful, first found there by Dr White, *Mr A. Croall*. Den of Fullerton, *Mr G. M'Farlane*. Woods, Kinnaird Mill, *Mr J. Laing*.

HEDERA *L.* Ivy.*Br. sp. 1. F. 1.*

H. Helix, *L.* Common Ivy. H. 154, B. 138.—F. Oct. Nov. S.

In many places, investing rocks, old walls, and trees, with its beautiful garniture of shining leaves. Berries ripen in the spring. Most abundant along the coast, in dens and shady woods, and extending to a considerable elevation on the mountain rocks.

ORD. XL.—CORNEÆ. *D.C.**Gen. Br. 1. F. 1. Sp. Br. 2. F. 1.*CORNUS, *L.* Cornel.*Br. sp. 2. F. 1.*

C. suecica, *L.* Dwarf Cornel. H. 154, B. 139.—F. June, August. P.

In boggy and heathy hollows among the Clova mountains, frequent; as near the shieling of Lunkar, head of Glen Dole, bog at the head of Caness, &c. Lochlee, *Mr D. Lyall*.

To some of my southern readers, who have never been among the Highland mountains, but whose zeal for botanizing may tempt them to contemplate such an excursion, a brief account of what a *shieling* is may not be uninteresting; the more especially as such a habitation will require occasionally to be substituted for a comfortable inn. Botanizing among the mountains, like many other things viewed at a distance, seems all a matter of delight; it is not unnecessary, however, to remind the young botanist, that he must make up his mind to sacrifice some comforts, to undergo much fatigue, and brave many dangers, in order to secure those bright prizes with which Flora will not fail to reward his exertions.

A *shieling*, or *shiel*, is a small rude hut or cottage, constructed for the accommodation of shepherds during the summer months they reside among the mountains. It is built of turf or rough stones, and generally thatched with broom or straw. It has a door, and a small square opening closed by

a board in place of a window. The interior displays the most brilliant ebony hue, and is painted by the hand of no common artist. A chimney and fire-place are luxuries unthought of; the fire is lighted on the floor, and an opening in the roof, at one end of the dwelling, is deemed quite sufficient for the egress of the smoke. If all is quiet without, it generally finds its way; but otherwise, it would be perhaps better to submit to the consequences of a heavy shower outside, than run the risk of having the eyes irritated, and the breathing embarrassed, by the smoke within.

In such a place luxury in furniture is not to be looked for, the principal items usually being a heather-bed, a small wooden form, a turf-built sofa by the fire, termed a *sunk*, a little meal-girnal, an iron pot, a tin flagon, one or more wooden dishes called *caps*, and several horn-spoons.

The food generally used by the shepherds is what in Scotland is known by the name of *brose*, which is made by pouring boiling water upon oatmeal, with a little salt, then gently stirring with a spoon, and qualifying with butter or milk, as either may be obtained. The fuel used for boiling the water is either peats or *birns* (the withered stems of heath), and the pot is suspended over the fire by a chain from an iron spike fixed in the wall. Cheese and bread are also partaken of, but chiefly during their long and fatiguing rambles round the mountain-*riggins*.

After a long day's scrambling among wild rocks, and wandering over trackless heaths, loaded with the treasures of Flora, when at evening's hour,

“Keen blows the blast, and ceaseless rains descend,”

with what earnestness does the botanical Rambler exclaim, with Bloomfield,—

“O! for a HOVEL, e'er so small or low,”—

and what soul-thrilling pleasure fills his breast, when,

“No sooner thought, than see the structure rise,
In some sequester'd nook, embank'd around,
Sods for its walls, and straw in burdens bound.”

To that little domicile he is always welcomed in the spirit of genuine hospitality. Though the accommodation be rude, and the comforts at command scanty, yet the cheerful health-beaming smile of the hardy mountaineer, and his kind open-heartedness, make up for all such deficiencies. On his

humble pallet of heather the wearied flower-hunter will here sometimes enjoy the refreshing influence of

“Tired Nature’s sweet restorer,
Balmy sleep,”

with greater zest than ever he did on canopied bed of down ;
and when

“The Morning opens her golden gates,
And takes her farewell of the glorious sun,”

he finds himself invigorated, and ready for the explorations of a new day, and feels, in accordance with the ideas of his simple host, that

“From labour health, from health contentment springs :
Contentment opens the source of every joy.”

ORD. XLI.—LORANTHÆ, *Juss.*

Gen. Br. 1. F. 1. Sp. Br. 1. F. 1.

VISCUM, *L.* Mistletoe.

Br. sp. 1. F. 1.

V. album, *L.* Common Mistletoe, or Misseltoe. H. 155, B. 139.—Mar. May. P.

Rare. Woods of Belmont, in the parish of Meigle.

ORD. XLII.—CAPRIFOLIACEÆ, *Juss.*

Gen. Br. 4. F. 4. Sp. and v. Br. 9. F. 7.

SAMBUCUS, *L.* Elder.

Br. sp. and v. 3. F. 2.

S. Ebulus, *L.* Dwarf Elder, or Dane-wort. H. 156, B. 140.—F. July, Augt. P.

Rare. About the old church of Invergowrie. The odour it emits is strong and nauseous, and its taste peculiarly acrid, evincing the potent poisonous qualities it possesses. It has been said, that, when planted around granaries, and other places frequented by rats and mice, its foetid smell was sufficient to drive away these vermin ; but experience only can test the truth of this assertion. The name Dane-wort, it is

also said, was applied to the plant by our ancestors, from the foolish supposition that it sprung from the blood of their enemies, the Danes; though, more probably, it had been introduced into this country by them.

S. nigra, L. Common Elder. H. 156, B. 140.—F. June. T.

Occurs frequently, though chiefly about the habitations of man, and probably not indigenous. Sometimes its leaves are variegated with white.

Mr Croall observes that the first year's shoots are full of pith; this, however, gradually disappears, and the wood then becomes so hard, that he has used it occasionally for carving and engraving instead of boxwood.

VIBURNUM, L. Guelder-rose.

Br. sp. 2. F. 2.

V. Lantana, L. Meally Guelder-rose, or Wayfaring-tree. H. 156, B. 141.—F. June. T.

A little distance above the Bridge at Old Montrose, *Mr J. Cruickshank*.

V. Opulus, L. Common Guelder-rose, or Water Elder. H. 156. B. 141.—F. June, July. T.

Den of Airlie, near the Reeky Linn, &c., but probably planted.

LONICERA, L. Honeysuckle.

Br. sp. 3. F. 2.

L. Periclymenum, L. Common Honey-suckle, or Woodbine. H. 157, B. 141.—F. June, Oct. S.

Not uncommon on rocky banks, chiefly on the coast, and in woods, loading the summer air with its rich incense. In the Den of Glamis this elegant shrub is seen suspending its flowery branches from the jutting crags, and often reaching the ground from a height of twenty or thirty feet.

Den of Duninald, and rocks by the sea near Dysart, no doubt, I think, indigenous, *Mr A. Croall*. Rock of St Skae near Usan, *Mr G. M'Farlane*. Den of Airlie, on the left bank, below the Castle, *Rev. J. S. Barty*.

“The rock of St Skae is a curious, almost isolated, rock, about a mile to the west of Usan. It stands in the middle of a little bay or hollow, from the inner part of which it extends for about a hundred yards to high-water mark, where it rests upon the submarine rock. It is perforated at the water's edge, and when viewed from either side, has very much the appearance of an elephant's head, sipping with its trunk from the briny wave. From its secluded situation and romantic appearance, it was chosen, tradition says, at some former period in the dark page of human history, as the abode of a sanctified recluse, whose prayers were held in high estimation by the passing mariner. The remains of a burying ground are still extant on its inner shoulder, and it is more than likely that a chapel had once kept it company, from whose hallowed portals the ‘music sweet’ of choiristers, whose dust now mingles with its ruins, had echoed to the wailings of the surge below.

“The sides of this rock are shaggy with the grey lichen, *Ramalina scopulorum*, and festooned with honey-suckle. Immense quantities of algæ are deposited in the bay, and the rocks near low-water are beautifully fringed with the *Chylocladia Kaliformis*.” *Mr A. Croall*.

L. Xylosteum, L. Upright Fly Honey-suckle. H. 157, B. 141.—F. May, July. S.

Woods of Burn, in fruit, Sept. 1839, *Mr A. Croall*.

LINNÆA, *Gronov.* Linnæa.

Br. sp. 1. F. 1.

L. borealis Gronov. Two-flowered Linnæa. H. 157, B. 141.—F. May, Augt. P.

This sweetest and loveliest of our native flowers, esteemed alike for its beauty and its rarity, and the association of its name with the immortal Swede, grows in considerable abundance on mossy rocks, at the base of Craig Maid, Glen Dole, a little below the Falls on the White Water, among scattered old birch trees.

Gathered in flower by *Mr Brand* and *Dr Barry*, at the very edge of the precipice overhanging the south side of the White Water, growing among short *Vaccina*, *Prof. Graham*. On the north-east corner of Mouroman Moor, not far from

the side of the Arbroath road, *Mr J. Cruickshank*. Kin-naird Woods, *Rev. James Burns*. It has also been found in the Woods of Inglismaldie, on both sides of the Fetter-cairn road, about a furlong from the bridge on the Kincardine side of the Esk, by *Messrs Croall, Kerr, Cruickshank,* and *M^rFarlane*. In this station it was first discovered in 1795 by *Prof. Beattie*, the author of the *Minstrel*.

Linnæus himself, we are told, when he gathered this plant at Lyksele in May 1732, chose it to commemorate his name. Former botanists had known it under the name of *Campanula serpyllifolia*, but he soon found it to be a new genus, and his name was given to it by his friend Gronovius. "Linnæus," says Smith, "found a resemblance of his own early fate in the history of 'this little northern plant, long overlooked, depressed, abject, flowering early;'" and he adds, "more honoured in the name than any other: few could have been better chosen; and the progress of practical botany seems to be marked by the more frequent discovery of the Linnæa."

ORD. XLIII.—RUBIACEÆ, *Juss.*

Gen. Br. 4. F. 3. Sp. and Br. 25. F. 17.

GALIUM, *L.* Bedstraw.

Br. sp. and v. 20. F. 15.

G. verum, *L.* Yellow Bedstraw. H. 158, B. 144.—F. June, Augt. P.

One of our commonest summer flowers, extending from the sea-shores to the summits of the mountains. Its fragrance is very pleasing, strongly resembling that of honey.

G. cruciatum, *L.* Cross-wort. H. 159, B. 142.—F. May, June. P.

Banks, Ninewells. Banks of Bullion Burn, near Invergowrie. Near the Reeky Linn, and other parts of the Den of Airlie. Plentiful on the waysides between Meigle and Alyth, in the neighbouring county of Perth.

Moors above and below the Bridge of Dun, common, *Mr A. Croall*. Roadside near the Bridge of Dun; and Montrose road near Brechin, *Mr G. M^rFarlane*.

G. palustre, L. White Water Bedstraw. H. 159, B. 143.—F. July. P.

Abundant in marshy places, in woods, ditches, &c.

β . *Witheringii*, Hook. (*G. Witheringii*, E. Bot.) In marshes, particularly in the highland valleys, as Clova, &c.

G. uliginosum, L. Rough Marsh Bedstraw. H. 159, B. 144.—F. July, Augt. P.

Not uncommon in marshes.

G. saxatile, L. Smooth Heath Bedstraw. H. 159, B. 144.—F. May, Augt. P.

Abundant in the woods, often whitening the ground. Sandy pastures on the sea-shore, and on the hills.

G. erectum, Huds. Upright Bedstraw. H. 160, B. 143.—F. June, July. P.

At the side of the carriage-drive, in a wood west from Kinnaird Mill, *Mr A. Bousie*. *Mr G. Don* enumerates this in his list, but does not give a locality.

G. cinereum, All. Grey Spreading Bedstraw. H. 160, B. 143.—F. Augt. P. (*G. diffusum*, Don. *G. erectum*, β . *cinereum*, Bab.)

Near Kinnaird, *Mr G. Don*.

G. aristatum, L. Bearded Bedstraw. H. 160, B. 143.—F. July, Augt. P.

Angusshire, not common, *Mr G. Don*.

G. pusillum, L. Least Mountain Bedstraw. H. 161, B. 144.—F, July, Augt. P.

Lower rocks of Clova, *Mr G. Don*. Rocks on south side of Glen Dole, and west side of Glen Phee, associated in the latter station with *Oxytropis campestris*, *Professors Balfour* and *Graham*.

G. spurium, L. Smooth-fruited Corn Bedstraw. H. 161, B. 145.—F. July. A.

In corn-fields near Forfar, rare, *Mr G. Don*.

G. boreale, L. Cross-leaved Bedstraw. H. 162, B. 145.—F. June, Augt. P.

Banks of streams and marshy ground frequent, in the hilly and mountainous districts. Rocks of Glen Dole, Canlochen, Carlowie, &c., to nearly the summits of the mountains. By the sides of the Esk and the Isla abundant. East side of the White Hill, near a peat-bog, Sidlaw, perhaps the most southerly station in the county.

Abundant on the rocks at "The Burn," near Brechin, and common on all the Clova mountains, *Prof. Balfour*. Bridge of Dun, *Mr G. M'Farlane*.

G. Aparine, L. Goose-grass, or Cleavers. H. 162, B. 145.—F. June, Augt. A.

Abundant by waysides, in waste places, and under hedges.

G. saccharatum, All. Warty-fruited Bedstraw. H. 161, B. 144.—F. June, Augt. A. (*G. verrucosum*, E. Bot. *Valantia Aparine*, L.)

G. Mollugo, L. Great Hedge Bedstraw. H. 160, B. 143.—F. July, Augt. P.

The two latter species are enumerated by *Mr G. Don* as natives of the county, but no stations are given.

SHERARDIA, L. Field-Madder.

Br. sp. 1. F. 1.

S. arvensis, L. Lilac Sherardia, or Field Madder. H. 162, B. 142.—F. May, Augt. A.

Fields and waste places frequent. Though stated to have "pale-blue" flowers, I have found them always to be of a lilac colour.

ASPERULA, L. Woodruff.

Br. Sp. 3. F. 1.

A. odorata, L. Sweet Woodruff. H. 162, B. 142.—F. May, June. P.

In the Dens of Airlie, Glammis, &c., plentiful.

In a small ravine near Rossie Mill, *Mr A. Croall*.

On the south banks of the Tay near Balmerino, Fife, it grows in such profusion, as to whiten the interior of the woods with its snowy flowers. Some years ago, on the northern bank of the river, at Ninewells, a plant or two was detected flowering under the shelter of some sloes, but they have since disappeared. The dried leaves retain their fragrance for a long time, and are frequently used to scent clothes, &c.

ORD. XLIV.—VALERIANEÆ.

Gen. Br. 3. F. 2. Sp. and v. Br. 12. F. 3.

VALERIANA, L. Valerian.

Br. sp. and v. 4. F. 1.

V. officinalis, L. Great Wild Valerian. H. 164, B. 146.—F. June, Augt. P.

Occurs in many places, though not very common. Ninewells, Seaton Den, near Auchmithie, and other parts of the coast. Wayside near Brewhead. Dens of Glamis and Airlie. Banks of the Esk, Clova, in several places. Glen Dole, on a small island in the Dole, near its junction with Kilbo Burn.

Near Marten's Den, &c., *Mr. A. Croall*.

Their roots are used in medicine; and the fondness of cats for them is a curious though well-known fact.

FEDIA, Vahl. Corn-Salad.

Br. sp. and v. 7. F. 2.

F. olitoria, Vahl. Common Corn-Salad. H. 164, B. 147.—F. April, June. A. (*Valerianella olitoria*, Mœnch. *Valeriana Locusta*, L.)

Rather common along the coast, and in corn-fields.

F. dentata, Vahl. Smooth Narrow-fruited Corn-Salad. H. 164, B. 147.—F. June, July. A. (*Valerianella dentata*, Deitr. *Valeriana dentata*, Willd.)

In the south-east part of Forfarshire, *Prof. Balfour* and

Dr G. M'Nab. Below Craigie, *Rev. J. O. Haldane* and
Rev. J. S. Barty.

ORD. XLV.—DIPSACEÆ.

Gen. Br. 3. F. 2. Sp. Br. 6. F. 3.

SCABIOSA, L. Scabious.

Br. sp. 2. F. 2.

S. succisa, L. Devil's-bit Scabious. H. 167, B. 149.—
F. July, Oct. P.

Plentiful in the woods, and on heaths and moors. With white flowers in Mericmoor Wood, 1831. With white and rose-coloured flowers on the hill between Long Loch and Newtyle.

S. columbaria, L. Small Scabious. H. 167, B. 149.—
F. July, August. P.

In corn-fields on the coast frequent; particularly between Arbroath and East Haven, and about Montrose. Occasionally with white flowers.

KNAUTIA, L. Field Scabious.

Br. sp. 1. F. 1.

K. arvensis, Coult. Field Scabious. H. 167, B. 148.—
F. July, P. (*Scabiosa arvensis*, L.)

Plentiful in corn-fields, particularly along the coast. With white flowers at Blackness, near Dundee.

(*Dipsacus sylvestris*, L. Wild Teazel, is stated in the *New Stat. Acc. of For.*, p. 385, to be found in the parish of Kirkden, but as in the same report *Subularia aquatica* is said to occur, it is doubtful whether there may not be some mistake, or at least the plant a garden-escape. It grows at Foulis, but near houses, and not likely indigenous.)

ORD. XLVI.—COMPOSITÆ.

Gen. Br. 47. (Bab. 52.) F. 33. Sp. and v. Br. H. 148. B. 164. F. 96.

TRAGOPOGON, L. Goat's-beard.

Br. sp. and v. 3. F. 1.

T. pratensis, L. Yellow Goat's-beard. H. 169, B. 177.
—F. June. B.

Will's Braes near Dundee, and sandy sea-shore near Arbroath.

East from the Red-Head, *Rev. J. O. Haldane*, and *Rev. J. S. Barty*. Dysart, plentiful, *Mr A. Croall*. Boddin, *Mr G. M. Farlane*. Old churchyard of Montrose, south side near the foot, and links near the moor of Charlton, *Mr A. Kerr*.

APARGIA, Schreb. Hawkbit.

Br. sp. and v. 3. F. 3.

A. hispida, Willd. Rough Hawkbit. H. 170, B. 176.
—F. June, Sept. P. (*Leontodon hispidum*, L. *L. hastile* *a. vulgaris*, Koch. *Thrinicia hispida*, Macreight (not Roth.) *Hedypnois*, Huds.)

Plentiful in sandy pastures near the sea, as well as on moory ground, waysides, and hills, inland.

A. autumnalis, Willd. Autumnal Hawkbit. H. 170, B. 176.—F. July, Augst. P. (*Oporinia*, Don., Less. *Hedypnois*, E. Bot. *Leontodon*, L.)

Not uncommon.

β . *Taraxici*. (*Oporinia autumnalis* β . *taraxici*, Bab. *Hieracium Taraxici*, L. *Hieracium autumnale* α . Huds. *Apargia pratensis*, Link.)

Plentiful on the mountains, flowering in July and August.

HYPOCHÆRIS, L. Cat's-ear.

Br. sp. and v. 4. F. 3.

H. glabra, L. Smooth Cat's-ear. H. 171, B. 175.—F. July, August. A.

In *Mr G. Don's* list, but no localities given.

H. maculata, L. Spotted Cat's-ear. H. 171, B. 176.
—F. July, August. P. (*Achyrophorus*, Scop., Gært., DC.)
Dry woods, east of Forfar, *Mr G. Don*.

H. radicata, L. Long-rooted Cat's-ear. H. 171, B. 176.
—F. July. P. (*Achyrophorus*, Gært., DC.)

Common by waysides and the margins of fields.

A curious monstrosity was found at Balgay in 1833 by the late *Mr James Butchart*. In this specimen there were twelve stalks or scapes, the central one being about half an inch in diameter, surmounted by a flower-head several times the usual size. Two of the smaller stalks issued from the central one, the others from the caudex, and all overtopped the larger flower, some of them measuring 19 inches in height.

Mr Butchart was a zealous votary of Nature, and derived much pleasure from her communings. He did not enter deeply into the investigation of any branch of natural history, but was nevertheless one of those who,

“Find tongues in trees, books in the running brooks,
Sermons in stones, and good in every thing.”

The feathered race captivated his attention most, and he was perhaps the first in this quarter who succeeded in breeding the Siskin in confinement.—(See *Mag. Nat. Hist.* viii. 372.)

SONCHUS, L. Sow-thistle.

Br. sp. and v. 5. F. 4.

S. alpinus, L. Blue Alpine Sow-thistle. H. 172, B. 181.—F. July, August. P. (*S. cœruleus*, Sm. *Mulgedium*, Cass. *M. alpinum*, Less., Bab.)

In various stations in Glen Dole and Canlochen, where it is eagerly sought for by botanical explorers on account of its being one of the rarest and stateliest of our native alpine plants. In Glen Dole, Clova, it occurs on rocks near a waterfall about half-way up Craig Maid, and on shelving rocks near its summit; also in two places near the principal waterfall on the stream that descends between Craig Maid and Craig Rennet,—the one at the foot of the fall on the left-hand side, and the other about half-way up the fall on

the right-hand side, where it was observed in considerable quantity, almost past flowering, on July 27, 1846. There are two stations for it near the top of Craig Rennet, on the right-hand side of a stream; and it grows in several places by the sides of streams at the head of Canlochen Glen.

S. arvensis, L. Corn Sow-thistle. H. 173, B. 181.—
F. August. Sept. P.

In corn fields frequent, its large yellow flowers agreeably odorous.

S. oleraceus, L. Common Sow-thistle. H. 173, B. 181.—
—F. June, Augst. A.

Abundant by waysides, in fields, and waste ground. Very variable in size and the cutting of its leaves. In one of the wooded dens at Will's Braes, some years ago, a plant of this species was observed with a stem between nine and ten feet high, supported and shaded by a stately hawthorn.

β. asper, Hook. H. 173, B. 181. (*S. asper*, Vill., Hoffm., Borr., Bab.)

Common about Montrose, *Mr A. Croall*. Not unfrequent in other parts of the county.

CREPIS, L. Hawk's-beard.

Br. sp. 5. F. 4.

C. virens, L. Smooth Hawk's-beard. H. 173, B. 180.—
—F. June, Sept. A. (*C. tectorum*, E. Bot.—not Linn.)

Common in pastures and waste ground.

C. pulchra, L. Small-flowered Hawk's-beard. H. 174, B. 180.—
—F. June, Sept. A. (*Prenanthes hieracifolia*, Willd.)

“Among the debris of the rocks of the Hills of Turin and Pitscandly, but very rare,” *Mr G. Don*. In September 1845, I visited the Hill of Turin with the express purpose of ascertaining whether *C. pulchra* was still to be found there, but after a careful investigation, was convinced that a turnip-field reaching to the base of the rocks now occupied the bank of debris where the plant had formerly grown.

C. succisæfolia, Tausch. Succory-leaved Hawk's-beard. H. 174, B. 180.—F. July, Augst. P. (*Hieracium*, All. *H. molle*, Jacq. *H. Croaticum*, W. and K. *Crepis hieracioides*, W. and K. *Geracium Croaticum*, Reich. *G. succisæfolium*, Reich.)

Woods, and among bushes in meadows north of Forfar, Mr G. Don.

C. paludosa, Mœnch. Marsh Hawk's-beard. H. 175, B. 180.—F. June, Augst. P. (*Hieracium*, L. *Geracium*, Reich. *Aracium*, Monn., Neck.)

On the marshy banks of streams in many places, as among the Sidlaw Hills, in the valleys of Clova and Glenisla, &c.

HIERACIUM, L. Hawkweed.

Br. sp. and v. (22 Hook. 28 Bab.) F. 21.

H. alpinum, L. Alpine Single-flowered Hawkweed. H. 175, B. 182.—F. July, Augst. P.

β . *Halleri*, Hook. (*H. Halleri* and *hybridum*, Vill. *H. villosum*, Sm.—not Jacq.)

Both forms are frequent on the higher mountains, as those of Clova and Glen Isla, varying from two to twelve inches in height. A specimen of var. β . from Canlochen, ten inches high, had five scapes from the same root, each bearing a head of flowers.

H. Pilosella, L. Common Mouse-ear Hawkweed. H. 176, B. 181.—F. May, Augst. P.

The most common species throughout the county.

H. aurantiacum, L. Orange Hawkweed. H. 176, B. 182.—F. June, July. P.

Grassy banks, Den of Mains, but likely introduced.

H. murorum, L. Wall Hawkweed. H. 176, B. 183.—F. June, Augst. P.

Frequent in rocky places, in woods, dens, and on the mountains.

Var. *incisum*, Tausch. Reeky Linn, and in various places among the Clova mountains, as the Falls of Feula, Glen Dole, Carlowie, &c. Generally a foot or more high with large ovato-lanceolate leaves, much cut about the base; heads of flowers from one to seven.

Var. *maculatum*. Rocks of Carlowie, Glen Dole, Canlochen, and other parts of the Clova and Glen Isla mountains, not unfrequent, though less so than in the Braemar district, Aberdeenshire.

Var. *glabrum* (δ. Hook.) In the ravine formed by the White Water at the head of Glen Dole, Clova, rare. Five to six inches high, bearing a single head of flowers. Leaves glabrous above, apiculated, and very slightly denticulated, except at the base, where a few strong teeth give some of them almost a saggitate appearance.

H. *Lawsoni*, Sm. Lawson's Hawkweed. H. 176, B. 183.—F. June, July. P. (H. *murorum* γ. *Lawsoni*, Hook. H. *diaphanum* β. *Lawsoni*, Fries., Bab.)

Reeky Linn. Clova, frequent, as Carlowie, Bassies, Glen Dole, &c. Canlochen. Varying in height from eight inches to two feet, and in the amount of pubescence. Generally the large heads of flowers, densely silky petioles, and gradually tapering bases of the leaves, distinguish this plant from its allies, but in some specimens there is an apparent transition to the incised var. of H. *murorum*, the bases of the leaves terminating rather abruptly, and somewhat toothed.

H. *nigrescens*, Willd. (Wats. Phytologist i. 801, ii. 442. Bab. do. i. 865. Borr. do. ii. 496.—H. *pulmonarium*, Sm.)

Rocks of Clova and Canlochen frequent. On Carlowie mountain I found it from six to fifteen inches high, with one or two heads of flowers, stem-leaves two, radical several elliptical, all with a few strong teeth. Specimens gathered in Glen Dole had three stem-leaves, and the radical ones broadly elliptical, and about the Falls of Feula it was picked from five to fifteen inches high, with from one to nine heads of flowers, in some instances the leaves nearly rotundate, in others elliptic-lanceolate. The involucre and peduncles in all almost black, the hairs short, pale only at their points, and copiously intermixed with glands.

H. sylvaticum, Sm. Wood Hawkweed. H. 177, B. 183.—F. July, Augt. P. (*H. vulgatum*, Fries.)

Woods, banks, &c., frequent. Clova and Canlochen.

β. maculatum, Hook. (*H. maculatum*, Sm.) Woods, and on the hills.

γ. pictum, (*H. pictum*, Schleich.) On the hills and mountains occasionally.

H. cerinthoides, L. Honey-wort-leaved Hawkweed. H. 177, B. 184.—F. Augt. P.

“Rocks near the head of Clova,” *Mr G. Don*.

H. amplexicaule, L. Amplexicaul Hawkweed. H. 177, B. 184.—F. July, Augt. P.

Clova mountains, *Mr G. Don*.

H. denticulatum, Sm. Small-toothed Hawkweed. H. 177, B. 184.—F. July, Augt. P. (*H. prenanthoides*, Sm.) (not Vill.)

Clova mountains, *Mr G. Don*. Near Acharne, Glen Dole, *Mr A. Croall*.

H. prenanthoides, Vill. Rough-bordered Hawkweed. H. 178, B. 184.—F. July, Augt. P.

Glen Clova, and side of the stream that descends into Canlochen, on the south side of Cairn Curr, less frequent than in Braemar.

Banks of the Esk, and near the farm called The Cairn, near Forfar, *Mr G. Don*. Woods at the Burn, *Mr A. Croall*.

H. inuloides, Tausch, B. 185, var. *latifolium*, Fries. Glen Clova, Augt. 1846, *Prof. Balfour*.

H. boreale, Fries. Shrubby broad-leaved Hawkweed. H. 178, B. 185.—F. Augt. Sept. P. (*H. Sabaudum*, Sm.) (not L.) (*H. sylvestre*, Tausch.)

Woods, *Mr G. Don*.

H. Schmidtii, Tausch. (Borr.) Rigid Hawkweed. B. 186.—F. July. (*H. rigidum*, Fr. *β. angustifolium*, Bab.?)

Rocks of Canlochen, Loch Wharral, and the White Water, in the ravine above the Falls. From three to sixteen inches high, with from one to four heads of flowers, leaves variable in size, lanceolate, narrowed at both ends, and rough, with scattered scabrous hairs that arise from small dark tubercles.

H. umbellatum, L. Narrow-leaved Hawkweed. H. 178, B. 186.—F. Augt. Sept. P.

Valley of Clova, *Dr M'Nab*.

LEONTODON, *L.* Dandelion.

Br. sp. and v. 4. F. 2.

L. Taraxacum, L. Common Dandelion. H. 178, B. 179.—F. nearly the whole year, in greatest perfection in May and June. P. (*Taraxacum officinale*, Wigg. *T. Dens-Leonis*, Hall, DC.)

Abundant from the coast to the mountain summits. Like the daisy, it is too common to be esteemed for its beauty, but its powerful diuretic properties recommend it in medical practice. The scape bears usually one head of flowers, though frequently from two to six, and the varieties run into one another so much that they can scarcely be considered as more than different states, caused solely by variety of soil and situation. The β . *palustre* (*L. palustre* Sm.) is common in wet moory places, and is distinguished by having the scales of the involucre adpressed, though not constantly so.

LAPSANA, *L.* Nipple-wort.

Br. sp. 2. F. 2.

L. communis, L. Common Nipple-wort. H. 179, B. 175.—F. July, Augt. A.

Abundant in waste places, by waysides, and borders of fields.

L. pusilla, Willd. Dwarf Nipple-wort. H. 179, B. 175.—F. June, Augt. A. (*L. minima*, DC. *Arnoseris pusilla*, Gært., Bab. *Hyoseris*, L.)

Corn fields, frequent. *Mr G. Don* remarks of this species, that, "when any muir ground is broken up, although there is no symptom of its having ever been ploughed, this plant never fails to make its appearance the first year; but after the field has been cultivated for some time it begins to disappear."

CICHORIUM, *L.* Succory.

Br. sp. 1. F. 1.

C. Intybus, *L.* Wild Succory. H. 179, B. 175.—F. June, August. P.

Not common. Near Arbroath, and north from Dundee.

In a field near Forfar, *Dr W. Reid*. Near Montrose, *Rev. R. Smith* and *Dr Patterson*. Ruthven, *Rev. P. Barty*.

ARCTIUM, *L.* Burdock.

Br. sp. and v. 2. F. 2.

A. Lappa, *L.* Common Burdock. H. 180, B. 171.—F. July, August. B. (*Lappa major*, Koch.)

A. Bardana, Willd. Lesser Burdock. H. 180, B. 171.—F. July, August. B. (*A. Lappa*, β . Hook. *A. minus*, Schkhur. *Lappa minus*, Koch.)

Both these species, or varieties, are of frequent occurrence in waste places, and field borders.

SAUSSUREA, *DC.* Saussurea.

Br. sp. 1. F. 1.

S. alpina, *DC.* Alpine Saussurea. H. 181. B. 168.—F. July, August. P.

Rocks of Glen Dole, and Canlochen, not unfrequent.

Stems rather leafy, corymb of flower-heads large in proportion to the size of the plant. Florets purplish-blue, turning paler in drying.

CARDUUS, *L.* Thistle.*Br. sp.* 4. *F.* 3.

C. acanthoides, *L.* Welled Thistle. H. 181, B. 172.—
F. June, Oct. B. ? (*C. polyacanthos*, *Curt.* *C. crispus*
L.)

Not uncommon by waysides, in woods, and on the banks of streams, from the coast to the mountains. Heads of flowers occasionally white, as at Pleasance, Dundee, and Loch Brandy stream, Clova. In Mericmoor Wood (now cut down) in 1831, a specimen was observed fully six feet high.

C. tenuiflorus, *Curt.* Slender-flowered Thistle. H. 181, B. 172.—F. June, August. A.

Near Broughty Ferry, west end, and other places on the coast.

Cultivated fields near Montrose, *Mr G. Don.* Waste ground about the Lunatic Asylum, Montrose, *Mr A. Croall.*

C. Marianus, *L.* Milk Thistle. H. 182, B. 174.—F. June, July. B. ? (*Silybum Marianum*, *Gært., Bab.*)

Broughty Ferry, and near the church of Monifieth.

East Haven, about the railway, *Messrs A. Croall* and *G. M'Farlane.*

CNICUS, *L.* Plume Thistle.*Br. sp. and v.* 10. *F.* 4.

C. lanceolatus, *Willd.* Spear Plume Thistle, or Scottish Thistle. H. 182, B. 172.—F. July, Augt. B. (*Carduus*, *L.*)

Plentiful by waysides. Occasionally with white heads of flowers about Dundee. The *Onopordium Acanthium* is cultivated in Scotland as the Scottish Thistle, but undoubtedly the *C. lanceolatus* is the real Scottish Thistle.

It is the national badge of Scotland, and every Scotsman must feel a pride in exclaiming, with our native poet, Nicoll, on looking upon this plant,—

“By Freedom! our aith—be't in peace or in war—
We'll mak' honour an' Scotland our bright guidin' star;
An' till valleys lie low, whar' our wild mountains are,
We'll stand by the auld Scottish Thistle.”

C. palustris, Willd. Marsh Plume Thistle. H. 182, B. 173.—F. July, Augt. B. (*Carduus* L.)

In marshy ground, and by the sides of streams, frequent.

C. arvensis, Hoffm. Creeping Plume Thistle. H. 182, B. 172.—F. July, Augt. P. (*Carduus*, Curt. *Serratula*, L.)

Waysides abundant throughout the county, and too prevalent in the poorer corn fields. Plentiful on the Sands of Barrie, and about Dundee it is not uncommon with white flowers. *Mr A. Croall* says, "I have been told by the workmen at the Hedderwick lime-quarries, that they have often found it penetrating with its roots the compact red clay that overlies the limestone, to the depth of 20 or 25 feet."

C. heterophyllus, Willd. Melancholy Plume Thistle. H. 183, B. 174.—F. June, Augt. P. (*Carduus*, L.)

Banks of the Isla and South Esk, from Strathmore to nearly their sources. The var. with deeply lacinated leaves occurs occasionally, both at Reeky Linn and Clova.

Banks of the North Esk in Glen Esk, and on those of the South Esk, from Montrose to its source, *Mr A. Croall*.

In Glen Clova the natives call the flower-heads of this thistle "*carl-doddies*," a name applied, in the lower part of the county, to *Plantago lanceolata* and *major*.

CARLINA L. Carline Thistle.

Br. sp. 1. F. 1.

C. vulgaris, L. Common Carline Thistle. H. 184, B. 168.—F. June, Augt. B.

Rocky banks of the coast from Arbroath to Montrose, not uncommon.

CENTAUREA, L. Knapweed, &c.

Br. Sp. and v. 8. F. 4.

C. Jacea, L. Brown Radiant Knapweed. H. 185, B. 169.—F. Augt. Sept. P.

Discovered in a young plantation in Newbigging Muir,

near Belmont Castle in 1811, by *Mr Young*. Invercarrity, by Kinnordy, *C. Lyell, Esq.*

C. nigra, L. Black Knapweed. H. 185, B. 169.—F. July, Sept. P.

Common on the sea-shore, in inland pastures, and extending up the Highland valleys. With white heads of flowers, *Mr G. Don*.

C. Cyanus, L. Corn Blue-bottle. H. 185, B. 169.—F. July, Augt. A.

Plentiful in corn-fields. The flowers are here termed "*Blaworts*," and when one looks very cold on a winter day, he is said to be "as blue as a blawort." Miss L. E. Landon says,—

"The blue *Cyanus* we'll not forget,
'Tis the gem of the harvest coronet."

and,

"While the golden ears their stores are yielding,
And azure cornflowers fall among the corn"—

Memory awakens in the feeling heart thoughts of one, who, though she departed before the harvest-time, wrought for herself a coronet of flowers that will never fade, so long as "sweet poesy" hath a place in the world.

C. Scabiosa, L. Greater Knapweed. H. 185, B. 170.—F. July, Sept. P.

Very common about Dundee, both to east and west, and about Broughty Ferry. To the eastward of Montrose, about $2\frac{1}{2}$ miles, *Mr A. Croall*.

Three varieties, as respects the colour of the flowers, were found on Will's Braes, prior to their destruction by the railway, namely, one with the heads of flowers white, a second with them rose-coloured, and a third with the radial florets rose-coloured, and the discoid purple.

BIDENS, L. Bur-marigold.

Br. sp. and v. 4. F. 1.

B. cernua, L. Nodding Bur-marigold. H. 187, B. 159.—F. June, Sept. P.

On mossy ground near the old Priory of Restenet, and at the east end of Forfar Loch, *Mr A. Croall*.

EUPATORIUM, *L.* Hemp-Agrimony.

Br. sp. 1. F. 1.

E. cannabinum *L.* Common Hemp-Agrimony. H. 188, B. 156.—F. July, Sept. P.

Not uncommon on the coast, as at Auchmithie, Usan, Boddin, Duninald, &c.

TANACETUM, *L.* Tansy.

Br. sp. 1. F. 1.

T. vulgare, *L.* Common Tansy. H. 189, B. 163.—F. Augt. P.

Abundant in various places, as at Ninewells near Invergowrie, and by the side of the Arbroath and Forfar Railway, between the Colliston and Leysmills stations.

In great profusion, covering several acres, below the Bridge of Dun, *Mr A. Croall*. Wayside near Charlton Wood, *Mr A. Kerr*.

ARTEMISIA, *L.* Wormwood, &c.

Br. sp. and v. 6. F. 4.

A. maritima, *L.* Sea Wormwood. H. 189, B. 163.—F. Augt., Sept. P.

β . *Gallica* (*A. Gallica*, Willd.) Both forms have been picked on maritime rocks near Usan and Dysart, by *Messrs M^cFarlane, Croall, Kerr, &c.*

A. Absinthium, *L.* Common Wormwood. H. 189, A. 163.—F. July, Augt. P.

Rare. Kinnoull Wood, near Montrose, *Mr A. Croall*.

A. vulgaris, *L.* Mugwort. H. 181, B. 163.—F. July, Sept. P.

Not uncommon by the sides of fields.

GNAPHALIUM, L. Cudweed.

Br. sp. and v. 8. F. 4.

G. dioicum, L. Mountain Cudweed. H. 190, B. 165.
—F. May, July. P. (*Antennaria dioica*, Gært.)

Not uncommon from the coast to the mountains. On the Sands of Barrie, at the mouth of the Buddon Burn, it occurs in broad patches, the sterile and fertile plants usually separate, scales of the involucre coloured rose, or crimson, or pure white. On Sidlaw Hills and on the Clova mountains the plant grows taller; on Carlowie I have gathered specimens, fourteen inches high, those on the coast rarely exceed four or five inches.

Moors of Guthrie, Rossie, Dun, &c. *Mr A. Croall.*

G. sylvaticum L. Highland Cudweed. H. 190, B. 164.
—F. July Augt. P. β . (*G. rectum*, Huds.)

Sandy fields on the coast, and plentiful in the mountain pastures, varying greatly in size, and more or less upright, leaves usually glabrous above. A specimen found in Canlochen by *Mr John Henderson* has the leaves downy on both sides, and may be the true *G. Norvegicum*, Retz.

G. supinum, L. Dwarf Cudweed. H. 190, B. 165.—
F. July, Augt. P. (*G. alpinum*, Lightf. *G. pusillum*, Hænke., Bab.)

Abundant on the Clova and Glen Isla mountains, about their summits, and in some places descending to nearly their bases, always preferring dry stony ground. Varies from one to four inches high, with from one to five heads of flowers. Leaves linear, or linear-lanceolate, white and downy on both sides. Flower-heads when more than one approximate or distant.

G. uliginosum, L. Marsh Cudweed. H. 191, B. 164.—
F. Augt. Sept. A.

In various places, not common. Auldbar road, between the railway station and the toll-bar. Wayside between Arbrough and Montrose, *Mr A. Kerr.* Fields about Guthrie, Dun, &c., *Mr A. Croall.*

FILAGO, *L.* Filago, or Cudweed.*Br. sp. 3. F. 3.*

F. Gallica, *L.* Narrow-leaved Cudweed. H. 191, B. 164.—F. July, Augt. A. (*Gnaphalium*, Huds., Sm.)

Dry banks near Forfar, *Mr G. Don*.

F. minima, Hook. Least Cudweed. H. 191, B. 164.—F. July, Augt. A. (*Gnaphalium*, Sm. *Fil. montana*, Sibth. (not L.) *F. arvensis*, Ehrh.) (not L.)

Sandy places, dry banks, and wall-tops, frequent.

Near Monifieth. Hare Craigs. Baldovan. Glammiss. Clova.

Sandy fields about Montrose, common, *Mr A. Croall*.

F. Germanica, *L.* Common Cudweed. H. 191, B. 164.—F. July, Augt. A. (*Gnaphalium*, Huds., Sm.)

Waysides and waste places not unfrequent.

PETASITES, *Desf.* Butter-Bur.*Br. sp. 1. F. 1.*

P. vulgaris, *Desf.* Common Butter-Bur. H. 192, B. 156.—F. Mar. May. P. (*Tussilago Petasites*, Hoppe., L. Fertile state. *T. hybrida*, L.)

Banks of the Dighty, frequent.

Near Kinaber Mills, Bridge of Dun, &c., *Mr A. Croall*.

It probably occurs on the banks of most streams in the county.

TUSSILAGO, *L.* Colt's-Foot.*Br. sp. 1. F. 1.*

T. Farfara, *L.* Colt's-Foot. H. 192, B. 156.—F. Mar. Apr. P.

Abundant by waysides, margins of fields, banks of streams, &c. It is used in medicine, and is sometimes smoked in lieu of tobacco.

(*Mr G. Don* mentions *T. alpina*, an Austrian plant, as

found on the Clova mountains. May his plant not be *Erigeron alpinus*, which he has not enumerated ?)

ERIGERON, *L.* Flea-Bane.

Br. sp. and v. 4. F. 2.

E. acris, *L.* Blue Flea-Bane. H. 193, B. 157. — F. July, Sept. B.

Plentiful on the Sands of Barrie. Stems simple or branched, from two to twelve inches high.

E. alpinus, *L.* Alpine Flea-bane. H. 193, B. 157.—F. July. P.

Rocks at the head of Canlochen. High on the rocks of Craig Maid, and in the ravine nearly opposite the “wash” of Feula, Glen Dole. Generally with a single flower.

ASTER, *L.* Starwort.

Br. sp. 1. F. 1.

A. Tripolium, *L.* Sea Starwort. H. 193, B. 157.—F. Augt., Sept. P. (*Tripolium vulgare*, Nees., DC.)

In salt-marshes on the coast from Invergowrie to Montrose.

SOLIDAGO, *L.* Golden-Rod.

Br. Sp. and v. 2. F. 2.

S. Virgaurea, *L.* Common Golden-Rod. H. 194, B. 157.—F. July, Oct. P.

Baldovan Woods, in one spot. Usan, *Mr A. Croall.*

β. cambrica, *Sm.* (*S. Cambrica*, *Huds.*) Not uncommon among the mountains, and on the banks of the streams descending from them, as the Isla and North and South Esk. From two to eighteen inches high, the racemes crowded or lax. Stems and leaves covered with a short pubescence, the acuminate filaments of which are so constricted at regular distances as to present the articulated appearance of a conferva.

SENECIO, *L.* Groundsel.*Br. sp. and v. 12. F. 7.*

S. vulgaris, *L.* Common Groundsel. H. 194, B. 166.
—F. All the year. A.

Common in waste ground, fields, &c. Birds are fond of the buds and leaves, but more so of the seeds.

S. viscosus, *L.* Stinking Groundsel. H. 194, B. 167.
—F. July, Sept. A.

Will's Braes, and other places, not frequent.

S. sylvaticus, *L.* Mountain Groundsel. H. 194, B. 167.—F. July, Sept. A.

Not uncommon. *Mr Croall* observes that it is always found covering the ground where furze has been cut.

β. lividus, (referred doubtfully to *S. lividus*, *L.*), was found abundant on the Hill of Finhaven by *Mr G. Don*.

S. Jacobæa, *L.* Common Ragwort. H. 195, B. 167.—
F. July, Sept. P.

Abundant in pastures and by waysides. The vernacular name in this county is "*Weeby*."

S. aquaticus, *Huds.* Marsh Ragwort. H. 195, B. 168.
—F. July, Augt. P.

Watery places, frequent.

S. Saracenicus, *L.* Broad-leaved Groundsel. H. 195, B. 168.—F. July, Augt. P.

Mr G. Don says it is found in the county, "always near houses," but does not refer to any locality.

DORONICUM, *L.* Leopard's-Bane.*Br. sp. 2. F. 1.*

D. Pardalianches, *L.* Great Leopard's-Bane. H. 196, B. 166.—F. May, July. P.

Den of Mains, on shady banks near the old castle, plentiful. Rossie Castle, *Mr A. Kerr*. Woods at Kinnaird,

abundant, *Mr J. Cruickshank*. Near Airlie Castle, *Mr J. Donald*. Into all these stations it has probably been introduced at some remote period. It has the reputation of possessing poisonous qualities, and in the dark ages of witchcraft found a place in Hecate's pharmacopœia. Percy (in his *Annals of Peterhead*) makes one of his witches say :

“ — I hae been plucking (plants among,)
Hemlock, henbane, adder's tongue,
Nightshade, moon-wort, *libbard's-bane*;
And twice by the dogges was like to be ta'en.”

BELLIS, *L.* Daisy.

Br. sp. 1. F. 1.

B. perennis, *L.* Common Daisy or Gowan. H. 198, B. 157.—F. at all seasons, but most profusely in May and June. P.

This “ wee modest crimson-tipped flower” is found in nearly all places where plants will grow, and flowers in all seasons: from the sea-shore to the mountain-summit it is our constant companion, and from midsummer to midwinter, and to midsummer again, we never miss its starry blossoms in our rural walks. The rays of the head are sometimes pure white, though generally more or less tinted with crimson. The daisy is the commonest though loveliest of our native flowers, with associations numerous and interesting. It is dear to the heart of childhood, and to those of riper years what a luxury it is to walk in the fresh meadows and fields when gemmed with myriads of “ May-gowans,”—health in every breeze, and the music of happy birds floating all around, inspiring the heart with peace and cheerfulness.

Clare says,

“ —————Trampled under foot,
The daisy lives, and strikes its little root
Into the lap of Time: centuries many come
And pass away into the silent tomb,
And still the child, hid in the womb of Time,
Shall smile and pluck thee.”

It also speaks to our higher comprehensions, and whispers of Him, who is

“ —————Ever present, ever felt,
In the void waste, as in the city full,”

for its presence proclaims, that,

“ Not worlds on worlds in phalanx deep,
Need we to prove a God is here;
The daisy, fresh from winter’s sleep
Tells of His hand in lines as clear.”

And with Montgomery one feels disposed to exclaim—

“ Thrice welcome, little English flower!
To me the pledge of hope unseen:
When sorrow would my soul o’erpower
For joys that were, or might have been,
I’ll call to mind, how—fresh and green—
I saw thee waking from the dust;
Then turn to Heaven with brow serene,
And place in God my trust.”

The daisy (or day’s eye) is a favourite with all, high and low, and many a tribute has been paid it by those who have expressed themselves in the language of “ sweet poesy,” and probably many a heart-felt eulogium has been pronounced upon it by kindred minds without the clothing of words.

The beautiful and pathetic effusion to this lowly flower by *Scotland’s ploughman poet* is perhaps known to all, but probably its best biographer is J. Montgomery, whose sweet little poem, like the former, might be read a thousand times over by the lover of Flora without satiety.

“ THE FIELD FLOWER.

There is a flower, a little flower,
With silver crest and golden eye,
That welcomes every changing hour,
And weathers every sky.

The prouder beauties of the field
In gay but quick succession shine;
Race after race their honours yield—
They flourish and decline.

But this small flower, to nature dear,
While moon and stars their courses run,
Wreathes the whole circle of the year,
Companion of the sun.

It smiles upon the lap of May,
To sultry August spreads its charms,
Lights pale October on its way,
And twines December’s arms.

The purple heath and golden broom
On moory mountains catch the gale;
O’er lawns the lily sheds perfume,
The violet in the vale.

But this bold flow'ret climbs the hill,
Hides in the forest, haunts the glen,
Stays on the margin of the rill,
Peeps round the fox's den.

Within the garden's cultur'd round
It shares the sweet carnation's bed,
And blooms on consecrated ground
In honour of the dead.

The lambkin crops its crimson gem,
The wild bee murmurs on its breast,
The blue-fly bends its pensile stem
Light o'er the sky-lark's nest.

'Tis Flora's page:—in every place,
In every season, fresh and fair,
It opens with perennial grace,
And blossoms everywhere.

On waste and woodland, rock and plain,
Its humble buds unheeded rise;
The rose is but a summer reign,
The DAISY never dies."

CHRYSANTHEMUM, L. Ox-Eye.

Br. sp. 2. F. 2.

C. Leucanthemum, L. Great White Ox-Eye. H. 198, B. 161.—F. June, Augt. P.

Plentiful by waysides and margins of corn-fields from the coast to far up the mountain valleys.

C. segetum, L. Corn Marigold, or Yellow Ox-Eye. H. 198, B. 162.—F. June, Augt. A.

Common in corn-fields throughout the county.

PYRETHRUM, Hall. Feverfew.

Br. sp. and v. 3. F. 3.

P. Parthenium, Sm. Common Feverfew. H. 198, B. 162.—F. July, Augt. P. (*Matricaria*, L.)

Ninewells, Den of Mains, &c., but not common.

P. inodorum Sm. Corn Feverfew, or Scentless Mayweed. H. 198, B. 162.—F. Augt., Oct. A. (*Chrysanthemum Matricaria*, DC.)

Waysides and fields, common.

β. maritimum, (*Pyrethrum maritimum*, Sm. *Matricaria maritima*, L.)

Sea shore, frequent, as at Carnoustie, Auchmithie, &c. Usan, and Rock of St Skae, *Mr G. M. Farlane*.

ANTHEMIS, *L.* Chamomile.

Br. sp. 5. *F.* 3.

A. arvensis, *L.* Corn Chamomile. H. 199, B. 159.—*F.* June, July. *B.*

Rare. Fields behind Provost Paton's house, east end of Montrose, 1840, *Mr J. Cruickshank*.

A. Cotula, *L.* Stinking Chamomile. H. 200, B. 160.—*F.* July, Augt. *A.* (*Maruta foetida*, *DC.*)

In *Mr G. Don's* list, but without named stations.

A. tinctoria, *L.* Ox-eye Chamomile. H. 200, B. 160.—*F.* July, Augt. *P.* or *B.* ?

Wayside north from Forfar, *Messrs G. and D. Don*.

ACHILLEA, *L.* Yarrow.

Br. sp. and v. 4. *F.* 2.

A. Ptarmica, *L.* Sneezewort. H. 200, B. 160.—*F.* July, Augt. *P.*

Woods, ditches, marshes, and moist places, frequent.

A. Millefolium, *L.* Common Yarrow or Milfoil. H. 200, B. 161.—*F.* June to Sept. *P.*

Abundant by waysides and in pastures, from the coast to nearly the summits of the mountains. Florets white, or more or less tinged with crimson.

ORD. XLVII.—CAMPANULACEÆ.

Gen. Br. 4. *F.* 2. *Sp. Br.* 15. *F.* 5.

CAMPANULA, *L.* Bell-flower.

Br. sp. 10. *F.* 4.

C. rotundifolia, *L.* Round-leaved Bell-flower, or Hair-bell. H. 202, B. 189.—*F.* July, Sept. *P.*

The graceful Hair-bell is nearly as widely diffused as the daisy. Not only does its

“ —drooping bells of clearest blue”

adorn “ brown heath and shaggy wood,” but the sandy seashore and the lofty mountain-rock ; and it is a familiar flower by our waysides and under our hedge-rows. Heber, addressing it, says—

“ But most I love thine azure braid,
When softer flowers are all decayed,
And thou appearest
Stealing beneath the hedgerow shade,
Like joys that linger as they fade,
Whose last are dearest.

Thou art the flower of memory ;
The pensive soul recalls in thee
The year's past pleasures ;
And led by kindred thought will flee,
Till back to careless infancy
The path she measures.”

The “ Scottish Blue Bells” are especial favourites with the poets, and the sweet and fairy numbers to which they have been made to chime are attractive to all. “ Our own blue-bell,” as Nicoll calls it, was highly esteemed by Scott, whose lines, put in the mouth of his Lady Ellen, will give an additional charm to every such blossom that blooms on the banks of Loch Katrine.

“ ‘ For me,’ she stooped, and looking round,
Plucked a blue harebell from the ground,—
‘ For me, whose memory scarce conveys
An image of more splendid days,
This little flower, that loves the lea,
May well my simple emblem be :
It drinks heaven's dew blithe as the rose
That in the king's own garden grows ;
And when I place it in my hair,
Allan, a bard, is bound to swear
He ne'er saw coronet so fair.’ ”

It occurs frequently with pure white flowers.

C. latifolia, L. Giant Bell-flower. H. 203, B. 188.—
F. July. Augt. P.

In the Den of the Vane, which the water Noran runs through, *Murr. North Flor.* Ruthven, *Rev. P. Barty.* *Mr G. Don* enumerates this in his list, but gives no station.

C. rapunculoides, L. Creeping Bell-flower. H. 203, B. 189.—F. July, Augt. P.

Den of Mains, but likely introduced.

Duninald Den, near Usan, *Mr A. Balfour*.

C. glomerata, L. Clustered Bell-flower. H. 203, B. 188.—F. July, Augt. P.

Frequent on the rocky coast from Arbroath to Montrose-Will's Braes, and banks of Dighty near Claverhouse Bleachfield, but, from alterations in these localities, the plants have in the meantime disappeared. Flowers generally deep blue, with a purplish tinge, but varying from dark purple to white. White-flowered plants were gathered near Auchmithie by *Dr P. Neill* and *Dr M'Nab*, and I have found it with pale blue flowers on Will's Braes.

Between Usan and Duninald, *Mr G. M'Farlane*. North side of the Montrose Basin, *Mr. J. Cruickshank*.

LOBELIA, L. Lobelia.

Br. sp. 2. F. 1.

L. Dortmanna, L. Water Lobelia. H. 205, B. 187.—F. July, Augt. P.

Small loch at the south-west corner of Loch Brandy, plentiful. Loch of Lintrathen, *Mr G. Don*. Near Kettins, *Mr James Gibb*. Pool near Auchterhouse, *Mr Douglass Gardiner*.

ORD. XLVIII.—VACCINIEÆ.

Gen. Br. 1. F. 1. Sp. Br. 4. F. 4.

VACCINIUM, L. Whortle-Berry.

Br. sp. 4. F. 4.

V. Myrtilus, L. Bilberry, or Whortle-berry. H. 206, B. 194.—F. May, June. S. Fruit ripe July, Augt.

Abundant in the woods, and on the hills and mountains. The berries are well known in this county, and in Scotland generally, under the name of "*Blae-Berries*," being gathered and brought to market. They are about the size of blackberries, have a somewhat glaucous bloom, and are deliciously flavoured.

V. uliginosum, L. Great Bilberry, or Bog Whortle-berry. H. 206, B. 194.—F. May, July. S.

Plentiful on boggy heaths among the Clova mountains, on the summits, and partially descending into the alpine valleys. The very deciduous flowers are not frequent, and the fruit must be rare in this county, as none of the shepherds of whom I have made enquiry have ever detected it.

V. Vitis-Idæa, L. Red Whortle-berry, or Cowberry. H. 206, B. 195.—F. May. June (and in Sept. 1846), S. Fruit ripe in Sept.

Woods, hills, and the higher mountains to their summits. The flowers are white, tinged slightly or deeply with pink. The berries, called "*Brawlins*," grow in little clusters like grapes; when ripe, of a fine scarlet colour, and pleasant acid taste.

V. Oxycoccus, L. Marsh Whortle-berry, or Cranberry. H. 206, B. 195.—F. June, July. S. (*Oxycoccus palustris* Pers., Rich.)

Among *Sphagna* on the Clova mountains, as banks of Feula Burn, &c., but not common.

SUB-CLASS III.—COROLLIFLORÆ.

ORD. XLIX.—ERICÆÆ.

Gen. Br. 6. *F.* 4. *Sp. and v. Br.* 15. *F.* 5.

ERICA, L. Heath.

Br. sp. 6. *F.* 2.

E. Tetralix, L. Cross-leaved Heath. H. 207, B. 192.—F. July, Augt. S.

Plentiful on the hills and mountains, but in greatest perfection in the woods. Its wax-like rose-coloured flowers are peculiarly beautiful. It was found with pure white flowers in Mericmoor Wood by *W. Gardiner, Senr.*

E. cinerea, L. Fine-leaved Heath. H. 208, B. 193.—F. July, Augt. S.

This heath is met with in abundance wherever there is a

bit of moory ground, from the sea-shore to the highest summits of the Clova mountains. It is named "*Carlin-heather*," and its blossoms are usually of a fine rich purple, though sometimes pale pink and white, as on the Sidlaw Hills, Loch Brandy, Glen Dole, &c.

CALLUNA. *Salisb. Ling.*

Br. sp. 1. F. 1.

C. vulgaris, *Salisb.* Common Heath, or Ling. H. 209, B. 192.—F. June, Augt. S. (*Erica vulgaris*, L.)

Fully as widely diffused as *E. cinerea*. With white flowers on Sidlaw Hills. On the Clova mountains a procumbent form is not uncommon.

This beautiful little shrub, the veritable *Heather* of Scotland,

“ ————— On Caledonian hills sublime
Spreads its dark mantle, where the bees delight
To seek their purest honey, flourishes
Sometimes with bell-like amethysts, and then
Paler, and shaded like a maiden's cheek
With gradual blushes; others while as white
As rime that hangs upon the frozen spray.
Of this old Scotia's hardy mountaineers
Their rustic couches form, and there enjoy
Sleep, which beneath his velvet canopy,
Luxurious Idleness implores in vain.”

AZALEA, L. Azalea.

Br. sp. 1. F. 1.

A. procumbens, L. Trailing Azalea. H. 210, B. 194.—F. May, June. S. (*Chamaeledon*, Link. *Loiseleuria*, Desvaux.)

On the summits of the Clova mountains plentiful, as those of Carlowie, Bassies, Red Craig, White Bent, Ben Red, Loch Brandy Hills, King's-seat in the Corrie of Clova, &c.

On the mountains bounding Glen Phee and Glen Dole, *Professor Balfour*, who remarks that a large variety of the plant, resembling that brought from America, is met with on the Clova range.

ARBUTUS, L. Bear-berry.

Br. Sp. 3: *F.* 1.

A. Uva-Ursi, L. Red Bear-berry. H. 211, B. 192.—
F. May, June. S. (*Arctostaphylos Uva-Ursi*, Spreng.,
Bab.)

Plentiful on all the Clova mountains, with green fruit in July. In one spot on the Sidlaw Hills I detected a clump of it in bud, Apr. 1840. It was growing near a small peat-bog to the eastward of White Hill, on the left-hand bank.

ORD. L.—MONOTROPEÆ.

Gen. Br. 2. *F.* 1. *Sp. Br.* 6. *F.* 5.

PYROLA, L. Winter-green.

Br. Sp. 5. *F.* 5.

P. uniflora, L. Single-flowered Winter-green. H. 212,
B. 196.—F. June, July. P. (*Moneses grandiflora*, Salisb.,
Bab.)

Clova Mountains, but rare, *Mr G. Don*. This singularly beautiful and fragrant flower I have gathered in Scone Woods, near Perth, but have never met with it in Forfarshire, and Mr Don has not indicated any particular station.

P. secunda, L. Serrated Winter-green. H. 212, B. 194.—
F. July. P.

Rocks, Canlochen, and Craig Maid, Glen Dole, not very plentiful. Woods near Gannachy Bridge, abundant, *Messrs Bousie and Kerr*.

P. rotundifolia, L. Round-leaved Winter-green. H. 212,
B. 195.—F. July, Sept. P.

Rocks of Glen Dole and Canlochen sparingly.

Fir-woods, *Mr G. Don*. Gannachy Woods, *Dr J. D. Hooker*. *Miss Carnegie*.

A solitary specimen was found on the south side of the White Hill of Auchterhouse; near the summit, among young larch trees, July 1845. The root was left. *Messrs Geo. Lawson and James Adie*.

P. media, Sw. Intermediate Winter-green. H. 213, B. 195.—F. May, Augt. P.

Cramb's Wood, south-west from Glammiss. Glen Clova, a little beyond the "smithy," or smith's shop, by the way-side, on open grassy banks.

Den of Airlie, in the oak copse on the right bank, associated with *Trientalis europæa*, *Rev. J. S. Barty*.

Burn Woods, *Mr A. Bousie*. Moor of Pert, and Craigo, *Mr A. Croall*. Near Kinnaird, and Woods of Ardovie and Kinnoul, *Mr J. Cruickshank*.

P. minor, L. Lesser Winter-green. H. 213, B. 195.—F. June, July. P. (*P. rosea*, E. Bot.)

Baldovan Woods, plentiful. Woods, back-moor of Duntrune. Woods near Newtyle. Lumley Den. Den of Glammiss, and Hunter's Hill Wood. Sidlaw Hills. Rocks of Canlochen, and Glen Dole, &c.

Den of Fullerton, *Dr White*. Woods of Dun and Guthrie, *Mr A. Croall*. Fir-woods near Forfar, *Mr G. Don*. Ruthven, *Rev. P. Barty*.

ORD. LI.—ILICINEÆ.

Gen. Br. 1. F. 1. Sp. Br. 1. F. 1.

ILEX, L. Holly.

Br. sp. 1. F. 1.

I. aquifolium, L. Common Holly. H. 214, B. 196.—F. May, June. T.

About Mains Castle, and other places, but probably planted.

Small plants occur here and there in the Woods of Dun, that are apparently indigenous, *Mr A. Croall*. Clova Mountains, *Mr G. Don*. It is likely to be perfectly indigenous there, but no definite station is pointed out.

ORD. LII.—JASMINEÆ.

Gen. Br. 2. F. 2. Sp. and v. Br. 3. F. 2.

LIGUSTRUM, L. Privet.

Br. sp. 1. F. 1.

L. vulgare, L. Privet. H. 214, B. 197.—F. June, July. S.

Near Tannadice, *Mr G. Don*. Hedge-bank opposite the south end of the Lower North Water (Esk) Bridge, apparently indigenous, *Mr A. Croall*. Banks of the North Esk near the Burn, *Mr J. Cruickshank*.

FRAXINUS, *L.* Ash.

Br. sp. and v. 2. F. 1.

F. excelsior, *L.* Common Ash. H. 215, B. 197.—F. March, May. T.

Frequent, but likely introduced.

ORD. LIII.—APOCYNEÆ.

Gen. Br. 1. F. 1. Sp. Br. 2. F. 2.

VINCA, *L.* Periwinkle.

Br. sp. 2. F. 2.

V. minor, *L.* Lesser Periwinkle. H. 216, B. 197.—F. May, June. P.

Woods of Kinnaird, and wood opposite Brechin Castle, in both places abundant, and undoubtedly introduced, though now completely naturalized, *Mr J. Cruickshank*.

V. major, *L.* Greater Periwinkle. H. 216, B. 198.—F. April, May. P.

Langley Park, undoubtedly naturalized, *Mr G. M'Farlane*.

ORD. LIV.—GENTIANEÆ.

Gen. Br. 6. F. 3. Sp. Br. 14. F. 5.

ERYTHRÆA, *Renealm.* Centaury.

Br. sp. 4. F. 1.

E. Centaurium, *Pers.* Common Centaury. H. 217, B. 199.—F. June, Augt. A. (*Chironia*, *Curt. Gentiana*, *E. Bot.*)

Rare. Hare Craigs sparingly, June 183 Found there Augt. 1844, by the *Rev. J. O. Haldane* and *Rev. J. S. Barty*. To the west of Dundee, *Mr G. Don*. I have never met with it there.

GENTIANA L. Gentian.

Br. sp. 6. F. 3.

G. nivalis L. Small Alpine Gentian. H. 218, B. 200.—F. July, Aug. A.

Rocks at the head of Canlochen Glen, in fl. and fr. July 1846.

Varying from one inch, with a single flower, to four or five inches with ten flowers. Picked it in the same place in 1844 in company with Mr Watson and the late Mr Edmondston.

These rocks, *Prof. Balfour* observes, “are well marked by the white veins of quartz that intersect them in different places, and having at their summit a patch of snow which generally remains the whole year. In this situation the plant is associated with *Erigeron alpinus*, and *Carex atrata*.” The quartz veins are very conspicuous, but the patch of snow is more evanescent.

“The sparkling of this most rare and lovely gem,” says the late *Prof. Graham*, “among the scanty mountain herbage, cured me of hunger and thirst, and made me forget that I was gathering it at the risk of my neck.”

North side of Canlochen Glen, along with *Veronica saxatilis* and *alpina*; and in a new spot in Glenisla, Aug. 1846, the specimens varying from one-tenth of an inch to six inches in length, *Prof. Balfour*.

G. Amarella, L. Small-flowered Autumnal Gentian. H. 218, B. 200.—F. Aug. Sept. A.

Sands of Barrie, plentiful, especially about the east end. Sea-shore near Arbroath. Very variable in size, sometimes scarcely an inch in height, with one or two flowers, but usually from three to six inches, with numerous flowers, and in one specimen culled near Carnoustie, in 1839, by *Mr A. Croall*, sixteen inches high, I counted 200 blossoms and pericarps.

G. campestris, L. Field Gentian. H. 219, B. 200.—F. May, Sept. A.

Sands of Barrie, abundant, from half an inch high, with a single flower, to several inches, with numerous flowers. Rocks between Arbroath and Auchmithie. Lawhill Dundee. Sid-

law Hills, north side, near the new Glammis road. Pastures, Clova, plentiful.

Between Restenet and Rescobie, Montrose Links, near Usan, &c., *Mr A. Croall*.

MENYANTHES *L.* Buckbean.

Br. sp. 1. F. 1.

M. trifoliata, *L.* Buckbean, or Marsh Trefoil. H. 220 B. 201.—F. May, July. P.

Marshes, and marshy margins of lakes frequent.

ORD. LV.—POLEMONIACEÆ.

Gen. Br. 1. F. 1. Sp. Br. 1. F. 1.

POLEMONIUM, *L.* Jacob's-Ladder.

Br. sp. 1. F. 1.

P. cœruleum, *L.* Blue Jacob's Ladder. H. 221, B. 202.—F. July. P.

Woods of Dun, but perhaps introduced, *Mr J. Cruickshank*.

[ORD. LVI.—CONVOLVULACEÆ.

Gen. Br. 2. F. 2. Sp. and v. Br. 7. F. 4.

CONVOLVULUS, *L.* Bindweed.

Br. sp. 3. F. 3.

C. arvensis, *L.* Small Bindweed. H. 221, B. 202.—F. June, July. P.

Wayside east from Dundee, on the Broughty-road, sparingly, almost extinct, from scantiness of soil between the footpath and wall. Formerly abundant on the Constitution Brae, Dundee, now effectually banished by modern improvements. Flowers delicately fragrant.

Rocks at Dysart, and Montrose Links, *Mr A. Croall*. Plentiful near Usan, *Mr J. Cruickshank*.

When contemplating the small bindweed, we may say, in the beautiful language of Bryant :—

“ That delicate field flower,
 With scented breath, and look so like a smile,
 Seems, as it issues from the shapeless mould,
 An emanation of the indwelling life,
 A visible token of the upholding love,
 That are the soul of this wide Universe.”

C. Sepium, L. Great Bindweed. H. 221, B. 202.—F. July, Augt. P. (*Calystegia*, Br.)

Near Balgay, on banks below the house. *Mr G. Don* names it in his list without locality.

C. Soldanella, L. Sea-side Bindweed. H. 222, B. 202.—F. June, Augt. P. (*Calystegia*, Br.)

Sea-shore about a mile west from East Haven, *Mr A. Croall*.

CUSCUTA, L. Dodder.

Br. sp. and v. 4. F. 1.

C. Europæa, L. Greater Dodder. H. 222, B. 203.—F. Augt. Sept. A.

“ Generally on flax, and seems a very destructive weed ; it mats it altogether like a parcel of hair,” *Mr G. Don*. May not *Don's* plant be *C. Epilinum* ?

ORD. LVII.—BORAGINÆÆ.

Gen. Br. (10 Hook. 12 Bab.) F. 9. Sp. and v. Br. 26. F. 20.

ECHIUM, L. Viper's Bugloss.

Br. sp. 2. F. 1.

E. vulgare, L. Common Viper's Bugloss. H. 223, B. 206.—F. June, July. B.

Rocky banks of the Tay from Invergowrie to Broughty, abundant ; and on many other parts of the coast, especially the sandy downs to the west of Arbroath, where it is sometimes found with white flowers (*E. Italicum*, Sm.)

Ruthven, *Rev. P. Barty*. Kingoldrum, *Rev. J. O. Haldane*, who observes that it sometimes appears there in cultivated fields.

LITHOSPERMUM, *L.* Gromwell.*Br. sp.* 4. *F.* 3.

L. officinale, *L.* Common Gromwell, Grey Mill, or Grey Millet. H. 224, B. 207.—*F.* May, Augt. *P.*

Sparingly on rocky banks, Ninewells.

In an old water-course near Edzell Castle, *Mr A. Croall*. Between Brechin Castle and the river Esk, *Mr Thomas Smart*. Rocky heights on the right bank of the Isla, Den of Airlie, north of the "Boat Pool," and on the ruined walls of Hatton Castle, near Newtyle, *Rev. J. S. Barty*.

L. arvense, *L.* Corn Gromwell. H. 224, B. 208.—*F.* May, July. *A.*

Frequent in corn-fields.

L. maritimum, *Lehm.* Sea-side Gromwell. H. 225, B. 207.—*F.* May, June. *P.* (*Pulmonaria maritima*, *L. Steenhammera maritima*, *Reich., Bab.*)

Stony beach near Usan, plentiful, *Messrs Kerr, Croall, M'Farlane, &c.* Near Torrenshaven, *Mr G. Don*.

SYMPHYTUM, *L.* Comfrey.*Br. Sp. and v.* 3. *F.* 3.

S. officinale, *L.* Common Comfrey. H. 225, B. 206.—*F.* May, Augt. *P.*

Frequent on the banks of streams, as near the bridge across the Dean, on the Kirriemuir road, banks of the Dighty at the bridge on Mains road, &c. Den of Auchterhouse, Whitfield, Baldragon, and other places.

Abundant near Montrose, *Mr G. M'Farlane*.

β. patens (*S. patens*, *Sibth.*) Near the Bridge of Dun. Ditch bank, Links of Montrose. Back of a cottage, Glen Clova, several miles above Cortachy.

S. tuberosum, *L.* Tuberous-rooted Comfrey. H. 225, B. 206.—*F.* June, July. *P.*

Near Marten's Den, *Mr A. Kerr*. Abundant near Montrose, *Mr G. M'Farlane*.

BORAGO, *L.* Borage.*Br. sp. 1. F. 1.*

B. officinalis, *L.* Common Borage. H. 226, B. 205.—
F. June, July. B.

Noranside, *Murr. North. Fl.* Den of Dun, *Mr A. Kerr.*
Among rubbish near the railway at the south-west end of
Arbroath, *Mr A. Croall.*

LYCOPSIS, *L.* Bugloss.*Br. sp. 1. F. 1.*

L. arvensis, *L.* Small Bugloss. H. 226, B. 206.—F.
May, Oct. (*Anchusa arvensis*, *Lehm.*)

Corn-fields common; particularly abundant along the
coast.

ANCHUSA, *L.* Alkanet.*Br. sp. 2. F. 1.*

A. sempervirens, *L.* Evergreen Alkanet. H. 226, B.
206.—F. April, Augt. P.

Rocky bank, Ninewells. Balgay, in the lane leading to
the gardener's house. Near Mains Castle, east side. At the
small village of Denhead, west from Lochee. Den of Auch-
terhouse. Banks a little to the eastward of Monifieth. Way-
side between Montrose and Brechin. Near the small farm
of Bentire, Clova.

Small den by the game-keeper's house, Kinnaird, Gate of
Dun, Old Montrose, &c., *Mr A. Croall.* Parish of Kin-
goldrum, *Rev. J. O. Haldane.*

Its juice stains the hands red, and probably a good dye
might be procured from it.

MYOSOTIS, *L.* Mouse-ear, or Forget-me-not.*Br. sp. 8. F. 7.*

M. palustris, *With.* Marsh Mouse-ear, or Forget-me-not.
H. 227, B. 208.—F. June, Augt. P. (*M. scorpioides pa-
lustris*, *L.*

Not uncommon in marshy and watery places, and generally esteemed for the delicacy and beauty of its flowers, and the thoughts and feelings they awaken in the mind. It is named in our home-vocabulary "Forget-me-not," and these three words suggest many things of the greatest importance to a human being. The lover, the friend, the unfortunate poor, all feel their force; and we surely cannot gaze long upon the beauteous and delicate blossom, the work of that Almighty hand that formed the glorious galaxies of stars that throng with living worlds the boundless realms of space, without hearing a "still small voice" whispering "Forget-ME-not!" The flower, therefore, small and fragile though it be, has a mission far nobler than that of merely adorning the marsh, or pleasing the eye with its lovely form.

"There breathes for those who understand,
A voice from every flower and tree;
And in the works of Nature's hand,
Lies Nature's best philosophy;
For 'things invisible' are known,
By what the visible have shown."

Many an important and improving lesson can a flower convey!—even this little wilding of the marsh can administer consolation, and inspire hope, to the human breast.

There are numerous poetical effusions to this flower, but space will not admit of quoting more than the following lines by Mr Wilkie, Dundee:—

"TO THE FORGET-ME-NOT.

Not where the lordly myrtles grow,
Nor near the gorgeous rose thou'rt seen;
Half hid beside some streamlet's flow,
Thy lonely dwelling erst has been.

Or looking from the hedge-row's shade,
As if to catch some straggling ray,
Meekly thou lift'st thy beauteous head,
To kiss the wandering smile of day.

Sweet flower! we would not wish thy lot
With those that boast a brighter hue;
Far sweeter, in thy chosen spot,
Bloom thy fair flowers of heavenly blue.

Hid like the memories of the heart,
Whose sleep thy presence oft hath broken,
And made them from their slumbers start,
As if some youth-loved friend had spoken;

And brought once more before our eyes,
 The scenes that cheered our youthful lot,
 And told that long-hushed voice to rise,
 And breathe thy words, 'Forget-me-not.'

M. repens, Don. Creeping Water Mouse-ear. H. 227, B. 208.—F. May, August. P. (*M. secunda*, Murr. *M. palustris*, β . Hook. Fl. Scot.)

Frequent about the sides of rills, and in marshy places. Den of Pitairlie. Glen Ogilvy. Near Ben Hard, Loch Brandy stream, and streams on the Bassies, Clova.

M. caespitosa, Schultz. Tufted Water Mouse-ear. H. 227, B. 208.—F. May, June. P.? (*M. lingulata*, Lehm.)

Banks of the lakes of Rescobie and Balgavies, *Mr A. Croall*, where I have also found it. Banks of Lunan Water, *Dr W. Reid*. Ditch, Links of Montrose, *Mr J. Cruickshank*.

M. sylvatica, Hoffm. Upright Wood Mouse-ear. H. 228, B. 209.—F. June, July. P.

Den of Fullerton, *Mr A. Croall*. Small wood in the deer-park of Kinnaird, *Mr J. Cruickshank*.

M. arvensis, Hoffm. Field Mouse-ear. H. 228, B. 209.—F. May, August. A. (*M. intermedia*, Link. *M. scorpioides a. arvensis*, Fl. Br.)

Fields and waste places frequent.

M. collina, Hoffm. Early Field Mouse-ear. H. 228, B. 209.—F. April. May. A. (*M. arvensis*, Link. *M. arvensis*, γ . Wahl. *M. hispida*, Schlecht., Koch. *M. stricta*, Link.)

Will's Braes and Ninewells, plentiful on the braes and rocks. Sands of Barrie, varying from a quarter of an inch high with a single flower, to two inches with several flowers. Reeky Linn, &c.

Near the woods of Charlton, on the sands, *Mr J. Cruickshank*.

M. versicolor, Lehm. Yellow and blue Mouse-ear. H. 229, B. 209.—F. May, June. A. (*M. scorpioides* γ . L. *M. scorpioides* β . Huds. *M. scorpioides collina*, Ehrh. *M. arvensis* γ . *versicolor*, Pers.)

Ninewells. Strathmartin. Trottick. Walls of Broughty

Castle. Near the *Druids' Thicket*, Invergowrie, and other places, growing on banks and under hedges.

On the Sands of Barrie, a var. with flowers at first pure white, gradually changing to blue, *Messrs G. Lawson and D. Jackson*.

(It is singular that the delightful *M. alpestris*, so frequent on the micaceous mountains of Breadalbane, should not be found on those of a like character in Clova. On Ben-Lawers and Stuich-an-Lochan it is rather plentiful, but I have never seen a single specimen on the mountains of Forfarshire, nor those of Braemar. It is a truly beauteous flower when seen blooming in its "native Highland home," and like all other things of beauty, has its pleasant teachings. To some minds this linking of beautiful objects with thoughts and feelings of an elevating tendency gives these objects an additional charm. For such only I venture to transcribe the following lines, addressed

TO THE MOUNTAIN FORGET-ME-NOT.

Myosotis alpestris.

Sweet mountain-flower with eye of gold,
 And petals dipt in heaven's own dye,
 What bloom more bright did e'er unfold
 Its charms beneath an orient sky?
 And yet on Scotland's mountains high,
 Thou hast thy home, and lov'st to dwell;
 Born 'midst the snows, nursed with the cry
 Of angry storms that round thee swell!

O little flower, does He who made
 The mountain-crest thy dwelling-place,
 In every storm that bursts, not aid,
 And shield from harm thy every grace?
 And when the sun, with shining face,
 Smiles o'er the world in radiant joy,
 'Tis His kind master-hand we trace
 In thy delightful symmetry.

When wandering 'midst these alpine rocks,
 To seek the health-inspiring breeze,
 And list the bleat of browsing flocks,
 And merry hum of summer bees;
 What blossom of the wild can please
 The eye, the soul, so much as thee?
 The raptured eye thy beauty sees—
 The soul awakes to extacy!

For thou a moral teacher art,
 Though humble, yet of wondrous power;
 And well thy lessons can impart
 Their holy influence; lovely flower!

Thy teachings are not stern and sour,
 Nor dipt, like haughty man's, in gall;
 But o'er the heart, like tender shower,
 With sweet persuasive voice they fall.)

ASPERUGO, *L.* Madwort.

Br. sp. 1. F. 1.

A. procumbens, *L.* German Madwort. H. 229, B. 205.—F. May, June. A.

Rare. At the base of the rocks on the sea-shore, in one spot, a little to the eastward of Auchmithie. West Haven, *Mr G. Don.*

CYNOGLOSSUM, *L.* Hound's-tongue.

Br. sp. 2. F. 2.

C. officinale, *L.* Common Hound's-tongue. H. 230, B. 205.—F. June, July. B.

Banks of the Tay at Ninewells, rare.

C. sylvaticum, Hænke. Green-leaved Hound's-tongue. H. 230, B. 205.—F. June, July. B.

“West from Dundee, rare,” *Mr G. Don.* I have never found it there. It is said to occur in the Carse of Gowrie, which, though “west from Dundee,” is wholly in Perthshire.

ORD. LVIII.—SOLANEÆ.

Gen. Br. 4. F. 3. Sp. and v. Br. 8. F. 3.

HYOSCYAMUS, *L.* Henbane.

Br. sp. 1. F. 1.

H. niger, *L.* Common Henbane. H. 231, B. 211.—F. June, July. A. or B.

Rare. A specimen or two has occasionally been found at Ninewells, Roodyards east from Dundee, Broughty Castle, &c. It was formerly abundant on the “*Sea Braes*,” a range of steep banks near the head of the Magdalen-yard road, Dundee, now occupied by buildings and public works.

In the vicinity of Montrose, *Murr. North. Fl.*

It is a powerful narcotic, and used in medicine. Its poisonous properties are thus graphically described by Shakspeare in the address of the ghost of Hamlet's father to his son :—

“ — Sleeping within mine orchard,
My custom always of the afternoon,
Upon my secure hour thy uncle stole,
With juice of cursed *hebenon* in a vial,
And in the porches of mine ear did pour
The leprous distilment ; whose effect
Holds such an enmity with blood of man,
That, swift as quicksilver, it courses through
The natural gates and alleys of the body ;
And with a sudden vigour, it doth posset
And curd, like eager droppings into milk,
The thin and wholesome blood: so did it mine.”

SOLANUM, *L.* Nightshade.

Br. sp. and v. 5. F. 1.

S. Dulcamara, *L.* Bitter-sweet, or Woody Nightshade.
H. 231, B. 210.—F. June, July. S.

Woods west from Kinnaird Mill, *Mr A. Bousie*. Side of Kinnaird Mill-lead, *Mr John Laing*. By the side of the lead at the Upper Mills of Kinaber, *Mr A. Croall*. At Arbroath, *Dr Murray*. Parish of Kirkden, *Rev. D. Caruthers*.

It is plentiful in the neighbouring county of Perth in hedges, as between Meigle and Alyth, and Perth and Dunkeld.

ATROPA, *L.* Dwale.

Br. sp. 1. F. 1.

A. Belladonna, *L.* Common Dwale, or Deadly Nightshade. H. 232, B. 210.—F. June, July. P.

Rare. Den of Bonnington, four miles west from Montrose. Den of Fullerton, *Mr A. Croall*.

The fruit are here termed “*daft-berries*,” as the mere tasting of them produces delirium. Though tempting to the eye, they are forbidden fruit, death being the consequence of eating them. The generic name is derived from *Atropos*, one of the *Fates*, and the specific name signifies *Fair Lady*. This at first appears puzzling, but when we learn that the Italian

ladies use a decoction of it as a wash in cutaneous eruptions, and couple this fact with that of its deadly poisonous effects, our perplexity is removed. The poisonous principle in alkaline, and an extract used in medicine, procured from the plant, is named *Atropia*. Dr Brande instituted a series of experiments on it, but was obliged to discontinue them in consequence of their effects on his health. "He once tasted a small quantity of sulphate of *Atropia*. The taste was not bitter, merely saline; but there soon followed violent headache, shaking in the limbs, alternate sensations of heat and cold, oppression of the chest and difficulty of breathing, and diminished circulation of the blood."

It is related by Buchannan the Scottish historian, that the greater part of the invading army of Sweno the Dane were at one time cut off by the influence of this plant; the drink supplied to the Danish soldiers being mixed with the juice of its berries, and thus rendering them incapable of accomplishing the ruthless designs of their leader.

ORD. LX.—SCROPHULARINEÆ.

Gen. Br. 13. *F.* 11. *Sp. and v. Br.* 67. *F.* 31.

VERONICA, *L.* Speedwell.

Br. sp. and v. 25. *F.* 15.

V. serpyllifolia, *L.* Thyme-leaved Speedwell. *H.* 235, *B.* 224.—*F.* May, July. *P.*

Waysides and pastures, common.

β. alpina, *Hook.* (*V. serpyllifolia β. humifusa*, *Sm.* *V. humifusa*, *Dicks.*)

Sides of streams and in marshy places among the mountains, frequent.

V. alpina, *L.* Alpine Speedwell. *H.* 235, *B.* 224.—*F.* July, August. *P.*

Sides of streams and wet stony places, frequent in Glen Dole and Canlochen.

Glen Phee, and Maskeldie Craigs at the head of Loch Lee, *Prof. Balfour*. Turns more or less black in drying.

V. saxatilis, L. Blue Rock Speedwell. H. 235, B. 223.
—F. July. P.

Rocks of Canlochen and Glen Dole, plentiful. Side of the stream Corrie of Ben Hard, below 2000 feet, probably brought down by the water. One of the most beautiful of our native alpine plants, pleasant to the eye, and instructive to the mind.

THE ROCK SPEEDWELL.—*Veronica saxatilis*.

Advent'rous dweller of the rock,
With blossoms bright as azure sky,
When haze nor cloud doth dim its hue—
Who carelessly could pass thee by?
When dew-drops twinkle in thine eye,
On summer morn, in alpine wild,
We cannot, little flower, deny
That thou art Beauty's darling child.

Then why not seek some sunny vale,
Where warm soft airs with odours teem,
And there on velvet mossy bank
Rejoice with merry bird and stream?
But thou, sweet floweret, it doth seem,
Contentment's pleasant charms dost know—
Regardless of more genial clime,
Thou lov'st thy home of mist and snow.

What boots it to the sons of men,
Whate'er their station, rich or poor;
Whether in princely halls they dwell,
Or cottage of the lowliest boor—
If those bright charms they can secure,
By meet contentment only given,
That render earth's delights more pure,
And school the chasten'd soul for Heaven.

V. scutellata, L. Marsh Speedwell. H. 236, B. 222.—
F. June, August. P.

Ditches and pools not rare. Drains, Sands of Barrie. Marshy pool north from the Lawhill, Dundee. Margin of Forfar Lake. Ditches between Forfar and Brechin.

Abundant in ditches near Montrose, Brechin, and Forfar, *Prof. Balfour*. Guthrie Woods, *Mr A. Croall*. Woods of Charlton, *Mr D. White*.

V. Anagallis, L. Water Speedwell. H. 236, B. 222.
—F. July, August. P.

Lochs of Lundie, Rescobie, Balgavies, &c.

Between Montrose and Usan, *Prof. Balfour*. Rossie

MOOR, Lunan Water, and Old Montrose, *Dr W. Reid*. Den of Fullerton and near Usan, *Mr G. M'Farlane*. Near Friockheim on the road to Forfar, *Mr A. Croall*. East end of Forfar Lake, *Mr G. Don*. Restenet, *Mr J. Cruickshank*. Burn of Benvie, *Rev. Dr Addison*. Noranside, *Murr. North. Fl.*

V. Beccabunga, L. Brooklime. H. 236, B. 222.—F. May, August. P.

Very common in ditches.

V. officinalis, L. Common Speedwell. H. 236, B. 223.—F. May, July. P.

Rather common on ditch-banks, by waysides, in the woods, and on the hills and mountains. With white flowers in the Den of Glammis.

In Canlochen a form of *V. officinalis* occurs, which may be Babington's β . *glabra*, or intermediate between *V. officinalis* and *V. Allionii*. The leaves and old stems are generally glabrous, the young shoots and lower part of the sepals densely pubescent, and occasionally a few hairs upon some of the leaves. It is a larger plant than *V. officinalis*.

Used as tea in gouty and rheumatic complaints, *Mr Douglass Gardiner*.

V. montana, L. Mountain Speedwell. H. 236, B. 223.—F. May, June. P.

Banks of the Esk, *Mr G. Don*. Moist sloping bank a little below the Low Garden, Den of Airlie, *Rev. J. S. Barty*.

V. Chamædrys, L. Germander Speedwell. H. 237, B. 222.—F. May, June. P.

Abundant by waysides, on ditch-banks, under hedges, in woods, on the sandy sea-shore, and ascending the mountains to an elevation of 2000 feet. The loveliest ornament of early summer, its racemes of brilliant blue flowers rivalling in depth of tint the purest glory of the cærulean concave.

V. hederifolia, L. Ivy-leaved Speedwell. H. 237, B. 225.—F. Mar. June. A.

Corn-fields and hedge-banks abundant.

V. agrestis, L. Green Procumbent Field Speedwell. H. 237, B. 224.—F. Mar. Sept. A.

Frequent by waysides, hedge-banks, and on old walls.

V. polita, Fries. Grey Procumbent Field Speedwell. H. 237, B. 225.—F. Apr. Sept. A.

Cultivated ground near Usan, *Mr J. Cruickshank*.

V. arvensis, L. Wall Speedwell. H. 238, B. 224.—F. Apr. July. A.

Banks, cornfields, and old walls, frequent.

BARTSIA, L. Bartsia.

Br. sp. 3. F. 1.

B. Odontites, Huds. Red Bartsia. H. 239. B. 222.—F. July, Augt. A. (*Euphrasia*, L., Bab.)

Cornfields common, varying much in size. *Mr A. Croall* observes of this species that it is "variable in the colour of the flowers, and the form of the capsule, which is more or less compressed, acute, obtuse, or obcordate, but so inconstant as to furnish no permanent character to distinguish the forms even as varieties."

EUPHRASIA, L. Eye-Bright.

Br. sp. 1. F. 1.

E. officinalis, L. Common Eye-Bright. H. 239, B. 221.—F. July, Augt. A.

The usual form of this plant is abundant in pastures from the coast to the mountain summits, varying in height from half an inch to a foot, and the stems from simple to excessively branched. Another form occurs on the Sidlaw Hills and Clova mountains, with darker flowers and foliage, generally upright, slender, and simple, or sparingly branched.

The corolla in this is partially pubescent, particularly on the outside of the upper lip. The two forms grow together and appear to the eye quite distinct.

RHINANTHUS, *L.* Yellow-Rattle.*Br. sp. 2. F. 2.*

R. Crista-Galli, *L.* Common Yellow-Rattle. H. 240, B. 220.—F. June. A.

Common in fields and waste places.

R. major, Ehrh. ? Sm. Large Bushy Yellow-rattle. H. 240, B. 221.—F. July, Augt. A. (*R. Crista-Galli*, β . *L.*)

Plentiful in fields about Monifieth and Carnoustie. Fields near the sea west from Arbroath, *Mr A. Croall. Dr Macnab.*

MELAMPYRUM, *L.* Cow-Wheat.*Br. sp. and v. 6. F. 3.*

M. pratense, *L.* Common Yellow Cow-Wheat. H. 241, B. 220.—F. June, July. A.

Woods and mountains to the north of Strathmore, plentiful. The β . *montanum* (*M. montanum*, Johnst.) is common in mountain pastures, but scarcely differs except by its smaller size and entire bracts.

M. sylvaticum, *L.* Lesser-flowered Yellow Cow-Wheat. H. 241, B. 220.—F. June, July. A.

Reeky Linn, on the north bank a little below the waterfall, in great abundance.

PEDICULARIS, *L.* Red-Rattle, or Lousewort.*Br. sp. 2. F. 2.*

P. palustris, *L.* Tall Red-Rattle, or Marsh Lousewort. H. 241, B. 220.—F. June, July. A. ? or P. ?

Common in marshy places. With white flowers, banks of Forfar Lake.

P. sylvatica, *L.* Dwarf Red-Rattle, or Pasture Lousewort. H. 241, B. 220.—F. May, Augt. A. ? or P. ?

Common on heaths and moors. With white flowers on moist heaths, Sidlaw Hills.

SCROPHULARIA, L. Figwort.

Br. sp. 5. F. 2.

S. nodosa, L. Knotted Figwort. H. 242, B. 218.—F. June, July. P.

Ninewells, Bullion Burn, Baldovan, Dens of Glammis, Airlie, Fowlis, &c., frequent.

S. vernalis. L. Yellow Figwort. H. 243, B. 219.—F. Apr. May. P.

Near Lower, two miles south from Forfar, *Mr G. Don*. Ruthven, *Rev. P. Barty*.

DIGITALIS, L. Foxglove.

Br. sp. 1. F. 1.

D. purpurea, L. Purple Foxglove. H. 243, B. 216.—F. July, Augt. B.

Abundant in many places throughout the county, in woods, dens, waysides, by streams, on the hills, &c. It occurs with white flowers in Glen Dole, Clova, Den of Glammis, and plentifully on the embankment of the Arbroath and Forfar railway, between Arbroath and Fricockheim.

On the Sidlaw Hills, and in the mountain valleys of Clova, it is peculiarly exuberant, and is known to the peasantry by the name of "*dead men's bells*," probably on account of its poisonous qualities. It is much used in medicine as a sedative and diuretic.

LINARIA, *Juss.* Toad-Flax.

Br. Sp. and v. 10. F. 3.

L. Cymbalaria, Mill. Ivy-leaved Toad-Flax. H. 244, B. 217.—F. July, Augt. P. (*Anterrhinum Cymbalaria*, L.)

Old wall, Den of Mains, probably introduced.

L. vulgaris, Mœnch. Yellow Toad-Flax. H. 245, B. 218.—F. July, Augt. P. (*Anterrhinum Linaria*, L.)

Cornfields and waste places, frequent, from the coast to the mountain valleys. The var. *Peloria* with five nectaria, and five stamens placed irregularly, I have found in the vicinity of Dundee, but rarely.

LIMOSELLA, L. Mudwort.

Br. Sp. 1. *F.* 1.

L. aquatica, L. Common Mudwort. H. 245, B. 219.—F. July, Sept. A.

Margins of pools, &c., common, *Mr A. Croall*.

VERBASCUM, L. Mullein.

Br. sp. and v. 9. *F.* 1.

V. Thapsus, L.? Great Mullein. H. 246, B. 211.—F. July, Augt. B.

Will's Braes, Ninewells, Roodyards, east from Arbroath, and other places along the coast, not common.

Parish of Kingoldrum, *Rev. J. O. Haldane*. With white flowers near Airlie Castle, *Mr G. Don*.

(*Mimulus luteus*, W. Yellow-flowered Monkey-flower. This plant has slender claims to be considered a native. It was introduced into this country in 1812 from America, and though now naturalized in many parts of Britain, can only be recorded in our floras as an *emigrant*. In August 1830, I found it in abundance and perfection on the marshy banks of Bullion Burn, near the Bridge of Invergowrie, where its creeping scions were spreading in all directions, and its flowering-stems rising from a foot to a foot and a-half high, richly clothed with flowers. There is little doubt but that the plant had been washed down from the garden of Gray by the stream, as the intelligent gardener, *Mr W. Chalmers*, informed me that he had it in cultivation twenty years before, and it was his opinion that such was the origin of the Invergowrie *Mimulus*. It is probable that the plant, in the various other stations recorded in the *Magazine of Natural His-*

tory, v. 198, and *Phytologist*, ii. 389, 420-1, are also garden-escapes, and have no title to be considered indigenous. Perhaps, however, other plants generally looked upon as natives, as *Anchusa sempervirens*, *Doronicum Pardalianches*, &c., many have had a like origin, although at a remote period.

Rather abundant on the banks of the Esk near Kinnaird, *Mr John Laing*. Margin of the Dighty at Strathmartin, plentiful and quite naturalized, *Mr G. Lawson*. In both of these places its origin is likely similar, especially on Dighty, as there are gardens in the small village of Strathmartin close upon the stream, above the station.

The stigma of this plant presents a very remarkable instance of vegetable irritability. It is two-lobed, and on the lobes being touched on their interior surface with a pin or a grain of pollen, they suddenly collapse, and continue in that state for some time, thus allowing the pollen sufficient time to elaborate. This curious property is perhaps intended by Nature to supply the place of the usual viscid moisture of the stigma, which in this plant is comparatively deficient.)

ORD. LXI.—LABIATÆ.

Gen. Br. 23. *F.* 14. *Sp. and v. Br.* 69. *F.* 26.

SALVIA, *L.* Sage, or Clary.

Br. sp. 3. *F.* 1.

S. Verbenaca, *L.* Wild English Clary, or Sage. *H.* 248, *B.* 230.—*F.* May, June. *P.*

Side of the Magdalen-yard Green, Dundee, but probably the outcast of a garden.

MENTHA, *L.* Mint.

Br. sp. and v. 18. *F.* 5.

M. sylvestris, *L.* Horse-Mint. *H.* 249, *B.* 228.—*F.* Augt. Oct. *P.*

In several spots on the side of the new Glamis road, where it emerges from the Sidlaw Hills into Glen Ogilvy, not near

houses, and apparently wild, but may have been introduced by the agency of man.

M. viridis, L. Spear-Mint. H. 249, B. 228.—F. Sept. P.

Banks of streams rare, as the Dighty near Claverhouse, the Feithy near Claypots Castle, and Bullion Burn near Invergowrie.

M. rotundifolia, L. Round-leaved Mint. H. 249, B. 228. Augt. Sept. P.

Banks of Dighty near Claverhouse, but probably now destroyed.

M. hirsuta, L. Hairy Mint. H. 250, B. 229. (*M. aquatica*, and *sativa*, L.)

Plentiful on the banks of streams, and in ditches, and wet places. Varying much in the inflorescence, from densely capitate to laxly whorled.

M. arvensis, L. Corn Mint. H. 251, B. 229.—F. Augt. Sept. P.

Cornfields frequent.

THYMUS, L. Thyme.

Br. sp. 1. F. 1.

T. Serpyllum, L. Wild Thyme. H. 251, B. 230.—F. June, August. P.

The “*bonny wild thyme*” is abundantly distributed throughout the county, shedding its fragrance over the sands and rocks of the sea-shore, the inland waysides, woods, and hills, and ascending to the highest mountain summits. Variable in respect to the amount of pubescence on its leaves, and their odour, which is however always agreeable. With white flowers on the Sands of Barrie, south bank of Forfar Loch, and Bassies, Clova. It gives preference to heaths.

“There’s not a heath, however rude,
But hath some little flower,
To brighten up its solitude,
And scent the evening hour.

There’s not a heart, however cast
By grief and sorrow down,
But hath some memory of the past,
To love and call its own.”

ORIGANUM, *L.* Marjoram.*Br. sp. 1. F. 1.*

O. vulgare, *L.* Common Marjoram. H. 252, B. 230.—
F. July, Oct. P.

Rather rare. Will's Braes. Den of Glammiss. Craigs of Lundie.

Between Duninald and Usan, *Prof. Balfour*. With white flowers, *Mr G. Don*.

The Craigs of Lundie are a range of precipitous cliffs forming the front of one of the western Sidlaws near the village of Lundie, and besides the fragrant Marjoram, afford many other interesting plants. The *Viola lutea* grows on their summits, and at their base the *Drosera rotundifolia*, and other curious marsh plants. The *Arabis hirsuta*, and *Viola hirta*, are found among the rocks, and various rare mosses and lichens that will be noticed in their proper places. Indeed the parish of Lundie, though no notice is taken of its vegetation in the *New Statistical Account of Forfarshire*, is well worthy of being perambulated by the lover of Flora, as well as the admirer of quiet, rural, and picturesque scenery. To both, the lakes, though not extensive, will afford much interest. The Loch of Pitlyal is a beautiful little sheet of water, situated in a pleasant and retired place, its banks finely wooded, and its surface animated with numerous wild-ducks, and several stately swans, that gracefully wend their way amid the bright water-lilies. The Lochs of Lundie and Balshandie abound in marsh and lake plants, and the Long Loch, a bare upland tarn, has its banks covered with a turf of the singular *Littorella lacustris*. These lakes give rise to the small river Dighty, which, after a meandering course of 15 or 16 miles through a beautifully diversified valley, embracing portions of the parishes of Lundie, Auchterhouse, Strathmartin, Mains, and Monifieth, disembogues itself into the Frith of Tay, a little to the westward of the latter village.

TEUCRIUM, *L.* Germander.*Br. sp. and v. 5. F. 2.*

T. Scorodonia, *L.* Wood Sage. H. 252, B. 237.—F.
July, Oct. P.

Plentiful in the Dens of Airlie, Glammis, Foulis, &c., and on the rocks along the coast from Arbroath to Montrose.

T. Chamædrys, L. Wall Germander. H. 253, B. 237.—F. July, August. P.

Near Coupar-Angus, *Prof. Balfour*, *Mr J. Gibb*. Near Forfar, and Kelly, *H. B. F.*

AJUGA, L. Bugle.

Br. sp. 4. F. 2.

A. reptans, L. Common Bugle. H. 253, B. 238.—F. May, June. P.

Not uncommon in woods and dens, and upon the hills and mountains. Woods near Baldovie. Banks of the Feithy and Dighty. Dens of Airlie, Glammis, Foulis, and near Auchmithie on the coast. Sidlaw Hills and Clova mountains.

Near Marten's Den, and marshes about Rescobie, Guthrie, &c., *Mr A. Croall*.

A. alpina, L. Alpine Bugle. H. 253, B. 238.—F. July. P.

Stream falling into the White Water, Clova, above the falls: only two specimens found, *Prof. Graham*.

GALEOPSIS, L. Hemp-nettle.

Br. sp. 4. F. 2.

G. Tetrahit, L. Common Hemp-nettle. H. 255, B. 235.—F. July, Oct. A.

Fields, waste ground, and woods, common. Flowers red or white.

G. versicolor, Curt. Large-flowered Hemp-nettle. H. 255, B. 235.—F. June, August. A.

Cornfields about Lundie, Auchterhouse, Baldovan, &c. Field at the top of the hill N.W. from the Upper Mills of Kinaber, *Mr A. Croall*.

LAMIUM, *L.* Dead-nettle.*Br. Sp. and v. 7. F. 6.*

L. album, *L.* White Dead-nettle. H. 256, B. 234.—F. May, July. P. (*L. vulgatum*, Benth.)

Dens of Mains and Auchterhouse. Near Fleuchar Craig, Dundee. Side of the Glamis road, at the entrance of the carriage-road to Tealing House, &c. In the *Houff*, or old burying-ground, Dundee, it was formerly abundant, but since its alteration has disappeared.

γ. Hook. (*L. maculatum*, *L.*, Bab.) Clova, *Bab. Man.* 234.

L. purpureum, *L.* Red Dead-nettle. H. 256, B. 233.—F. Mar. Sept. A.

Banks and waste places, not uncommon.

L. intermedium, Fries. Intermediate Dead-nettle, H. 256, B. 233.—June, Sept. A.

About Montrose, *Mr A. Croall*.

L. amplexicaule, *L.* Henbit-nettle. H. 256, B. 233.—F. May, Aug. A.

Fields, gardens, and waste places, plentiful.

L. incisum, Willd. Cut-leaved Dead-nettle. H. 256, B. 233.—F. March, June. A.

Fields and gardens about Montrose, common, *Mr A. Croall*.

STACHYS. Woundwort.

Br. sp. and v. 6. F. 3.

S. sylvatica, *L.* Hedge Woundwort. H. 257, B. 236.—F. July, Augt. P.

Frequent about hedge-sides and in shady places, remarkable for its rank disagreeable smell.

S. palustris, *L.* Marsh Woundwort. H. 257, B. 236.—F. July, Augt. P.

Not uncommon on ditch banks, and about the margins of moist fields.

S. arvensis, L. Corn Woundwort. H. 258, B. 236.—F. July, Sept. A.

In corn-fields frequent.

GLECHOMA, L. Ground-ivy.

Br. sp. and v. 2. F. 1.

G. hederacea, L. Ground-ivy. H. 259, B. 232.—F. April, June. P. (*Nepeta Glechoma*, Benth., Bab.)

In many places, though not very common. Near Invergowrie and Ninewells. Magdalen-yard Green, Dundee, west end. Balgay, in the lane leading to the gardener's house. Banks of Dighty, near Mains, and of Feithy, near Claypots. Den of Airlie. Craigie, &c.

Den of Fullerton, and near Rossie Castle, *Mr A. Croall*.

ACINOS, *Moench*. Basil-Thyme.

Br. sp. 1. F. 1.

A. vulgaris, Pers. Common Basil-Thyme. H. 259, B. 231.—F. Augt. A. (*Thymus Acinos*, L. *Calamintha Acinos*, Clairv., Bab. *Melissa*, Benth.)

Near East Haven, north side.

Near the village called Welltown, about one mile south of Forfar, *Mr G. Don*. Sandy fields, Arbroath Common, *Dr G. Macnab*, *Mr A. Croall*. At the extreme south point of the gravelly arable field, adjoining the oak-copse, Den of Airlie, *Rev. J. S. Barty*. Very abundant on light ground having a southern exposure, in the parish of Kingoldrum, *Rev. J. O. Haldane*.

CLINOPODIUM, L. Wild Basil.

Br. sp. 1. F. 1.

C. vulgare, L. Wild Basil. H. 260, B. 231.—F. July, Aug. P. (*Calamintha Clinopodium*, Spenn., Bab., *Melissa*, Benth.)

Banks of the South Esk between the Bridge of Dun and Balbirnie Mill, *Mr A. Croall*. Duninald and Usan, *Rev. J. Brewster*.

PRUNELLA, L. Self-heal.

Br. sp. 1. F. 1.

P. vulgaris, L. Self-heal. H. 261, B. 232.—F. July, Augt. P.

Common on ditch banks, by waysides, in woods, and on the hills and mountains. With white and rose-coloured flowers in Mericmoor Wood, and on the Sidlaw Hills. The white-flowered state also occurs on the Loch Brandy Hill, Clova.

SCUTELLARIA, L. Skull-cap.

Br. sp. 2. F. 1.

S. galericulata, L. Common Skull-cap. H. 261, B. 232.—F. July, Augt. P.

In marshes (but no station indicated), *Mr G. Don*.

ORD. LXIII.—LENTIBULARIÆ.

Gen. Br. 2. F. 2. Sp. Br. 7. F. 4.

PINGUICULA, L. Butterwort.

Br. sp. 4. F. 1.

P. vulgaris, L. Common Butterwort. H. 262, B. 239.—F. May, June. P.

Abundant in moist ground from the coast to the mountain summits. Particularly plentiful on the Sands of Barrie, Sidlaw hills, and Clova mountains.

UTRICULARIA, L. Bladderwort.

Br. sp. 3. F. 3.

U. vulgaris, L. Greater Bladderwort. H. 264, B. 239.—F. June, Augt. P.

Not uncommon in marshy pools, ditches, &c., as at Rescobie and Forfar Lakes; White Hill, Sidlaw, &c.

U. intermedia, Hayne. Intermediate Bladderwort. H. 264, B. 240.—F. June, Augt. P.

Marshy pools in Rescobie Marsh, near the lake, by the wayside to the east of the church, bearing plenty of terminal buds, but no flowers.

East end of Balgavies Lake, *Prof. Balfour*, *Messrs Croall* and *Cruickshank*. Pools near Guthrie, *Prof. Balfour*. In a marsh in the woods of Ardovie, *Mr Reid*.

U. minor, L. Lesser Bladderwort. H. 264. B. 240.—F. Sept. P.

With *U. intermedia* in the Rescobie station flowering beautifully in Sept. 1845.

East end of Forfar Lake, *Mr G. Don*. East end of Balgavies Lake, *Mr A. Croall*. In a pool by the wayside in Glen Clova, three or four miles north-east from the Kirkton, not far from a birch wood, *Prof. Balfour*.

ORD. LXIV.—PRIMULACEÆ.

Gen. Br. 9. *F.* 6. *Sp. and v. Br.* 20. *F.* 9.

ANAGALLIS, L. Pimpernel.

Br. sp. and v. 3. *F.* 1.

A. arvensis, L. Scarlet Pimpernel, or Poor Man's Weather-glass. H. 265, B. 243.—F. June, Oct. A.

Corn-fields frequent. This brilliant gem is an excellent substitute, like the daisy and many other plants, for a barometer, indicating, by the opening or closing of its flowers, any change in the weight of the atmosphere, consequently whether dry or wet weather is to ensue. Dr Jenner says,—

“Closed is the pink-eyed Pimpernel;

* * * * *

’Twill surely rain, I see, with sorrow,
Our jaunt must be put off to-morrow.”

Many have shared a similar disappointment to the Doctor's by attending to the indications of these vegetable moni-

tors, yet their prophetic warnings often prevent more disagreeable consequences.

In 1829, I gathered this plant in flower in November, with upwards of twenty other wild blossoms, being their second flowering, a circumstance that frequently occurs in mild seasons.

LYSIMACHIA, L. Loosestrife.

Br. sp. 5. F. 2.

L. thyrsiflora, L. Tufted Loosestrife. H. 266, B. 242.—F. June, July. P. (*Naumburgia*, R.)

Margin of Rescobie Lake plentiful, generally growing in the water.

In an old water-course a little to the east of the Bridge of Dun, and in bogs to the westward of the Bridge, *Mr John Laing*.

L. nemorum, L. Wood Loosestrife, or Yellow Pimpernel. H. 266, B. 243.—F. June, Augt. P. (*Ephemerum*, R.)

Moist banks in shady places frequent. Sidlaw Hills, as near the little water-fall, south side of Craig Owl, west margin of the wood. Glen Dole, and Bassies, Clova.

Den of Airlie, on the left bank, below the Castle, *Rev. J. S. Barty*. Nearly opposite Edzell, on the banks of the West Water, *Mr A. Croall*. Woods of the Burn, *Mr G. M. Farlane*.

(*Hottonia palustris* is stated in the *New Stat. Acc. of Scot.* p. 525, to be found in the parish of Carreston; but as, in the same report, *Orchis Morio* and *Ligusticum Scoticum* (a coast plant) are mentioned, doubts are awakened as to whether either are indigenous there. These doubts can only be removed by the author of the report transmitting specimens, with remarks on the conditions under which the plants were found.)

PRIMULA, L. Primrose.

Br. sp. and v. 6. F. 3.

P. vulgaris, Huds. Common Primrose. H. 267, B. 241.

—F. April, June. P. (*P. acaulis*, All. *P. veris* γ . *acaulis*, L.)

Banks and shady places abundant. In profusion in the Dens of Mains, Airlie, Glammis, Foulis, &c. Sidlaw hills and Clova mountains, and in wooded dens along the coast.

With pale purple flowers at Usan, *Mr A. Croall*.

It occasionally occurs with only four divisions in the limb of the corolla, and a corresponding number of stamens. In *Trientalis* a similar diminution of the parts of fructification has sometimes puzzled the Linnæan student, some plants having only six stamens, and the like number of divisions in its monopetalous corolla.

The Primrose is a beloved flower with poetical minds, and has many pleasant associations. Elliot, with his soul-awakening eloquence, thus addresses it in the following lines:—

“ TO THE PRIMROSE.

Surely that man is pure in thought and deed,
Whom spirits teach in breeze-born melodies;
For he finds tongues in every flower and weed,
And admonitions in mute harmonies.

Erect he moves, by Truth and Beauty led,
And climbs his throne, for such a monarch meet,
To gaze on valleys, that, around him spread,
Carpet the hall of heaven beneath his feet.

How like a trumpet under all the skies,
Blown to convene all forms that love his beams,
Light speaks in splendour to the poet's eyes,
O'er dizzy rocks, and woods, and headlong streams!

How like the voice of woman, when she sings
To her belov'd, of love and constancy,
Thy vernal odours, o'er the murmurings
Of distant waters, pour their melody

Into his soul, mixed with the throstle's song
And the wren's twitter! Welcome then again,
Love-listening Primrose! Though not parted long,
We meet, like lovers, after years of pain;

Oh, thou bring'st blissful childhood back to me!
Thou still are loveliest in the lonest place;
Still, as of old, day glows with love for thee,
And reads our heavenly Father in thy face.

Surely thy thoughts are humble and devout,
Flower of the pensive gold! for why should Heaven
Deny to thee his noblest boon of thought,
If to earth's demigods 'tis vainly given?

Answer me, sinless sister! Thou hast speech,
 Though silent. Fragrance is thy eloquence,
 Beauty thy language; and thy smile might teach
 Ungrateful man to pardon Providence."

β. umbellatum, Bab. (*P. vulgaris β. caulescens*, Lond. Cat. Bot. Soc. *P. elatior* of Brit. authors, not Jacquin.) Near Glammis, *Mr G. Don*. Den of Duninald, with *P. veris*, *Mr G. M'Farlane*. Frequent on the coast at Usan and Dysart, and at the Upper Mills of Kinaber associated with *P. vulgaris*, but where I have never seen *P. veris*, *Mr A. Croall*. Den of Mains, a single specimen, with simple and umbellate scapes,—no *P. veris* nearer than several miles. Near Balmerino, Fife, on the south banks of the Tay, I have seen growing associated, *P. vulgaris*, *veris*, and what is called *elatior*, all apparently distinct to the eye, and not running into each other through intermediate forms, unless *elatior* might be considered a single connecting link between the other two. It has flowers exactly intermediate in size, in colour, and in odour, with a limb less concave than in *P. veris*, yet not so flat as in *P. vulgaris*; and it has simple and umbellate scapes from the same root, but this might be attributed to the general luxuriance of the plant. Whether this plant is a variety of *P. vulgaris* or *P. veris*, or a hybrid between them, does not appear to be yet clearly decided; but against the latter supposition there is the fact that all three are seldom found growing together.

P. veris, L. Cowslip. H. 267, B. 241.—F. April, May.
P. (*P. veris α. officinalis*, Hensl.)

Frequent, though not in such exuberance as on the Fife side of the Tay, where in some places it covers acres. Rocky banks, east end of Will's Braes. Balgay Wood. Wooded Hill of Laws near Drumsturdymuir. Dens of Glammis, Airlie, and Foulis.

Abundant on a bank at the south end of the bridge on the North Esk east from Montrose, along with *P. vulgaris*, but where I have never seen *P. elatior*. At the west end of the bank the latter occurs, where there is a profusion of *P. vulgaris*, but where *P. veris* seldom appears, *Mr A. Croall*. Den of Duninald, *Mr G. M'Farlane*. Sands of Barrie, *Mr G. Lawson*. With red flowers, Balgay Wood, *Mr W. Jackson, senr.*

“ Unfolding to the breeze of May,
 The cowslip greets the vernal ray ;
 The topaz and the ruby gem
 Her blossom’s simple diadem ;
 And as the dew-drops gently fall,
 They tip with pearls her coronal.”

CENTUNCULUS, L. Chaffweed.

Br. sp. 1. F. 1.

C. minimus, L. Small Chaffweed, or Bastard Pimpernel.
 H. 268, B. 243.—F. June, July. A.

By a wayside in Guthrie Woods, its direction eastwards,
Mr A. Croall.

TRIENTALIS, Rupp. Chickweed Wintergreen.

Br. sp. 1. F. 1.

T. Europœa, L. European Chickweed Wintergreen. H.
 269, B. 244.—F. May, July. P.

Abundantly distributed throughout the county. Baldovan Woods. Balkemnock Woods. Lumley Woods, in profusion, and frequently richly tinted with pink. Hunter’s Hill Wood and Cramb’s Wood, near Glammis. Woods, banks of Rescobie Lake. Woods at the foot of Glen Isla. Blacklaw Hill, near Foulis. Sidlaw Hills. Merlin Den, a beautiful wooded dell north from Brechin. Clova mountains, smaller in size than in the woods, and flowering later.

Guthrie Hill, about Craigo, and in Kinnoul Wood, near Montrose, *Mr A. Croall.* Gannachy Woods, woods west from Kinnaird, and Rossie Moor, *Mr A. Bousie.* Carreston Woods, *Mr John Laing.* Woods of Ardovie, and Monroman Moor, *Mr J. Cruickshank.*

In fruit, on heaths, by the side of the footpath leading from Kirkton of Clova into Glen Prosen, July 1846.

There is commonly but one flower on the plant, occasionally two or more. The leaves under the microscope appear very slightly serrated; their net-work of veins is beautiful, but more so the delicate lace-like membrane that invests the seeds.

GLAUX, *L.* Sea-Milkwort.*Br. sp.* 1. *F.* 1.

G. maritima, *L.* Sea-Milkwort, or Black-Saltwort. *H.* 269, *B.* 244.—*F.* June, July. *P.*

Frequent in salt marshes and wet banks on the sea-shore, from Invergowrie to Montrose, in some places, as at the mouth of Buddon Burn, Sands of Barrie, forming, when in flower, a compact rosy-coloured turf.

ORD. LXV.—PLUMBAGINEÆ.

Gen. Br. 1. (*Bab.* 2.) *F.* 1. *Sp. and v. Br.* 7. *F.* 2.STATICE, *L.* Thrift.*Br. sp. and v.* 7. *F.* 2.

S. Armeria, *L.* Common Thrift, or Sea Gilliflower. *H.* 270, *B.* 245.—*F.* June, August. *P.* (*Armeria maritima*, *Willd.*, *Bab.*)

Plentiful along the coast on grassy banks and rocks, occasionally with white flowers. It is known here by the name of “*sea-daisy*,” and is sometimes used as an edging to garden-walks.

β. alpina grows on the summit of the Little Culrannoch, Clova, with *Lychnis alpina*, but is scarcely distinguishable from the other.

ORD. LXVI.—PLANTAGINEÆ.

Gen. Br. 2. *F.* 2. *Sp. and v. Br.* 11. *F.* 8.PLANTAGO, *L.* Plantain.*Br. Sp. and v.* 10. *F.* 7.

P. major, *L.* Greater Plantain. *H.* 272, *B.* 247.—*F.* June, August. *P.*

Abundant by waysides, and very variable in size. Small

birds relish the seeds, and the ripe spikes are often gathered for those in cages.

P. media, L. Hoary Plantain. H. 272, B. 247.—F. June, Sept. P.

Pastures, Kinnaird, *Mr A. Bousie*. In a field near the Burn of Keithock, and near the mansion-house, *Mr J. Cruickshank*.

P. lanceolata, L. Ribwort Plantain. H. 272, B. 246.—F. May, July. P.

Waysides and pastures from the coast to the mountains plentiful, varying much in size and the length of its flower spikes. Spikes sometimes several, combined, sessile, or stalked.

β. altissima, Koch. Wayside, Invergowrie, *Mr G. Lawson*.

γ. sphaerostachya, W. and G. Sands of Barrie and on the mountains abundant. Intermediate forms render it doubtful if these can be retained even as varieties.

P. maritima, L. Sea-side Plantain. H. 273, B. 246.—F. June, Sept. P.

Abundant on the sea-shore, and occasionally inland. Glen Clova, at the foot of Carlowie.

Airlie, *Rev. J. S. Barty*. Parish of Kingoldrum, *Rev. J. O. Haldane*. Banks of the South Esk, Kinnaird, *Mr A. Bousie*.

A broad-leaved var. is frequent about Usan, Redhead, &c., *Mr A. Croall*. Probably *β. major*, Hook?

P. Coronopus, L. Buck's-horn Plantain. H. 273, B. 246.—F. June, July. A.?

Common on the coast, and like the other species very variable in size.

Banks of the South Esk, Kinnaird, *Mr A. Bousie*.

LITTORELLA, L. Shore-weed.

Br. sp. 1. F. 1.

L. lacustris, L. Plantain Shore-weed. H. 274, B. 247.—F. June, July. P.

Margins of lakes and moist places. Lundie and Long Lochs. Foot of White Hill of Auchterhouse, south side, banks of a small tarn.

Dun's Dish, Guthrie Moors, &c., *Mr A. Croall*. Moist places, Rossie Moor, *Mr A. Bousie*.

SUB-CLASS IV.—MONOCHLAMYDEÆ.

ORD. LXVIII.—CHENOPODEÆ.

Gen. Br. 5. (Bab. 7.) F. 4. Sp. and v. 29. (Bab. 32.) F. 13.

CHENOPODIUM, L. Goose-foot.

Br. Sp. and v. 15. F. 5.

C. maritimum, L. Annual Sea-side Goose-foot. H. 275, B. 249.—F. July, August. A. (*Schoberia maritima*, Mey.)

Muddy banks of Montrose Basin, and sea-shore, Sands of Barrie.

C. polyspermum, L. Many-seeded Goose-foot. H. 276, B. 249.—F. August, Sept. A.

Rare, *Mr G. Don*. No station noted.

C. Bonus-Henricus, L. Mercury Goose-foot, or Good King Henry. H. 276, B. 251.—F. June, August. P. (*Blitum*, Mey.)

Waysides and waste ground, not common. Near Invergowrie. Near Auchterhouse. Mains, &c.

Wayside at Fullerton, *Mr G. M'Farlane*. Wayside a little west from the church of Marytown, *Mr A. Croall*. Between the Loch of Rescobie and Moss of Restenet, *Mr J. Cruickshank*.

C. murale, L. Nettle-leaved Goose-foot. H. 277, B. 250.—F. August. A.

Found by *Mr G. Don*, but he does not mention a station.

C. album, L. White Goose-foot. H. 277, B. 250.—F. July, August. A.

Fields and waste places common.

ATRIPLEX, *L.* Orache.*Br. sp. and v. 9. (12 Bab.) F. 5.*

A. laciniata, *L.* Frosted Sea Orache. H. 278, B. 253.
—F. July, Sept. A.

Frequent along the coast. Sides of Montrose Basin, *Mr A. Croall.*

A. rosea, *L.* Spreading-fruited Orache. H. 278, B. 253.
—F. July, Sept. A.

Plentiful along the coast from Dundee to Arbroath, variable in size.

A. erecta, *Huds.* Upright Spear-leaved Orache. H. 279, B. 252.—F. July, Oct. A.

Cornfields about Guthrie, &c., *Mr A. Croall.*

A. angustifolia, *Sm.* Spreading Narrow-leaved Orache. H. 279, B. 252.—F. July, Oct. A.

Cornfields about Guthrie, &c., *Mr A. Croall.*

A. patula, *L.* Spreading halbert-leaved Orache. H. 278, B. 252.—F. June, Oct. A.

Sea-side, *Mr A. Croall.*

(More attention than has yet been paid to the Forfarshire *Atriplices* will undoubtedly increase the catalogue.)

SALSOLA, *L.* Saltwort.*Br. sp. 1. F. 1.*

S. Kali, *L.* Prickly Saltwort. H. 280, B. 249.—F. July, August. A.

Common on the sandy sea-shore, particularly plentiful between Broughty and Carnoustie.

SALICORNIA, *L.* Glasswort.*Br. sp. and v. 3. F. 2.*

S. herbacea, *L.* Jointed Glasswort. H. 280, B. 251.—F. August, Sept. A. (*S. annua*, *E. Bot.*)

β. procumbens (*S. procumbens*, E. Bot.) Both plentiful on the muddy banks of Montrose Basin.

Plentiful at the head of the Basin four miles from Montrose, *Mr D. White*, (*North. Flora.*)

(*S. radicans*, Sm. is stated in *Hook. Fl. Scot.* to be found on the sea-coast at Montrose, but I have seen no specimens, nor do any of my Montrose friends meet with it.)

ORD. LXIX.—POLYgoneÆ.

Gen. Br. 3. F. 3. Sp. and v. Br. 33. F. 21.

POLYGONUM, *L.* Bistort, Knot-grass, &c.

Br. sp. and v. 17. F. 11.

P. Bistorta, *L.* Bistort, or Snakeweed. H. 281, B. 257.
—F. June. P.

Den of Mains near the old churchyard. It was formerly very abundant in the “*Howff*,” or old burying-ground of Dundee, but since the improvement of that cemetery the plant has disappeared.

Banks of the “*Pow*” or lint-pond, Kinnaird, *Mr A. Bousie*. Near Kinaber Mills, round a field said to have formerly been a garden, *Mr A. Croall*.

P. viviparum, *L.* Viviparous Alpine Bistort. H. 281, B. 257. F. June, July. P.

Frequent on the Sidlaw Hills, and the Clova and Glenisla mountains.

Marten’s Den, *Mr A. Croall*.

P. aviculare, *L.* Common Knot-grass. H. 282, B. 259.
—F. May, Sept. A.

Abundant about waysides, borders of fields, and waste places, varying much in size in all its parts.

P. Roberti, *Lois.* Robert’s Knot-grass. H. 282, B. 259.
—F. August, Sept. A. (*P. Raii*, *Bab.* *P. maritimum*, *Ray.* *P. aviculare*, *β.* *Br. Fl. ed. 3d.* *P. acetosum*, *Hook.* in *Sm. Com.* *P. dubium*, *Deak.*)

Sandy sea-shore from Broughty to Carnoustie, but principally near the last named village and Monifieth.

P. Fagopyrum, L. Buck-wheat. H. 282, B. 260.—F. July, August. A. (*Fagopyrum esculentum*, Mœnch., Bab.)

Cornfields near Lochee, 1830, but most likely introduced.

P. Convolvulus, L. Climbing Buck-wheat. H. 282, B. 259.—F. July, August. A.

In cornfields frequent, twining its stems around the culms of the corn, and other plants in its vicinity.

P. amphibium, L. Amphibious Persicaria. H. 283, B. 257.—F. June, August. P.

Lakes of Forfar, Rescobie, Balgavies, Lundie, and most other lakes in the county; also in marshy pools, slow streams, and on damp ground, when it becomes *β. terrestre*.

P. Persicaria, L. Spotted Persicaria. H. 283, B. 258.—F. July, Oct. A.

Frequent in waste places and borders of fields. The flowers are green or red, and the leaves spotted or spotless, narrow or broadly lanceolate, sometimes pubescent beneath.

P. minus, Huds. Small creeping Persicaria. H. 284, B. 258.—F. Sept. A.

Moist fields round Forfar, *Mr G. Don*.

P. Hydropiper, L. Biting Persicaria. H. 284, B. 258.—F. August, Sept. A.

Pools below and above the Bridge of Dun, *Mr A. Croall*. Mill-dam at Farnell, *Mr J. Cruickshank*.

P. lapathifolium, L. Pale-flowered Persicaria. H. 283, B. 257.—F. July, August. A.

Damp fields and moist ground frequent.

RUMEX, L. Dock and Sorrel.

Br. sp. and v. 14. F. 9.

R. Hydrolapathum, Huds. Great Water Dock. H. 284, B. 256.—F. July, August. P. (*R. aquaticus*, Sm.)

Barrie, near one of the cottages on the Links, but probably not indigenous.

R. crispus, L. Curled Dock. H. 285, B. 255.—F. June, August. P.

The most common species, abundant by waysides and in waste places. The vernacular name "*Dockens*" is applied particularly, though not exclusively, to this species.

R. aquaticus, L. Grainless Water Dock. H. 285, B. 255.—F. July, August. P.

Not uncommon throughout the county, particularly plentiful on the banks of the Dighty, Isla, and Esk.

R. sanguineus, L. Bloody-veined Dock. H. 285, B. 255.—F. July. P.

Den of Mains, but probably naturalized there.
Near Carnoustie, *Mr A. Croall*.

R. acutus, L. Sharp Dock. H. 286, B. 254.—F. July, August. P. (*R. conglomeratus*, Murr.)

Marshy places frequent.

R. obtusifolius, L. Broad-leaved Dock. H. 286, B. 255.—F. July, August. P.

Waste ground common.

R. palustris, Sm. Yellow Marsh Dock. H. 286, B. 254. F. July. P.

Mr G. Don gives this in his list, but does not specify any locality.

R. Acetosa, L. Common Sorrel. H. 287, B. 256.—F. June, July. P.

Abundant by waysides, in woods, and in waste places. The leaves have an agreeable acid taste, and are known here by the name of "*Sourock*s."

R. Acetosella, L. Sheep's Sorrel. H. 287, B. 256.—F. May, July. P.

Plentiful upon dry banks, pastures, and walls.

OXYRIA, Hill. Mountain-Sorrel.

Br. sp. 1. F. 1.

O. reniformis, Hook. Mountain-Sorrel. H. 287, B. 256.—F. July, August. P.

Plentiful about the sides of streams among the mountains, and descending far down the Highland valleys.

ORD. LXXIV.—EMPETREÆ.

Gen. Br. 1. F. 1. Sp. Br. 1. F. 1.

EMPETRUM, L. Crowberry.

Br. sp. 1. F. 1.

E. nigrum, L. Black Crow-berry, or Crake-berry. H. 291, B. 262.—F. April, May. Fruit ripe in July, August, or Sept. S.

Common on the hills and mountains.

ORD. LXXV.—EUPHORBIACEÆ.

Gen. Br. 3. F. 2. Sp. and v. Br. 19. F. 4.

MERCURIALIS, L. Mercury.

Br. sp. and v. 3. F. 1.

M. perennis, L. Dog's Mercury. H. 291, B. 266.—F. April, May. P.

In shady dens plentiful, as Mains, Glammis, Airlie, Foulis, &c.

Den of Fullerton, and banks of the N. and S. Esk, *Mr A. Croall*.

Dr Hill says, "There is not a more fatal plant, native of our country, than this; many have been known to die by eating it boiled with their food." It is injurious to cattle, but is seldom touched by them except in early summer, when they are first let out to pasture. At this season, eager for a mouthful of anything green, they do not very nicely disci-

minate the herbage, and the consequence is often disease or death. An instance of the effects of the eating of this plant by cattle once came under my own observation. In the small village of Airnyfoul, near Glammis, several cows had their milk coagulated in the udder, and the proprietor could not assign any cause for the disease. On visiting the Den of Glammis immediately after, where the cattle had been browsing, I found much of the *Mercurialis* cropped, and on showing it to the herdboys he admitted that the "beasts" had eaten of it, and thus confirmed my suspicions as to the cause of their disease. Had herdboys, shepherds, and farmers more knowledge of our wild plants and their properties, than they generally have, much mischief might often be prevented.

In drying, it frequently turns, like the common polypody, to a deep blue, and might afford a valuable pigment, if some means of fixing the colour were discovered. The fertile and sterile plants, in this quarter, grow freely intermixed.

EUPHORBIA, L. Spurge.

Br. sp. 15. F. 3.

E. helioscopia, L. Sun Spurge. H. 292, B. 263.—F. June, Sept. A.

Cornfields frequent. Its milky juice is very acrid, hence perhaps our vernacular name, "*Little Goody*."

E. exigua, L. Dwarf Spurge. H. 294, B. 265.—F. July, Augt. A.

Cornfields frequent.

E. Peplus, L. Petty Spurge. H. 294, 265.—F. July, Augt. A.

In cornfields and waste ground common. Plentiful on the sea-beach at the base of the cliffs near Auchmithie.

ORD. LXXVI.—URTICEÆ.

Gen. Br. 3. F. 2. Sp. and v. Br. 7. F. 3.

URTICA, L. Nettle.

Br. sp. 4. F. 2.

U. urens, L. Small Nettle. H. 296, B. 267.—F. June, Sept. A.

In gardens and waste ground frequent.

U. dioica, L. Great Nettle. H. 296, B. 267.—F. July, Sept. P.

Plentiful by hedge-sides and in waste places, particularly near the habitations of man. It is sometimes used in place of rennet to curdle milk, and the young tops are frequently gathered by the peasantry to make a favourite and delicious dish named, “*Nettle-brose*.”

PARIETARIA, L. Wall-Pellitory.

Br. sp. and v. 2. F. 1?

P. officinalis, L. Common-Pellitory-of-the wall. H. 296, B. 267.—F. May, Oct. P.

Plentiful among the rocks on the sea-shore to the eastward of Auchmithie, and on the ruins of the Abbey of Arbroath.

Old Castle of Edzell, *Mr A. Croall*.

ULMUS, L. Elm.

Br. sp. and v. 10. F. 2.

U. campestris, L. Common small-leaved Elm. H. 297, B. 268.—F. Apr. May. T.

Cultivated in many places.

U. montana, Bauh. Broad-leaved or Wych Elm. H. 299, B. 269.—F. March, Apr. T.

Not unfrequent; distinguished by its smooth bark and large rough leaves. The variety called *weeping Elm* has been planted in the Dundee cemeteries to overshadow graves.

BETULA, L. Birch.

Br. sp. and v. 5? F. 2?

B. alba, L. Common Birch. H. 300, B. 282.—F. Apr. May. T.

The graceful and fragrant Birch, is extensively cultivated, but on the mountains and in the mountain-valleys is certainly indigenous. On the sides of the rocky mountain Craig Maid, in Glen Dole, Clova, there are the remains of a natural birch forest, and on the banks of the Dole, a little above its junction with the White Water, a form occurs which appears to be the *B. glutinosa*, β . *pubescens* of *Babington's*

Manual. It looks tolerably distinct from the usual form, but it is the opinion of some able botanists that its characters are not sufficiently permanent to entitle it to the rank of a species.

Miss Twamley, in her usual lively and graceful manner, says :—

“ The pine is king of Scottish woods ;
 And the queen?—Ah! who is she!
 The fairest form the forest kens—
 The bonnie birken tree!

* * * *

What magic hues the sunset pours
 All through a birken glade!
 Sooth you might think that every leaf
 Of living gold was made.

And every stem is silver bright,
 Wrought featly o'er with brown,
 More daintily than jewel-work
 Upon our fair Queen's crown.

God crowns the tree with loveliness,
 A bonnie Queen to be—
 Queen of the glens in auld Scotland—
 The bonnie birken tree.”

In *Loudon's Magazine of Natural History*, Augt. 1837, Colonel Brown of Thun, Switzerland, “ states it as his opinion that a specimen sent by Dr Balfour, from Clova, is *Betula intermedia*, a rare plant on the Jura, and differing essentially from *Betula alba*.” In *Prof. Graham's Report* to the Edinburgh Botanical Society in March 1838, this was admitted a question still open to investigation.

B. nana, L. Dwarf Birch. H. 300, B. 282.—F. May, July. S.

Clova mountains, *Don, Drummond, Balfour, Hooker, Greville, Burchell, &c.*

ALNUS, TOURN. Alder.

Br. sp. 1. F. 1.

A. glutinosa, Gært. Common Alder. H. 301, B. 283.
 —F. March, May. T.

Frequent in moist woods, and on the banks of streams.

SALIX, L. Willow, Sallow, and Osier.

Br. sp. and v. H. 79, B. 83. F. 49.

S. purpurea, L. Bitter Purple Willow. H. 303, B. 272.
—F. Mar. Apr. T.

Found in the county by *Mr G. Don.*

S. Lambertiana, Sm. Boyton Willow. H. 303, B. 272.
—F. Mar. Apr. T. (*S. purpurea lambertiana, Bab.*)
Found also by *Mr G. Don.*

S. Forbyana, Sm. Fine Basket Osier. H. 304, B. 273.
—F. Apr. May. S.

At the base of the cliffs, near Auchmithie, but evidently planted by some of the fishermen, for the purpose of making baskets.

S. rubra, Huds. Green-leaved Osier. H. 304, B. 273.
—F. Apr. May. T. (*S. fissa, Hoffin.*) Enumerated by
Mr G. Don.

S. undulata, Ehrh. Sharp-leaved triandrous Willow.
H. 304, B. 271.—F. May, June. T. (*S. lanceolata, Sm.*)

Banks of Rescobie Lake.

S. triandra, L. Long-leaved triandrous Willow. H. 305, B. 272.—F. May, June. T.

Banks of Balgavies Lake, probably planted.

S. amygdalina, L. Almond-leaved Willow. H. 306, B. 272.—F. Apr. June. T.

Banks of Feithy Water between Claypots Castle and the toll-bar of Baldovie, bearing sterile catkins in June.

S. pentandra, L. Sweet Bay-leaved Willow. H. 306, B. 270.—F. May, June. T. (*S. Meyeriana, Borr. in Br. Fl. ed. 3d. not Willd.*)

Woods of Strathmartin, and wayside near Lundie, with

sterile catkins. Marshy banks near Rescobie Lake, and Moss of Restenet, with sterile and fertile catkins.

S. fragilis, L. Crack Willow. H. 307, B. 271.—F. Apr. May. T. In *Mr G. Don's* list.

S. Russelliana, Sm. Bedford Willow. H. 307, B. 271.—F. Apr. May. T.

Mr G. Don also enumerates this among the Forfarshire species, and remarks that its bark "is the best adapted for tanning of any of the willows."

S. alba, L. Common White Willow. H. 308, B. 271.—F. May. T.

Frequent, but likely introduced. Fullerton, Old Montrose, &c., *Mr A. Croall*.

S. vitellina, L. Yellow Willow, or Golden Osier. H. 308, B. 271.—F. May. T. (*S. alba* γ *vitellina*, Koch., Bab.)

Marshy ground, Rescobie.

S. petiolaris, Sm. Dark Long-leaved Willow. H. 308.—F. Apr. T.

Mr G. Don gives this in his list of the county plants, but Dr Lindley says it is not even a European species, so that Mr Don's plants may have only been naturalized.

S. angustifolia, Wulf.? Little Tree Willow. H. 309, B. 278.—F. Apr. S. (*S. Arbuscula*, Sm.) (not Koch. nor Fries.)

Clova mountains, *Hook. Br. Flora*.

S. Doniana, Sm. Don's Willow. H. 309, B. 279.—F. May. S.

Baldovan Woods, rare.

S. fusca, L. Dwarf Silky Willow. H. 310, B. 279.—F. Mar. May. S.

Plentiful on the sandy sea-shores, in woods, by waysides, and on the hills and mountains, very variable.

γ. prostrata (*S. prostrata*, Sm.) Plentiful on ditch-banks to the eastward of Montrose.

ε. incubacea, (*S. incubacea*, L.) Clova mountains, *Mr G. Don*.

ζ. argentea, (*S. argentea*, Sm.) Sands of Barrie.

S. ambigua, Ehrh. Ambiguous Willow. H. 310, B. 279.—F. May, July. S.

Side of a stream, Clova, July 1843. Stigmata bifid.

β. major, Bogs near Forfar, *Hook. Br. H.*

S. reticulata, L. Reticulated Willow. H. 311, B. 281.—F. June, July. S.

Mountain rocks of Glen Dole, and Canlochen, frequent, bearing fertile and sterile catkins profusely.

S. glauca, L.? Sm.! Glaucous Mountain Willow. H. 311, B. 280.—F. June, July. S. (*S. arenaria*, *γ. Bab.*)

Clova mountains, *Don, Drummond, Hooker, Greville, and Burchell.*

S. arenaria, L. Downy Mountain Willow. H. 312, B. 280.—F. June, July. S. (*S. limosa*, Wahl. *S. Lapponum*, L., Fries., Koch.)

Clova, by the sides of streams, as those of the Corrie of Clova, Feula, &c. Canlochen, particularly abundant by the stream descending into the Glen on the south side of Cairn Curr, the leaves there more downy than in the other localities.

S. viminalis, L. Common Osier. H. 312, B. 273.—F. Apr. May. S.

Margin of Rescobie Lake, &c., and cultivated in many places on the wet banks of streams.

S. stipularis, Sm. Auricled Osier. H. 312, B. 273.—F. Mar. S.

S. Smithiana, Willd. Silky-leaved Osier. H. 313, B. 273. F. Apr. May. S.

In *Mr G. Don's* list, but no stations named.

S. cinerea, L. Grey Sallow. H. 314, B. 274.—F. Mar. Apr. T.

Plentiful in many places. Baldovan and Glammis Woods, Sidlaw Hills, Clova, &c.

S. aquatica, Sm. Water Sallow. H. 314, B. 274.—F. Apr. June. T. (*S. cinerea*, β . Bab.)

Banks of Rescobie Lake, and in marshes between that and Clocksbriggs, with fertile catkins.

S. oleifolia, Sm. Olive-leaved Sallow. H. 314, B. 274.—F. Mar. T. (*S. cinerea*, γ . Bab.) In *Mr G. Don's* list.

S. aurita, L. Round-eared Sallow. H. 314, B. 274.—F. Apr. July. S.

From the Sands of Barrie to nearly the summits of the Clova mountains, bearing catkins copiously.

S. caprea, L. Great Round-leaved Sallow. H. 314, B. 274.—F. Apr. May. T.

Frequent by the sides of streams. On the rocks of Craig Maid, Glen Dole, with ovato-lanceolate leaves.

S. cotinifolia, Sm. Quince-leaved Sallow. H. 315, B. 275.—F. Apr. May. S.

Near Forfar, *Hook. Br. Fl.*

S. hirta, Sm. Hairy branched Sallow. H. 315, B. 275.—F. Apr. June. T.

Clova, by the side of the Esk below the Kirkton, and overhanging a waterfall on the Bassies.

S. nigricans, Sm. Dark-leaved Willow. H. 315, B. 275.—F. Apr. S. (*S. phyllicifolia*, β . L.)

Glen Dole, Clova, rare.

S. Andersoniana, Sm. Green Mountain Sallow. H. 316, B. 276.—F. May, June. S.

Clova mountains, *Mr G. Don.*

S. Forsteriana, Sm. Glaucous Mountain Sallow. H. 316, B. 275.—F. May, June. T.

Rocks in the ravine of the White Water, head of Glen Dole, and among those of Canlochen.

S. rupestris, Donn. Silky Rock Sallow. H. 316, B. 275.—F.

Clova, *Don*, *Drummond*, *Hooker*, *Greville*, and *Burchell*.

S. petræa, And. Dark-green Rock Sallow. H. 317, B. 276.—F. May. S.

Rocks of Canlochen plentiful, and a variety with silky capsules on rocks in Glen Dole.

S. radicans, Sm. Tea-leaved Willow. H. 318, B. 277.—F. May. S. (*S. phyllicifolia*, Sm.)

Canlochen Glen.

S. Borreriana, Sm. Borrerian Willow. H. 318, B. 277.—F. Apr. S. (*S. phyllicifolia*, Hook. Scot., Wahl.)

In the ravine of the White Water, rare.

S. Davalliana, Sm. Davallian Willow. H. 318, B. 277.—F. May. S.

By the side of a stream on the Bassies, Clova, and near the top of the ravine of the White Water, with fertile catkins, Augt. 1842.

S. Weigeliana, Willd. Weigelian Willow. H. 319, B. 277.—F. June. T.? (*S. Wulfeniana*, Sm. (not Willd.)

Baldovan Woods, with abundance of fertile catkins.

S. bicolor, Ehrh. Two-coloured Willow. H. 320, B. 280.—F. Apr. July. S. (*S. tenuifolia*, Sm. *S. floribunda*, Forb.)

Sides of streams in the alpine valleys of Clova and Glen Isla.

S. prunifolia, Sm. Plum-leaved Willow. H. 321, B. 280.—F. Apr. June. S. (*S. myrsinites*, Lightf. (not L.) *S. Arbuscula*, β . Bab.)

Clova mountains, *Mr G. Don*.

S. Myrsinites, L. Green Whortle-leaved Willow. H. 322, B. 280.—F. June. S.

Rocks of Canlochen and Clova plentiful.

S. herbacea, L. Least Willow. H. 322, B. 281.—F. June. S.

Frequent in rocky places on and near the summits of the higher mountains.

S. hastata, L. Apple-leaved Willow. H. 323, B. 276.—F. May. S. (*S. malifolia*, Sm.)

Sands of Barrie, *Mr G. Don*.

S. lanata, L. Woolly Broad-leaved Willow. H. 323, B. 276.—F. May. S. (*S. crysantha*, Fl. Dan.)

On the rocks of Glen Dole, the White Water, and Canlochen, frequent. I have gathered the fertile catkins, though sparingly, in these localities, as well as in Glen Callater, where *Mr G. Don* first detected this most beautiful of our native willows.

POPULUS, L. Poplar.

Br. sp. 4. *F.* 3.

P. tremula, L. Aspen. H. 325, B. 281.—F. Mar. Apr. T.

P. nigra, L. Black Poplar. H. 325, B. 281.—F. Mar. T.

P. alba, L. Great White Poplar, or Abele. H. 324, B. 281.—F. Apr. T.

These three species occur frequently throughout the county, but mostly planted, except the Aspen, which is apparently indigenous in some of the Highland glens. A superstitious notion connected with it entertained by some of the Highlanders, and alluded to by Lightfoot, is embodied in the following verses:—

THE ASPEN-TREE. *Populus tremula*.

In Highland glen, at sultry noon,
When scarce a zephyr dares to breathe,
And birds are mute, and leaves are still,
And bees take shelter underneath

The verdant umbrage, or at will,
 Drain nectar from some floweret's breast—
 One tree the solemn quiet breaks,
 Whose quivering foliage cannot rest.

And denizen of Highland glen
 Will tell you why the Aspen-leaves
 No rest can find, though all around
 Is quietude; for he believes,
 The cross on which our Lord was bound,
 The Aspen furnished, and disgrace
 Still clings to the ill-fated tree,
 And spares it not a moment's peace.

Poor tree! methinks thy smooth green leaves,
 Steeped in the golden solar ray,
 Seem glad, though doomed to such reproach;
 And useful lessons might convey:
 For, ever active, do not they
 Whisper of One whose life was given
 Wholly, to teach mankind the way
 To win Earth's happiness, and Heaven?

FAGUS, *L.* Beech.

Br. sp. 1. F. 1.

F. sylvatica, *L.* Beech. H. 325, B. 283.—F. April,
 May. T.

Plentiful in woods, but probably all planted.

CASTANEA, *Tourn.* Chestnut.

Br. sp. 1. F. 1.

C. vulgaris, *Lam.* Spanish Chestnut. H. 326, B. 283.
 —F. May. T.

This graceful tree is planted in many places in the county,
 but, like the beech, has, I fear, slender claims to be con-
 sidered indigenous.

QUERCUS, *L.* Oak.

Br. sp. 3. F. 1.

Q. Robur, *L.* Common British Oak. H. 326, B. 283.
 —F. April, May. T. (*Q. pedunculata*, *Willd.*)

The "mighty monarch of the wood" is frequent in the

county, but in most, if not in all cases, it has likely been introduced through the agency of man.

CORYLUS, L. Hazel-nut.

Br. sp. 1. F. 1.

C. Avellana, L. Common Hazel-nut. H. 327, B. 284.—F. March, April. T.

Frequent by the sides of streams, and in hedges.

CARPINUS, L. Hornbeam.

Br. sp. 1. F. 1.

C. Betulus, L. Hornbeam. H. 327, B. 284.—F. May. T.

Woods and hedges, not common, and always planted, as near Brechin Castle, Woods of Dun, &c. *Messrs Croall* and *Cruickshank*.

ORD. LXXIX.—MYRICEÆ.

Gen. Br. 1. F. 1. Sp. Br. 1. F. 1.

MYRICA, L. Gale.

Br. sp. 1. F. 1.

M. Gale, L. Sweet Gale, or Bog Myrtle. H. 328, B. 282.—F. May, June. S.

Marshy places. Abundant on the banks of Rêscobie Lake, perfuming the air with its agreeable fragrance. Sterile and fertile catkins are sometimes found on the same, though generally on different plants.

ORD. LXXX.—CONIFERÆ.

Gen. Br. 3. F. 3. Sp. and v. Br. 5. F. 4.

PINUS, L. Fir.

Br. sp. 1. F. 1.

P. sylvestris, L. Scotch Fir. H. 329, B. 285.—F. May, June. T.

Plentiful from the coast to the mountains, but mostly planted, and showing nothing of the magnificent pine-forest scenery of the neighbouring district of Braemar.

JUNIPERUS, L. Juniper.

Br. sp. and v. 2. F. 2.

J. communis, L. Common Juniper. H. 330, B. 285.—F. May, fruit ripe in autumn.

Not so plentiful as in Perthshire, but occurs in many places. Baldovan Woods, rare. Glen Phee and other valleys among the Clova mountains.

Hill of Edzell, Hill of Findhaven, and Monroman Moor, *Mr A. Croall*.

β. nana, Hook. (*J. nana*, Willd.)

Sands of Barrie, north side of the sandhill of Buttonness, and frequent on the Clova mountains, as those of Glen Dole, &c.

TAXUS, L. Yew.

Br. sp. and v. 2. F. 1.

T. baccata, L. Common Yew. H. 330, B. 285.—F. March, April. T.

Near Mains Castle and other places, but probably introduced.

CLASS II.—MONOCOTYLEDONES.

SUB-CLASS I.—PETALOIDEÆ.

ORD. LXXXI.—ALISMACEÆ.

Gen. Br. 3. F. 1. Sp. and v. Br. 7. F. 2.

ALISMA, L. Water Plantain.

Br. sp. and v. 5. F. 2.

A. Plantago, L. Greater Water Plantain. H. 331, B. 317.—F. July, August. P.

In ditches and pools frequent, and about the margins of Lakes, as those of Rescobie, Balgavies, Forfar, Lundie, &c. Dens of Foulis, Glamis, and Airlie.

Near Marten's Den, and the Bridge of Dun, *Mr A. Croall*.

A. ranunculoides, L. Lesser Water Plantain. H. 332, B. 318.—F. June, Sept. P.

Margins of the Lakes of Rescobie and Forfar, and in moist places on the Sands of Barrie.

ORD. LXXXIII.—JUNCAGINEÆ.

Gen. Br. 2. F. 1. Sp. Br. 3. F. 2.

TRIGLOCHIN, L. Arrow-grass.

Br. sp. 2. F. 2.

T. palustre, L. Marsh Arrow-grass. H. 333, B. 319.—F. June, July. P.

Marshy ground frequent.

T. maritimum, L. Sea-side Arrow-grass. H. 334, B. 319.—F. May, Aug. P.

Salt marshes along the coast frequent.

ORD. LXXXIV.—AROIDEÆ.

Gen. Br. 4. F. 3. Sp. Br. 8. F. 5.

ARUM, L. Cuckow-pint.

Br. sp. 1. F. 1.

A. maculatum, L. Cuckow-pint, or Wake-Robin. H. 335, B. 321.—F. April, May. P.

Naturalized in various places, as Den of Dun, at the bridge near the garden, *Mr A. Croall*, and in a wood south from Brechin Castle, *Mr W. Anderson*.

TYPHA, L. Cat's-tail, or Reed-mace.

Br. sp. 3. F. 1.

T. latifolia, L. Great Reed-mace. H. 336, B. 320.—F. June, Aug. P.

In the Lakes of Forfar, Rescobie, Balgavies, &c.

In a rivulet not far from Pitmuies by the side of the Forfar and Arbroath turnpike road, *Mr G. Don*. Near Guthrie Castle, Mill-dams of Pitmuies, and Braikie Mills, &c., *Mr A. Croall*. Banks of Lunan Water, a little above Redcastle, plentiful, *Mr A. Kerr*.

SPARGANIUM, L. Bur-reed.

Br. sp. 3. F. 3.

S. ramosum, Huds. Branched Bur-reed. H. 336, B. 320.—F. July. P. (*S. erectum*, L.)

Not uncommon in ditches and marshes.

S. simplex, Huds. Unbranched Bur-reed. H. 337, B. 320.—F. June, July. P. (*S. erectum*, β . L.)

Ditches and pools between Rescobie and Clocksbriggs, east and west ends of Forfar Lake, &c.

Near Lunan, *Mr A. Croall*. Pools on the Hill of Strickathro, *Mr A. Kerr*.

S. nataus, L. Floating Bur-reed. H. 337, B. 320.—F. July, Aug. P.

Marshy pools and ditches about the Lakes of Forfar, Rescobie, Balgavies, &c.

ORD. LXXXV.—PISTIACEÆ.

Gen. Br. 1. F. 1. Sp. Br. 4. F. 2.

LEMNA, L. Duckweed.

Br. sp. 4. F. 2.

L. trisulca, L. Ivy-leaved Duckweed. H. 337, B. 321.—F. June. A.

Ditch between the old kirk of Logie and foot of Marten's Den, rare, *Mr A. Croall*. Along the course of a spring that rises in the swampy ground, below the Hill of Land-head, Kingoldrum, *Rev. J. O. Haldane*. Frequent, *Mr G. Don*.

L. minor, L. Lesser Duckweed. H. 337, B. 321.—F. June, July. A.

Still pools and ditches, plentiful.

ORD. LXXXVI. —NAIADES.

Gen. Br. 4. F. 4. Sp. and v. Br. 25. F. 15.

POTAMOGETON, L. Pond-weed.

Br. sp. and v. 20. F. 13.

P. pectinatus, L. Fennel-leaved Pond-weed. H. 339, B. 325.—F. July, Sept. P. (According to Babington our Forfarshire plant is not the true *P. pectinatus* of Linn., but *P. filiformis*, Nolte, and, when growing in salt water, is the *P. marinus* of Fries and Koch.)

Lakes of Rescobie and Balgavies.

These lakes furnish all the species of Pond-weed that inhabit this county, and are otherwise interesting to the botanist, from the great variety of beautiful plants that grow in their waters, and in the marshes and woods that margin them. They are situated on the line of the Arbroath and Forfar railway, between the Auldbar and Clocksbriggs stations, Balgavies on the south, and Rescobie on the north side of the line. On a clear sunny day the *Potamogetæ*, flourishing at a great depth amid the transparent waters, animated by numerous members of the insect and finny races, present a delightful spectacle, and the long stems of the white and yellow water-lilies may be traced from their floating flowers to the root. A marsh on the north banks of Rescobie lake, a little to the eastward of the church, presents the three British *Utriculariæ*, with *Menyanthes*, *Comarum*, various *Carices*, *Salices*, *Equisetæ*, and *Musci*, and is lavishly perfumed by *Myrica Gale*. A wood between this marsh and the lake is, in May, a perfect paradise, richly adorned with wood-anemones, primroses, wood-sorrels, bilberries, and the starry *Trientalis*, with other sylvan flowers, that love to luxuriate in such verdant shades. This exuberance of floral beauty, the freshness and diversity of the foliage, the soul-thrilling tones of happy birds, and the glimpses of blue sky seen through the rustling boughs smiling in sunlight, or reflected from the scarcely rippled surface of the lake, give to the scene a character of rural sweetness and repose, quite apart from the jarring bustle of every-day life. One feels, in such a place, estranged for the time from the cares and vicissitudes of the world, and the charms of Nature penetrate, with their refin-

ing influences, the deepest recesses of the heart, denying to human language the power to give them full expression :—

“ Trees, and flowers, and streams,
Are social and benevolent ; and he
Who oft communeth in their language pure,
Roaming among them in the cool of day,
Shall find, like him who Eden's garden dress'd,
His Maker there, to teach his listening heart.”

Between the Clocksbriggs station and Forfar stands the ruins of Restenet Priory, and the moss, which was formerly one of this chain of lakes, now drained for its marl, presents the *Chara hispida*, *Polytrichum gracile*, and other plants of interest. The lake of Forfar, to the west of the town, is more extensive than the others, but its botanical productions are similar. The active researches of Don and Drummond have rendered the banks of these lakes attractive, and no lover of Flora visiting this part of the county neglect them.

P. pusillus, L. Small Pond-weed. H. 339, B. 325.—
F. June, July. P.

Lakes of Rescobie, Balgavies, and Forfar, frequent.

Pond at Hedderwick Lime-works, and near the new kirk of Logie, *Mr A. Croall*. Pools close to Guthrie, *Prof. Balfour*. Near Montrose, *Mr White*. Ditch, wayside above Craigo, *Mr A. Kerr*.

β. major (*P. compressus*, L.), Lochs of Forfar and Rescobie, *Mr G. Don*.

P. gramineus, L. Grassy Pond-weed. H. 339, B. 325.—
F. June, July. P. (*P. obtusifolius*, Mert. and Koch.)

Lakes of Rescobie and Balgavies, *Mr G. Don*, *Mr A. Kerr*.

P. zosteræfolius, Schum. H. 340, B. 324.—F. June,
July. P. (*P. cuspidatus*, Schrad., Sm. *P. compressus*,
Fries, Koch.)

Lakes of Rescobie, Balgavies, and Forfar, frequent.

P. crispus, L. Curled Pond-weed. H. 340, B. 324.—
F. June, July. P.

Forfar, Rescobie, and Balgavies Lakes, common.

Pools above the Bridge of Dun, and in the South Esk, below Kinnaird, *Mr A. Croall*. Near Montrose, *Mr D. White*.

P. perfoliatus, L. Perfoliate Pond-weed. H. 340, B. 324.—F. July. P.

Lakes of Rescobie and Balgavies, frequent.

P. lucens, L. Shining Pond-weed. H. 340, B. 323.—F. June, July. P.

Lakes of Rescobie and Balgavies, frequent.

P. prælongus, Wulf. Long-stalked Pond-weed. H. 340, B. 324.—F. June, Sept. P.

Lakes of Rescobie and Balgavies, *Prof. Balfour*, *Messrs Croall*, *Cruickshank*, and *Kerr*.

Plentiful in the stream after leaving the Loch of Balgavies, and onward to Guthrie; first found, I believe, by *Prof. Balfour*, *Mr A. Croall*.

P. heterophyllus, Schreb. Various-leaved Pond-weed. H. 341, B. 323.—F. June, July. P. (*P. gramineus*, Fries, &c.)

Rescobie Lake.

Dun's Dish, *Mr J. Cruickshank*. Near Montrose, *Mr D. White*.

P. lanceolatus, Sm. Lanceolate Pond-weed. H. 341, B. 323.—F. July, Aug. P.

Lake of Lintrathen, *Mr G. Don*. South side of Rescobie Lake, *Mr A. Croall*. In a small pond on Monroman Moor, *Mr J. Cruickshank*.

P. rufescens, Schrad. Reddish Pond-weed. H. 342, B. 323.—F. July. P. (*P. fluitans*, Sm.)

Near Forfar, *Mr Maughan*. Rescobie Lake, *Dr M'Nab*. Lake of Balgavies, and in a marsh below Guthrie, *Mr J. Cruickshank*.

P. natans, L. Sharp-fruited broad-leaved Pond-weed. H. 342, B. 322.—F. June, July. P.

The most common species, plentiful in ponds, ditches, marshy pools, streams, and lakes throughout the county.

ZOSTERA, L. Grass-wrack.

Br. sp. 1. F. 1.

Z. marina, L. Common Grass-wrack. H. 343, B. 326.
—F. July, Aug. P.

Muddy beach of Montrose Basin plentiful. Beach near Monifieth, rare.

RUPPIA, L. Ruppia.

Br. sp. 2. F. 1.

R. maritima, L. Sea Ruppia. H. 343, B. 326.—F.
July. Aug. P.

This is known as the *Tassel Pond-weed*, and occurs with *Zostera marina* in Montrose Basin.

ORD. LXXXVII.—SMILACEÆ.

Gen. Br. 3. F. 2. Sp. Br. 6. F. 4.

CONVALLARIA, L. Lily of the Valley, and Solomon's Seal.

Br. sp. 4. F. 3.

C. majalis, L. Lily of the Valley. H. 345, B. 302.—
F. May, June. P.

Near Inchewen, parish of Tannadice, *Mr G. Don*. Den of Airlie, on the left bank of the Isla, by the side of the upper walk. But a less suspicious, and undoubtedly indigenous station, was lately discovered by the *Rev. J. O. Haldane*, on the right bank. It is opposite the Castle, at a considerable height above the river, and not easily approachable, *Rev. J. S. Barty*. In a hedge near a cottage at the top of the hill west from Upper Mills of Kinaber, three miles north from Montrose, but I should think not indigenous, *Mr A. Croall*.

In the beautiful plantations of Birkhill, on the Fife side of the Tay, it seems quite at home, growing among the wild hyacinths and woodruff. Its elegance and delicate perfume recommend it to general patronage, and it is, accordingly, much cultivated in the shady nooks of our gardens.

THE LILY OF THE VALLEY. *Convallaria majalis*.

Fair Lily of the Valley,
How I love thy fragrant flowers,
When thy sweetness by the summer wind
Is breathed among the bowers!

Half-hid amid the azure bloom
 Of Hyacinths thou'rt seen;
 With pendant bells of snowy hue,
 And leaves of brightest green.

Oh! lovely gem, what lessons thou
 Canst to the mind convey,
 Of purity, and love, and joy,
 Both here and far away!
 If human hearts, in this cold world,
 Were but as pure as thee,
 And open as thy balmy breast,
 How blissful would it be!

But vain, perhaps, are our desires
 That these should flourish here!
 So pure, so bright, they seem designed
 To fill a higher sphere!
 Yet thou, sweet floweret, hast a voice,
 Though "still and small," at morn and even,
 Doth bid us inwardly rejoice,
 And look with fervent hope to heaven.

C. verticillata, L. Narrow-leaved Solomon's Seal. H. 345, B. 301.—F. June. P.

Den of Airlie, on the right bank of the Isla, immediately opposite a purple beech in the Low Garden, on the other side of the stream, *Rev. J. O. Haldane*, and *Rev. J. S. Barty*.

C. multiflora, L. Common Solomon's Seal. H. 345, B. 301.—F. May, Aug. P.

Doubtfully native, but naturalized in the following stations:—On clay, in the moist shady woods of Langley Park, near Montrose, *Mr A. Croall*. Den of Duntrune, not plentiful, *Mr G. Lawson*.

PARIS, L. Herb Paris.

Br. sp. 1. F. 1.

P. quadrifolia, L. Common Herb Paris. H. 346, B. 301.—F. May, June. P.

Abundant on a projecting ridge on the left bank of the Isla a little above its confluence with the Melgum, *Rev. J. S. Barty*, and *Rev. J. O. Haldane*. It occurs rather plentifully in the neighbouring counties of Kincardine and Perth; but this is the only Forfarshire station we are yet able to record.

ORD. LXXXVIII.—LILIACEÆ.

Gen. Br. 2. F. 1. Sp. Br. 2. F. 1.

TULIPA, L. Tulip.

Br. sp. 1. F. 1.

T. sylvestris, L. Wild Tulip. H. 347, B. 303.—F. Apr. May. P.

In a wood a little to the north of Brechin Castle, *Mr A. Bousie*. *Mr W. Anderson* found it flowering there in May 1847, and remarks that the plants are scattered through the wood, near the stables, which were erected on the site of the old garden about 40 years ago. A doubt is therefore created whether the plant may be really indigenous in that station.

ORD. LXXXIX. ASPHODELEÆ.

Gen. Br. 8. F. 2. Sp. and v. Br. 23. F. 7.

ALLIUM, L. Onion.

Br. sp. and v. 11. F. 6.

A. Ampeloprasum, L. Great Round-headed Garlic. H. 347, B. 305.—F. Augt. P.

In dens near the shore, east from Arbroath, *Mr G. Don*.

A. arenarium, L. Sand Garlic. H. 347, B. 306.—F. June, July. P. (This and *A. Scorodoprasum*, L. is considered identical by *Bab.*)

Enumerated by *Mr G. Don*, but without locality.

A. carinatum, L. Mountain Garlic. H. 348, B. 307.—F. July, Augt. P. (*A. oleraceum*, β . *complanatum*, Fries.)

Among rocks by the side of the Isla, and to the eastward of Arbroath, plentiful, *Mr G. Don*.

A. vineale, L. Crow Garlic. H. 348, B. 306.—F. June, July. P. (*A. arenarium*, Fries.)

Frequent, from Will's Braes to Usan.

A. ursinum, L. Broad-leaved Garlic, or Ramsons. H. 349, B. 307.—F. May, June. P.

Dens of Airlie, Glammis, Foulis, &c.

A. oleraceum, L. Streaked Field Garlic. H. 348, B. 307.—F. July, Augt. P.

Near Montrose, *Prof. Balfour*, and *Dr M'Nab*. Den of Fullerton, *Mr A. Kerr*.

HYACINTHUS, L. Hyacinth.

Br. sp. 1. F. 1.

H. non-scriptus, L. Wild Hyacinth, or English Bluebell. H. 351, B. 308.—F. May, June. P. (*Scilla nutans* E. Bot. *Agraphis nutans*, Link., Bab.)

Wooded dens, as those of Airlie, Glammis, Foulis, &c., abundant.

Dens of Fullerton and Bonnington, *Mr A. Croall*. Banks of the South Esk, a little above Balbirnie Mill, *Mr J. Cruickshank*. Montrose Links, near Kinnaber House, *Mr A. Kerr*.

ORD. XC.—MELANTHACEÆ.

Gen. Br. 2. F. 1. Sp. Br. 2. F. 1.

TOFIELDIA, *Huds.* Scottish Asphodel.

Br. sp. 1. F. 1.

T. palustris, *Huds.* Scottish Asphodel. H. 353, B. 309.—F. June, Augt. P. (*T. borealis*, *Wahl.* *Anthericum calyculatum*, L.)

Wet rocks, and marshy banks among the Clova mountains frequent, seldom lower than 2000 feet.

ORD. XCII.—JUNCEÆ.

Gen. Br. 3. F. 3. Sp. and v. Br. 40. F. 22.

JUNCUS, L. Rush.

Br. Sp. and v. 28. F. 14.

J. glaucus, *Ehrh.* Hard Rush. H. 355, B. 311.—F. July, Augt. (*J. inflexus*, *Leers.*)

Wet ground Ninewells, and near Montrose, from one to three feet high.

J. effusus, L. Soft Rush.

J. conglomeratus, L. Common Rush. H. 355, B. 311.—F. July. P.

Both species common in wet and marshy ground, throughout the county. They are known by the vernacular name of "*Rashes*," and are associated with one of Burns' most popular songs. "*Rashy-wicks*," or the pith of the rushes, were much in use among the humbler classes before gas almost superseded the use of the "*crusey*." It was the leisure employment of herd-boys to strip the outer portion from the pith, and the latter tied up in bundles were brought into the towns on market days by country dames along with their rural produce. The "*crusey*" with its whale oil and rashy-wick is still extensively used in those places where gas cannot be procured, or candles afforded.

J. Balticus, Willd. Baltic Rush. H. 355, B. 311.—F. July, Sept. P.

On the sandy coast abundant, especially on the Sands of Barrie and Montrose Links.

J. acutiflorus, Ehrh. Sharp-flowered jointed Rush. H. 356, B. 313.—F. June, Augt. P. (*J. articulatus*, E. Bot. *J. sylvaticus*, Hoppe.)

Marshy places and ditches, common.

J. lampocarpus, Ehrh. Shining-fruited jointed Rush. H. 356, B. 313.—F. July, Augt. P.

Abundant in moist places, from the sea-shore to the mountains, varying much in size.

J. uliginosus, Sibth. Lesser Bog jointed Rush. H. 357, B. 313.—F. June, Augt. P. (*J. supinus*, Mœnch, Bab. *J. bulbosus*, L. *J. subverticillatus*, Wulf.)

Generally diffused throughout the county. Its variations, caused by the varied degrees of humidity of its place of growth, so graphically described by Hooker, I have noticed in many places, and have observed, that although the extreme forms

appear to the eye sufficiently distinct, yet the connecting links between the small upright plant and that floating in boggy pools, are so close, that it is difficult to draw any line of demarcation. The swollen base of the stem of that state called *bulbosus*, which grows on rather dry ground, or more frequently on ground that had been flooded and left dry, seems a wise provision of Nature to enable the plant to provide for a time of scarcity—much moisture being desirable, as the species is naturally a marsh plant.

J. castaneus, Sm. Clustered Alpine Rush. H. 357, B. 312.—F. July, Augt. P.

Along the upper part of the White Water, in considerable quantity, Augt. 1831, *Prof. Graham*. In the course of the White Water, above the Falls, so abundant that 250 specimens were gathered in one little spot, 1831, *Dr Barry* and *Mr J. Macnab*. Canlochen, 1836, *Drs Greville, Balfour*, and *Mr Brand*.

J. trifidus, L. Three-leaved Rush. H. 357, B. 312.—F. July, Augt. P.

Clova mountains, frequent. Very stunted on the summits, but growing in luxuriant tufts in moist crevices of the rocks between 2000 and 3000 feet.

J. compressus, Jacq. Round-fruited Rush. H. 358, B. 314.—F. June, Augt. P.

Various places along the coast, from Monifieth to Montrose.

β. Hook. (*J. Bothnicus*, Wahl. *J. cænosus*, Bich., Bab. *J. Gerardi*, Loisel.)

Side of the Montrose Basin, *Mr A. Croall*. It is not unfrequent on the Fife side of the Tay, and probably on the Forfarshire coast, future observation will prove it to be not uncommon.

J. tenuis, Willd. Slender Spreading Rush. H. 358, B. 315.—F. July. P. (*J. Gesneri*, Sm. *J. gracilis*, E. Bot.)

“By a rivulet in marshy ground, among the mountains of Clova, near their summits,” *Mr G. Don*, *Mr D. Don*. (H. B. F.)

J. bufonius, L. Toad Rush. H. 358, B. 315.—F. July, Augt. A.

Common in moist ground throughout the county, varying much in size and ramification. On the Sands of Barrie a very small state occurs, frequently bearing flowers and fruit at less than a quarter of an inch high, and ranging from that to an inch. In some places I have met with it nearly a foot high.

J. squarrosus, L. Heath Rush. H. 358, B. 314.—F. June, July. P.

Moory, heathy, and marshy ground, abundant; in the latter its densely-tufted roots often afford good footing to the botanical explorer.

J. triglumis, L. Three-flowered Rush. H. 359, B. 312.—F. July, Augt. P.

Marshy places and by the sides of rills among the mountains, frequent. The flowers vary from two to four, though generally three.

LUZULA, D. C. Wood-Rush.

Br. Sp. and v. 8. F. 8.

L. sylvatica, Bich. Great Hairy Wood-rush. H. 360, B. 315.—F. May, June. P. (*L. maxima*, D. C., Koch. *Juncus sylvaticus*, Huds. *J. pilosus*, L.)

Plentiful in shady woods and on the banks of streams.

L. pilosa, Willd. Broad-leaved Hairy Wood-rush. H. 360, B. 315.—F. Apr. June. P. (*Juncus pilosus*, L.)

Not uncommon in the woods and on the hills.

L. Forsteri, D. C. Narrow-leaved Hairy Wood-rush. H. 360, B. 315.—F. May, June. P.

Fir woods near Forfar, *Mr G. Don.*

L. campestris, Br. Field Wood-rush. H. 360, B. 315.—F. Apr. June. P.

Abundant from the coast to the mountains, in dry sandy and heathy places, as well as in moist woods, and on the

marshy banks of streams and lakes, varying much in height, and in the size and ramification of its spikeleted heads. Var. β . (*L. conjesta*, Lej.) is not uncommon, particularly in moist and shady situations.

L. multiflora, Lej. Many-flowered Wood-rush. B. 316.
—F. June. P.

Baldovan Woods, Sands of Barrie, Rescobie, &c. This is *apparently* a good species, but *L. conjesta*, and other intermediate forms seem to link it very closely to *L. campestris*. *Mr Bentall* of Halstead, Essex (the manufacturer of the admirable botanical drying paper), who has studied these plants with care, points out a character, which, if constant, might decide the point. The seeds of *L. multiflora*, he observes, are somewhat oblong, whilst those of *L. campestris* are nearly globular, and have a much more conspicuous basal appendage.

L. spicata, D. C. Spiked Mountain Wood-rush. H. 361, B. 316—F. July, Augt. P. (*Juncus*, L.)

Plentiful on rocky shelves among the mountains, and scattered in tufts over their summits.

L. arcuata, Hook. Curved Mountain Wood-rush. H. 361, B. 316.—F. July. P.

Clova mountains, July 1824. *Hooker, Greville, Burchell*, and *Drummond*. The precise locality is not specified, and I have not seen it except on the highest ground in Scotland, Ben-na-Muic-Dhui. It is, however, an inconspicuous plant, and may be easily overlooked. In the neighbouring county of Aberdeen, in August 1846, it was picked on the classical Lochnagar by *Prof. Balfour*.

NARTHECIUM, *Huds.* Bog-Asphodel.

Br. sp. 1. F. 1.

N. ossifragum, *Huds.* Bog Asphodel. H. 361, B. 310.
—F. May, Augt. P.

Plentiful in marshy places, on moors, in woods, on the lower hills, and ascending to upwards of 2000 feet on the mountains.

ORD. XCIII.—HYDROCHARIDÆ.

Gen. Br. 2. F. 1. Sp. Br. 2. F. 1.

STRATIOTES, *L.* Water-Soldier.

Br. sp. 1. F. 1.

S. aloides, *L.* Water Soldier. H. 362, B. 287.—F. June, July. P.

Plentiful in the Lakes of Forfar, Rescobie, Balgavies, and Feithy, probably not really indigenous, as *Mr G. Don* admits of having introduced it into the Lake of Forfar in 1792, but in the above localities it is now at least perfectly naturalized.

In a pool at Bracklaw Burn, parish of Carreston, *Rev. J. O. Haldane*.

ORD. XCIV.—ORCHIDÆ.

Gen. Br. 14. (Bab. 16.) F. 8. Sp. and v. Br. 45. F. 14.

GOODYERA, *Br.* Goodyera.

Br. sp. 1. F. 1.

G. repens, *Br.* Creeping Goodyera. H. 363, B. 294.—F. July, Augt. P.

Woods of Stracathro, *Mr G. M'Farlane*. Burn Woods, south from the entrance to Glen Esk, near Gannachy Bridge. This stately and picturesque bridge, which is much admired for the beautiful and romantic scenery around, spans the North Esk about ten miles north from Brechin, connecting the counties of Forfar and Kincardine. On both sides of the river the woods are rich and diversified, and to the botanist afford many a hidden gem; and the rocky banks will amply reward the cryptogamist.

LISTERA, *Br.* Twayblade.

Br. sp. 3. F. 3.

L. ovata, *Br.* Common Twayblade. H. 364 B. 294.—F. May, June. P. (*Ophrys*, *L.*)

Den of Airlie, left bank of the Isla, near the Low Garden, *Rev. J. O. Haldane*, and *Rev. J. S. Barty*. Banks of the Esk near Kinaber, *Mr G. M'Farlane*. Bogwood of Craigo, *Mr John Laing*. In a small wood by the wayside near Usan, and in ravines between Marten's Den and Upper Mills, *Mr A. Croall*. Den of Bonnington, *Mr J. Cruickshank*.

L. cordata, Br. Heart-leaved Twayblade. H. 364, B. 294.—F. May, Augt. P. (*Ophrys*, L.)

In woods abundant, as those of Baldovan, Lumley, Deerhill, &c. On heaths, Sidlaw Hills and Clova mountains, ascending on the latter to upwards of 2000 feet, but small in size. In Baldovan Woods specimens are frequently found with a third and fourth leaf on the stem, between the two cordate ones and the base of the flower-spike, and a variety with pale green flowers, their usual colour with us being a deep purplish brown with a slight mixture of green.

Woods of Carreston, Kinnaird, and Craigo, *Messrs John Laing* and *A. Bousie*. Woods of Dun, and Monroman Moor, *Mr A. Croall*.

L. Nidus-Avis, Hook. Bird's-nest. H. 364, B. 294.—F. May, June. P. (*Neottia*, L., Bab.)

Den of Airlie, left bank of the Isla, near the Low Garden, *Rev. J. O. Haldane*, and *Rev. J. S. Barty*.

EPIPACTIS, Br. Helleborine.

Br. sp. and v. 5. F. 1.

E. latifolia, Sw. Broad-leaved Helleborine. H. 364, B. 295.—F. July, Augt. P. (*Serapias*, L.)

In woods, occasionally.

CORALLORHIZA, Hall. Coral-root.

Br. sp. 1. F. 1.

C. innata, Br. Spurless Coral-root. H. 366, B. 296.—F. June, Augt. P. (*Ophrys corallorhiza*, L.)

In wet pastures, Sands of Barrie, a little to the north-east of the larger light-house, not plentiful.

In a marshy wood behind the north lodge of Carreston, about four miles from Brechin, on the Forfar road, *Messrs Bousie and Laing*.

ORCHIS, *L.* Orchis.

Br. sp. and v. 13. F. 3.

O. mascula, *L.* Early Purple Orchis. H. 366, B. 289.
—F. May, June. P.

Woods frequent, less common in open pastures. *Mr G. Don* has found it with white flowers, and I have picked it with pink flowers in Balgay Wood and on Will's Braes.

Will's Braes, before their destruction by the operations in forming part of the line of the Dundee and Perth Railway, was a favourite resort of many of the inhabitants of Dundee, being one of the pleasantest places in its vicinity for a morning or evening walk. A sweet wooded path on the summit of the flower-covered rocks and banks winded along the side of the Tay from the west end of the town to the bay of Invergowrie; on the one hand margined by cornfields, on the other commanding a delightful view of the noble river, and the richly cultured hills of Fife. The lover of flowers, of birds, of insects, or of varied and picturesque scenery, here found ample enjoyment; and on the demolition of that bowery and blossomy path by the "quiet waters," not a few may have said with the poet,—

" I never looked a last adieu
To things familiar, but my heart
Shrank with a feeling, almost pain,
Even from their lifelessness to part."

The following lines were suggested during an evening ramble on these braes, and to other visitors of the scenery, in whose minds similar thoughts have arisen, they may be acceptable as a memorandum of the past:—

THE STILLNESS OF A SUMMER NIGHT.

The moonbeams are sleeping on forest and hill,
And the winds are at rest, and the waters are still;
Not a sound breaks the silence of nature so deep—
Not a whisper is breathed that could ruffle her sleep.

Not a bird-warble rises among the green trees,
Nor a sweet-murmured kiss of the leaves by the breeze;
And the clouds that repose on the breast of the sky
Are like isles all asleep in blue waters that lie.

Not a dew-drop is heard from the rose-leaves to fall;
How profound is the quiet that broods over all!
And am I the sole spirit, that, watching, doth keep
The eye from a slumber so potent and deep?

Ah, no! there's an eye that for ever is bright—
A spirit that sleeps not by day nor by night—
An eye, whose wide glance can the universe trace—
A spirit of love that is boundless as space!

On the flower-bosomed earth, in the star-spangled sky,
And farther than light-pinioned fancy can fly,
That spirit is felt like a life-giving flame—
That bright eye is beaming for ever the same!

Then let me not deem, though all nature's asleep,
That alone in the silence my vigils I keep;
For that eye on me smiling in goodness doth shine,
And that spirit delights to hold converse with mine.

O. latifolia, L. Marsh Orchis. H. 368, B. 291.—F. June. P.

Moist woods and marshy places frequent, occasionally with white and rose-coloured flowers.

O. maculata, L. Spotted palmate Orchis. H. 368, B. 290.—F. June, July. P.

Moist shady woods, marshy ground, and wet pastures, not uncommon, and frequently with white flowers.

GYMNADENIA, Br. Gymnadenia.

Br. sp. 1. F. 1.

G. conopsea, Br. Fragrant Gymnadenia. H. 368, B. 291.—F. June, July. P. (*Orchis*, L.)

Plentiful on heaths, moors, and in woods, throughout the county, scenting the air with a powerful fragrance similiar to that of the Jonquil. It occurs with pale rose-coloured flowers, as in woods near Pitairlie Den, west from Monikie.

HABENARIA, Br. Habenaria.

Br. sp. and v. 4. F. 3.

H. viridis, Br. Green Habenaar, or Frog Orchis. H. 369, B. 292.—F. June, July. P. (*Satyrium*, L. *Peristylus*, Lindl. *Himantoglossum*, Reich.)

Pastures frequent. Sands of Barrie, valleys of Clova, and Canlochen, and on the mountains to nearly their summits. Moors and grassy places at Dun, Craigo, and west from Arb-roath plentiful, *Mr A. Croall*.

H. albida, Br. Small White Habenaria. H. 369, B. 292.—F. June, July. P. (*Gymnadenia albida*, Rich., Bab. *Satyrium*, L. *Orchis*, Sm. *Peristylus*, Lindl.)

Frequent in the Highland valleys, as Glen Clova.

H. bifolia, Br. Butterfly Habenaria. H. 369, B. 292.—F. June, July. P. (*Orchis bifolia*, L. *Platanthera bifolia*, Lindl.)

Moors and moist woods frequent.

MALAXIS, Sw. Bog-orchis.

Br. sp. 1. F. 1.

M. paludosa, Sw. Bog-orchis. H. 372, B. 296.—F. Augt. Sept. P.

Clova mountains, *Mr G. Don*. Frequent in the valleys of Clova, *Prof. Graham*. Glen Phee, *Prof. Balfour*. A single specimen was picked by *Dr Greville* on the side of the hill above the Kirkton of Clova, August 1831. In considerable abundance, a little higher up the Esk, on the opposite side to the Kirkton, 1831, *Dr Barry*, and *Mr J. McNab*.

ORD. XCV.—IRIDEÆ.

Gen. Br. 3. F. 1. Sp. and v. Br. 10? F. 1.

IRIS, L. Iris, or Flower-de-Luce.

Br. sp. and v. 3. F. 1.

I. Pseudo-acorus, L. Yellow Water Iris, or Yellow Flag. H. 373, B. 298.—F. May, July. P.

Marshy pools, and by the sides of streams and lakes plentiful.

ORD. XCVI.—AMARYLLIDÆ.

Gen. Br. 3. F. 2. Sp. Br. 5. F. 3.

NARCISSUS, L. Daffodil.

Br. sp. 3. F. 2.

N. Pseudo-narcissus, L. Common Daffodil. H. 376, B. 299.—F. Mar. Apr. P.

Woods at Kinaber, with *Galanthus nivalis*, both in profusion, but neither perhaps indigenous, *Mr A. Croall*.

This early favourite of the garden, that, as Shakspeare says,

“ — Comes before the swallow dares,
And takes the winds of March with beauty,”—

has probably no claim to be considered a British plant, but is hardy and easily naturalized. Wordsworth once came upon

“ A host of golden daffodils,
Beside the lake, beneath the trees,
Fluttering and dancing in the breeze,”

and, after describing their appearance, he adds,—

“ The waves beside them danced; but they
Outdid the sparkling waves in glee:
A poet could not be but gay,
In such a jocund company.
I gazed—and gazed—but little thought
What wealth the show to me had brought;
For oft, when on my couch I lie,
In vacant, or in pensive mood,
They flash upon that inward eye
Which is the bliss of solitude;
And then my heart with pleasure fills,
And dances with the daffodils.”

N. poeticus, L. Narcissus of the Poets. H. 376, B. 299.—F. May. P.

Den of Fullerton, but only a plant here and there, *Mr A. Croall*.

It must be pleasant to meet in a wild spot with the

“ ————— Narcissus fair,
As o'er the fabled fountain hanging still.”

but, like the former, it has the look of another clime. One

is apt to think that the poets have done injustice to such a fair sweet flower, by making it the emblem of vanity; for may not the unconquerable desire of Narcissus for contemplating his own graceful features, reflected from the fountain, have arisen rather from that love of the beautiful inherent in the human mind, intensely excited, than from any vain or self-conceited notions? The beauty of the flower tempts one to view the fable in this light.

GALANTHUS, *L.* Snowdrop.

Br. sp. 1. F. 1.

G. nivalis, *L.* Snowdrop. H. 376, B. 300.—F. Feb. Mar. P.

This,

“The first pale blossom of the unripen'd year,”

was found naturalized near Mains Castle, but, from alterations, now lost. *Mr A. Croall* finds it in woods near Kinaber, and at the Upper Mills, &c., but does not think it really indigenous in these stations.

SUB-CLASS. II.—GLUMACEÆ.

ORD. XCVIII.—GRAMINEÆ.

Gen. Br. (Hook. 41. Bab. 49.) F. 29. Sp. and v. (Hook. 151. Bab. 155.) F. 94.

ANTHOXANTHUM, *L.* Vernal-grass.

Br. sp. 1. F. 1.

A. odorata, *L.* Sweet-scented Vernal-grass. H. 378, B. 356.—F. May, July. P.

Plentiful from the coast to nearly 3000 feet on the Clova and Canlochen mountains.

NARDUS, *L.* Mat-grass.

Br. sp. 1. F. 1.

N. stricta, *L.* Mat-grass. H. 379, B. 378.—F. June. P.

Moors and heaths plentiful.

ALOPECURUS, L. Fox-tail-grass.

Br. Sp. 6. F. 5.

A. pratensis, L. Meadow Fox-tail-grass. H. 379, B. 357.—F. May, June. P.

Meadows; pastures, waysides, and woods, abundant.

A. alpinus, Sm. Alpine Fox-tail-grass. H. 379, B. 358.—F. July, Aug. P.

Sides of streams among the Clova and Canlochen mountains frequent. Side of a stream descending from the Bassies into Glen Clova, rare, August 1842. Banks of Feula Burn above the falls, August 1842; more sparingly there July 1846. About water-falls, Loch Wharral, abundant, 1843; still plentiful, but little in flower, July 1846. Banks of the Glashie Burn, head of Caness, in abundance, and associated with *Phleum alpinum*. More or less plentiful about all the Canlochen streams.

Prof. Balfour gathered this rare grass in the Loch Wharral station, (where it was first pointed out by *Drummond* to *Sir W. J. Hooker*), in 1830; and also in immense profusion in marshy ground between Clova and Loch Lee, about two miles south from the head of the Loch; as well as in several of the other stations mentioned above. Garryburn and Glen Phee, Clova, *Mr White*. Abundant on a stream leading into Glen Prosen from the hill to the south-west of the White Water, 1831, *Dr Barry*.

A. agrestis, L. Slender Fox-tail grass. H. 380, B. 359.—F. June, July. A.

Roadside between Rossie and the wood of Kinnoull, and on the old road leading to Marten's Den, *Mr J. Cruickshank*. *Dr Murray* is of opinion that this grass is not indigenous: in the above stations it may be only naturalized.

A. geniculatus, L. Floating Fox-tail-grass. H. 380, B. 358.—F. June, August. P.

Ditches and moist places, frequent.

A. fulvus, Sm. Orange-spiked Fox-tail-grass. H. 380, B. 358.—F. June, July. P.

Angusshire, *Hook, Br. Fl.*

PHALARIS, *L.* Canary-Grass.*Br. sp. and v. 3. F. 1.*

P. arundinacea, *L.* Reed Canary-grass. H. 381, B. 356.—F. June, Augt. P. (*Baldingera*, *R.*)

Ditches and sides of lakes and streams frequent.

Banks of the North and South Esk, *Mr A. Croall*. The var. β *pieta*, with white-striped leaves, I have never noticed wild in this county, but it is common in gardens, bearing the name of “*Gardeners’ Garters.*”

AMMOPHILA, *Host.* Sea-Reed.*Br. sp. 1. F. 1.*

A. arundinacea, *Hort.* Common Sea-reed, Marum, or Matweed. H. 381, B. 361.—F. July. P. (*Arundo arenaria*, *E. Bot.* *Ammophila arenaria*, *Link., Bab.* *Psamma arenaria*, *Beauv.*)

Very abundant on all sandy places along the coast, particularly the sands of Barrie and Links of Montrose. It is termed “*Bent,*” and with *Carex arenaria*, and similar plants having extensively creeping roots, is valuable in binding the loose sand, thereby preparing a soil for the growth of more useful vegetables.

PHLEUM, *L.* Cat’s-tail-Grass.*Br. Sp. and v. 7. F. 5.*

P. pratense, *L.* Timothy-grass. H. 381, B. 357.—F. June. P.

Fields and waysides, plentiful.

β . *nodosum*, *L.* Ninewells, Lawhill, Mains, &c. Montrose Links, *Mr W. Smith*.

P. alpinum, *L.* Alpine Cat’s-tail-grass. H. 382, B. 357. F. July, Augt. P.

Babington is inclined to coincide with Shuttleworth in

considering our Scottish plant the *P. commutatum* of Gaudin, and distinct from the Linnæan *P. alpinum*. In the numerous specimens gathered in Clova, Glen Isla, and Breadalbane, I have found its height to vary from three to eighteen inches, and the spikes from half an inch to an inch and a-half in length. The awns are generally scabrous, but in some instances the scabrous processes towards their bases are so elongated as almost to become ciliæ, so that some doubt is created as to whether Gaudin's plant is specifically different from *P. alpinum*, L.

Plentiful on the banks of Feula Burn. Wash of the Corrie of Clova. The term "*Wash*" is applied in this district to those waterfalls that come down in a slanting manner over the rocks, washing them as it were with their foamy currents. The finest of these in Clova is the *wash* or Falls of Feula (pronounced *Fyalloch*), which descends from the north side of Craig Maid into the White Water. Abundant in Canlochen Glen, and on the banks of the Glashie Burn at the head of Caness.

Sides of the White Water a mile or two before it enters the head of Glen Dole in great quantity, moist rocks on the south side of Glen Phee, and rocks near Loch Brandy, *Prof. Balfour*.

P. Michelii, All. Michelian Cat's-tail-grass. H. 382, B. 357.—F. July, Augt. P. (*Phalaris alpina*, Hænke.)

Rocky summits of the Clova mountains, *Mr G. Don*.

P. arenarium, L. Sea Cat's-tail-grass. H. 382, B. 357.—F. June, July. A. (*Phalaris arenaria*, E. Bot.)

Sands of Barrie, and Links of Montrose, frequent.

MILIUM, L. Millet-Grass.

Br. sp. 1. F. 1.

M. effusum, L. Spreading Millet-grass. H. 383, B. 359.—F. June. P.

Not uncommon in the woods. Den of Airlie, abundant, *Rev. J. S. Barty*.

CALAMAGROSTIS, *Adans.* Small-Reed.*Br. sp.* 4. *F.* 1.

C. stricta, Nutt. Narrow Small-reed. H. 385, B. 361.
—F. June. P. (*Arundo stricta*, Schrad., Bab.)

Discovered in the White Mire marsh, near Forfar, in 1807, by *Mr G. Don*, but subsequently the marsh was drained, and the plant lost there. Near Rescobie, *Hook, Br. Fl.*

AGROSTIS, *L.* Bent-Grass.*Br. sp. and v.* 10. *F.* 6.

A. canina, L. Brown Bent-grass. H. 385, B. 360.—F. June, Aug. P. (*Trichodium*, Schrad.)

Moory and heathy places, common.

A. vulgaris, With. Fine Bent-grass. H. 386, B. 360.
—F, June, Aug. P.

Very abundant throughout the county in dry places.

β. aristata, Hook. (*A. canina*, With.) Clova mountains, frequent.

γ. pumila, Hook. (*A. pumila*, Lightf.) Glen Clova, plentiful by the waysides.

A. alba, L. Marsh Bent-grass. H. 387, B. 360.—F. July, Aug. P.

Banks of streams and wet places frequent.

β. stolonifera, L. Between Broughty and Monifieth, and other places on the coast not uncommon.

CATABROSA, *Beauv.* Whorl-Grass.*Br. sp. and v.* 2. *F.* 1?

C. aquatica, Beauv. Water Whorl-grass. H. 387, B. 366.—F. June, July. P. (*Aira aquatica*, L.)

Plentiful near Restenet.

Near Usan, *Messrs Croall* and *M'Farlane*. Near Montrose, *Mr A. Kerr*. Old Montrose, *Mr J. Cruickshank*.

AIRA, L. Hair-Grass.

Br. Sp. and v. 9. F. 6.

A. cristata, L. Crested Hair-grass. H. 388, B. 366.—
F. June, July. P. (*Koeleria cristata*, Pers. Poa., L.)

Sea-coast abundant, and extending to the mountain valleys. From two to ten inches high, the spiked-panicle very variable in length.

A. cæspitosa, L. Turfy Hair-grass. H. 388, B. 363.—
F. June, Aug. P. (*Deschampsia*, Beauv.)

Ditches and field borders common, and ascending to the summits of the mountains, where *Mr G. Don* has found it viviparous. It occurs from ten inches to between three and four feet high.

A. alpina, L. Smooth Alpine Hair-grass. H. 388, B. 363.—
F. July, Aug. P. (*Aira lævigata*, E. Bot.)

Clova mountains, not common. Rocks on the south side of Glen Dole, to the east of those on which *Astragalus alpinus* grows, *Prof. Balfour*.

A. flexuosa, L. Waved Hair-grass. H. 389, B. 363.—
F. July. P.

Dry and moory ground common, from the coast to the summits of the mountains.

A. caryophyllea, L. Silvery Hair-grass. H. 389, B. 363.—
—F. May, July. P. (*Avena*, Koch.)

Sides of fields on dry banks frequent, varying from two to twelve inches high.

A. præcox, L. Early Hair-grass. H. 389, B. 363.—
F. Apr. June. P. (*Avena*, Koch.)

Old walls, woods, and banks, frequent. *Mr Croall* justly observes that "this pretty little grass is very capricious in

its habitat, often appearing in woods where the trees have been cut down, and in spots where the turf has been pared, but seldom reappearing in the same places the following season."

MELICA, L. Melic-Grass.

Br. sp. and v. 4. F. 4.

M. nutans, L. Mountain Melic-grass. H. 389, B. 366.
—F. May, June. P.

Clova mountains, *Mr G. Don.* Den of Airlie, on the left bank of the Isla, *Rev. J. S. Barty.*

M. uniflora, L. Wood Melic-grass. H. 390, B. 366.
—F. May, July. P.

Den of Airlie, in several places. Near Forfar, *Mr G. Don.*

M. cærulea, L. Purple Melic-grass. H. 390, B. 366.
—F. July, Aug. P. (*Molinia cærulea*, Moench., Bab.)

Wet and moory places, particularly among the hills and mountains.

β. alpina, Hook. (*M. alpina*, Don. *M. depauperata*, Lindl.)

On moist rocks, White Water, near the top of the ravine, above the falls.

On rocks to the west of Glen Phee, and on the south side of Canlochen Glen, *Prof. Balfour.*

HOLCUS, L. Soft-Grass.

Br. sp. 2. F. 2.

H. mollis, L. Creeping Soft-grass. H. 390, B. 365.—
F. July. P.

Waysides, common, *Mr A. Croall.*

H. lanatus, L. Meadow Soft-grass. H. 390, B. 365.—
F. July. P.

Meadows, pastures, and waysides, abundant, from the coast to the mountain valleys.

ARRHENATHERUM, *Beauv.* Oat-like-Grass.

Br. sp. and v. 2. F. 2.

A. avenaceum, Beauv. Common Oat-like-grass. H. 391, B. 365.—F. June, July. P. (*Holcus avenaceus*, Scop. *Avena elatior*, L.)

This and var. *β. nodosum*, Bab. (*A. bulbosum*, Dunal, and Lindl.) are common by waysides, on ditch banks, &c.

HIEROCHLOE, *Gmel.* Holy-Grass.

Br. sp. 1. F. 1.

H. borealis, R. and S. Northern Holy-grass. H. 391, B. 356.—F. May, July? P. (*Holcus odoratus*, L. *Holcus borealis*, Schrad.)

Glen Cally, *Mr G. Don*. No other botanist, perhaps, has found this grass in the locality named, which is a long narrow valley descending from the high mountains near the head of Caness into Glen Isla. It does not grow about the head of the glen, which was carefully examined in July 1843.

POA, *L.* Meadow-Grass.

Br. sp. and v. 27. F. 16.

P. aquatica, L. Reed Meadow-grass. H. 393, B. 369.—F. July. P. (*Glyceria aquatica*, Sm., Bab. *Hydrochloa*, Hartm., Lindl.)

Banks of the Carrity near Cortachy. Margin of a pool between Broughty and Monifieth. By the side of Forfar Lake, &c.

P. fluitans, Scop. Floating Meadow-grass. H. 393, B. 369.—F. June, August. P. (*Glyceria fluitans*, Br., Bab *Festuca*, L.)

Wet and marshy places common.

P. maritima, Huds. Creeping Sea Meadow-grass. H.

393, B. 370.—F. June, Aug. P. (*Sclerochloa*, Lindl., Bab. *Glyceria*, Sm.)

Plentiful along the coast.

P. distans, L. Reflexed Meadow-grass. H. 394, B. 370.—F. June, Aug. P. (*Sclerochloa distans*, Bab.)

Pool of salt water near Redhead, *Rev. J. O. Haldane*, and *Rev. J. S. Barty*.

P. procumbens, Curt. Procumbent Sea Meadow-grass. H. 394, B. 370.—F. June, Aug. A. (*Sclerochloa*, Beauv., Lindl., Bab. *Glyceria*, Sm.)

Near Wormiehills, *Mr G. Don*. Sea-side about Montrose, *Mr A. Kerr*.

P. rigida, L. Hard Meadow-grass. H. 394, B. 370.—F. June. A. (*Sclerochloa*, Link., Lindl., Bab., &c. *Glyceria*, Sm.)

Ninewells. Sea-shore between Arbroath and East Haven, *Mr John Laing*.

P. compressa, L. Flat-stemmed Meadow-grass. H. 394, B. 368.—F. June, July. P.

Not uncommon on wall-tops and dry places.

P. alpina, L. Alpine Meadow-grass. H. 395, B. 369.—F. July, Aug. P.

Rocks among the mountains of Clova and Canlochen, generally viviparous, especially on those of Clova. It has established itself on some parts of the Isla as far south as the Den of Airlie, where the *Rev. J. S. Barty* finds it “plentiful along the verge of the stream,” and remarks that there “it is never viviparous as upon the Esk.”

β. glomerata occurs on the banks of the Esk, according to *Mr G. Don*, and the stations given in his Herbarium, in the possession of the *Rev. J. S. Barty*, are “Corbie Craig near Tannadice, and Rocks near Forfar.”

P. laxa, Hænk. Wavy Meadow-grass. H. 395, B. 369.—F. July. P. (*P. flexuosa*, E. Bot.)

Clova mountains, *Hooker, Greville, Burchell, Drummond, Don.* Glen Dole, Aug. 1846, with var. *flexuosa*, Parn., *Prof. Balfour.*

P. trivialis, L. Roughish Meadow-grass. H. 395, B. 367.—F. June, July. P.

P. pratensis, L. Smooth-stalked Meadow-grass. H. 396, B. 367.—F. June, July. P.

Both species abundant in pastures, by waysides, and in woods.

P. pratensis, γ . *subcærulea*. (*P. humilis*, Ehrh. *P. subcærulea*, E. Bot.)

On old walls and banks frequent.

P. annua, L. Annual Meadow-grass. H. 396, B. 369.—F. nearly the whole year.

Common every where from the sea-margin to the mountain-summits.

P. nemoralis, L. Wood Meadow-grass. H. 396, B. 367.—F. June, July. P.

Frequent in woods and on shady banks.

β . *glauca*, Hook. (*P. glauca* and *P. cæsia*, Sm.)

Clova and Canlochen mountains, plentiful.

P. Balfourii, Parn. Balfour's Meadow-grass. B. 367.—F. July. P.

Near the Falls of the White Water, Clova, and Glen Isla, *Prof. Balfour.*

TRIODIA, *Br.* Heath-grass.

Br. sp. 1. F. 1.

T. decumbens, Beauv. Decumbent Heath-grass. H. 397, P. 365.—F. July, Aug. P. (*Poa decumbens*, E. Bot. *Danthonia decumbens*, DC. *Festuca*, L.)

Sidlaw Hills. Glen Clova. Canlochen, frequent.

BRIZA, *L.* Quaking-Grass.*Br. sp. 2. F. 1.*

B. media, *L.* Common Quaking-grass. H. 397, B. 371.
—F. June, July. P.

Frequent throughout the county, from the coast to the mountains.

DACTYLIS, *L.* Cock's-foot-Grass.*Br. sp. 1. F. 1.*

D. glomerata, *L.* Rough Cock's-foot-Grass. H. 397, B. 371.—F. June, July. P.

Very abundant by waysides, margins of fields, woods, &c.

CYNOSURUS, *L.* Dog's-tail-grass.*Br. sp. 2. F. 1.*

C. cristatus, *L.* Crested Dog's-tail-grass. H. 398, B. 371.—F. July, Aug. P.

Pastures and waysides, plentiful.

FESTUCA, *L.* Fescue-grass.*Br. sp. and v. 15. F. 11.*

F. ovina, *L.* Sheep's Fescue-grass. H. 398, B. 372.—F. June, Aug. P.

The most abundant grass on the mountains, forming the chief part of the pasturage, and frequent from their summits to the sea-shore. The varieties are frequent: β . *rubra* and δ . *tenuifolia* are common on the Sands of Barrie, &c. γ . *cæria* occurs in woods, and ϵ . *vivipara* is plentiful on the mountains.

F. duriuscula, *L.* Hard Fescue-grass. H. 399, B. 372.—F. June, July. P. (*F. ovina*, δ . *duriuscula*, Bab.)

Waysides near Montrose, north from Newbigging, *Mr A. Croall*. Near the Inch Bridge, *Mr J. Cruickshank*.

F. rubra, L. Creeping Fescue-grass. H. 399, B. 372.
—F. June, July. P. (*F. duriuscula*, Parn.)

Plentiful on the sea-shore from Broughty to Arbroath, and frequent on the mountain rocks of Clova.

F. bromoides, L. Barren Fescue-grass. H. 399, B. 372.
—F. June, July. A. ?

East from the Old Bottle-work, Dundee, *Rev. J. O. Haldane*, and *Rev. J. S. Barty*. Not unfrequent, but very capricious in its appearance, showing itself occasionally where the ground has been abraided, but soon giving way to more permanent species, *Mr A. Croall*.

F. Myurus, L. Wall Fescue-grass. H. 399, B. 372.—
F. June, July. A. (*F. bromoides*, L. β . *nana*, Parn. Babington considers it not the true plant of L.)

Found in the county by *Mr G. Don*.

F. loliacea, Huds. Spiked Fescue-grass. H. 400, B. 373.—F. June, July. P. (Babington is disposed to think this merely a form of the following.)

Observed, though sparingly, by *Mr G. Don*.

F. elatior, L. Tall Fescue-grass. H. 400, B. 373.—F. June, Aug. P. (*F. pratensis*, Huds. *Schenodorus*, Lindl.)

Frequent by the sides of streams, and in woods.

BROMUS, L. Brome-grass.

Br. sp. and v. 17. F. 9.

B. giganteus, Vill. Tall Brome-grass. H. 401, B. 373.
—F. June. (*Festuca gigantea*, E. Bot., Bab. *Bucetum*, Parn.)

Will's Braes, near the east end. Near Forfar, *Mr G. Don*. He also mentions β . *triflorus* (*Festuca triflora*, E. Bot.) as rare, by the sides of rivers; but no river or station is specified.

B. asper, L. Hairy Wood Brome-grass. H. 401, B. 373.—F. June, July. A. ? or B. ?

Near Montrose, *Mr A. Kerr*. Den of Fullerton, and Burn, *Mr A. Croall*.

B. sterilis, L. Barren Brome-grass. H. 401, B. 374.—F. June, Aug. A.

Not uncommon by waysides to the east and west of Dundee.

Near Langley gate on the Brechin road, *Mr A. Kerr*.

B. mollis, L. Soft Brome-grass. H. 402, B. 375.—F. May, June. A. ? or B. ? (*Serrafalcus*, Parl., Bab.)

Abundant from the sea-shore to the mountains.

B. racemosus, L. ? Smooth Brome-grass. H. 402, B. 375.—F. June, July. A. ? or B. ? (*Serrafalcus*, Parl., Bab.)

Waysides and waste places, frequent, often confounded with the above, from which it is scarcely distinct.

B. arvensis, L. Taper Field Brome-grass. H. 403, B. 375.—F. June, July. A.

Wayside near Marykirk, and in a field by the side of the road leading south from the Upper North Water Bridge (on the North Esk), *Mr A. Croall*.

B. velutinus, Schrad. Downy Rye Brome-grass. H. 402, B. 375.—F. June, July. A. (*B. multiflorus*, E. Bot. *Serrafalcus mollis* β . *velutinus*, Bab.)

B. commutatus, Schrad. Tumid Field Brome-grass. H. 402, B. 374.—F. June, July. A. (*B. pratensis*, E. Bot. *B. arvensis*, Parn. *Serrafalcus*, Parl., Bab.)

B. secalinus, L. Smooth Rye Brome-grass. H. 403, B. 374.—F. July, Aug. A. (*Serrafalcus*, Parl., Bab.)

These three species are enumerated by *Mr G. Don* as natives of the county, but no stations pointed out.

AVENA, L. Oat, or Oat-grass.

Br. sp. and v. 7. F. 5.

A. strigosa, Schrad. Bristle-pointed Oat. H. 404, B. 364.—F. June, Sept. A.

Montrose Links, *Mr A. Croall*.

A. pratensis, L. Narrow-leaved Oat-grass. H. 404, B. 364.—F. June, July. P.

Reeky Linn and Clova. Banks of the North Esk, *Mr A. Croall*.

A. alpina, Sm. Great Alpine Oat-grass. H. 404, B. 365.—F. July. P.

Rocks of Clova and Canlocher, frequent. Probably a mere var. of *A. pratensis*.

A. pubescens, L. Downy Oat-grass. H. 405, B. 365.—F. June, July. P. (*Trisetum pubescens*, Pers.)

Rocks at Dysart, *Mr A. Croall*.

A. flavescens, L. Yellow Oat-grass. H. 405, B. 365.—F. July. P. (*Trisetum flavescens*, Beauv., Bab.)

Found in the county by *Mr G. Don*, but no station indicated.

ARUNDO, L. Reed.

Br. sp. and v. 2. F. 1.

A. Phragmites, L. Common Reed. H. 405, B. 362.—F. July, Aug. P. (*Phragmites communis*, Trin., Bab.)

Rescobie and Forfar Lakes, plentiful.

Lunan, Littlemill, &c., *Mr A. Croall*.

ELYMUS, L. Lyme-grass.

Br. sp. 3. F. 1.

E. arenarius, L. Upright Sea Lyme-grass. H. 406, B. 377.—F. July. P.

Plentiful in several places on the sea-coast, as between Broughty and Monifieth, near Carnoustie, Lunan Bay, Montrose Links, &c.

HORDEUM, *L.* Barley.*Br. sp. and v. 4. F. 2.*

H. murinum, *L.* Wall Barley. H. 407, B. 378.—F. July, Aug. A.

Plentiful along the coast.

H. maritimum, *With.* Sea-side Barley. H. 407, B. 378. F. July. P.

On the coast.

TRITICUM, *L.* Wheat, or Wheat-grass.*Br. sp. and v. 6. F. 4.*

T. caninum, *Huds.* Fibrous-rooted Wheat-grass. F. July. P. (*Elymus*, *L.*)

T. repens, *L.* Couch-grass. F. June, Aug. P. H. 408, B. 376.

Both common by the sides of fields, and in waste places.

T. junceum, *L.* Rushy Sea Wheat-grass. H. 408, B. 376.—F. June, July. P.

Sands of Barrie, and other parts of the coast, frequent.

T. cristatum, *Schreb.* Crested Wheat-grass. H. 408, B. 376.—F. July. P.

“On steep banks and rocks by the sea-side between Arbroath and Montrose,” *Mr G. Don*, who alone has found it.

BRACHYPODIUM, *Beauv.* False Brome-grass.*Br. sp. 2. F. 1.*

B. sylvaticum, *Beauv.* Slender False Brome-grass. H. 409, B. 375.—F. July, Sept. P. (*Festuca*, *Sm.* *Bromus*, *Poll.*)

Shady places, Will's Braes, &c.

Near Usan, *Mr A. Kerr.* Dysart, Redhead, and inland, as at the Burn and Edzell Castle, *Mr A. Croall.*

LOLIUM, L. Darnel.

Br. sp. and v. 6. F. 3.

L. perenne, L. Perennial Darnel, or Rye-grass. H. 409, B. 376.—F. June, Aug. P.

Waysides frequent, from the coast to the mountain-valleys.

L. multiflorum, Lam. Annual Many-flowered Rye-grass. H. 409, B. 377.—F. June. A.

Fields occasionally.

L. temulentum, L. Bearded Darnel. H. 410, B. 377.—F. July, Aug. A.

Found by *Mr G. Don*.

ORD. XCIX.—CYPERACEÆ.

Gen. Br. 10. F. 7. Sp. and v. Br. (Hook. 98. Bab. 108.) F. 64.

(*Cladium Mariscus*, *Br. was* one of our county plants, being found at Restenet by *Mr G. Don*, but now lost by draining operations.)

RHYNCHOSPORA, Vahl. Beak-rush.

Br. sp. 2. F. 1.

R. alba, Vahl. White Beak-rush. H. 414, B. 328.—F. June, Aug. P. (*Schænus alba*, L.)

Near Rescobie, *Prof. Balfour*.

SCIRPUS, L. Club-rush.

Br. sp. and v. 16. F. 5.

S. lacustris, L. Lake Club-rush, or Bull-rush. H. 415, B. 330.—F. June, Aug.

Lakes of Forfar, Rescobie, Balgavies, &c., abundant.

β. glaucus (*S. glaucus*, E. Bot. *S. Tabernæmontani*, Gmel.) is found with the other at Forfar and Balgavies, and by *Mr Croall* on the west side of the Montrose Basin, and

Mr Bousie a little below the Bridge of Dun on the banks of the South Esk.

S. setaceus, L. Bristle-stalked Club-rush. H. 415, B. 332. —F. July, Aug. P. (*Isolepis setacea*, Br.)

In wet and marshy places, frequent.

S. maritimus, L. Salt-marsh Club-rush. H. 416, B. 329.—F. July. P.

Invergowrie Bay, and other places along the coast. Montrose Basin, *Messrs Kerr, Croall*, and *Bousie*.

S. sylvaticus, L. Wood Club-rush. H. 416, B. 330.—F. July. P.

On both sides of the South Esk, between Brechin and Montrose, frequent, *Mr A. Bousie*. Banks of the North Esk, a furlong or two below Marten's Den, and at the bridge on Vinney Water, *Mr A. Croall*.

BLYSMUS, Panz. Blysmus.

Br. sp. 2. F. 1.

B. rufus, Link. Narrow-leaved Blysmus. H. 417, B. 333.—F. July. P. (*Schenus*, E. Bot. *Scirpus*, Schrad.)

Banks of Montrose Basin, *Messrs Croall* and *Laing*. West from Ferryden, &c. *Messrs Kerr* and *Croall*.

ELEOCHARIS, Br. Spike-rush.

Br. sp. 7. F. 5.

E. palustris, Br. Creeping Spike-rush. H. 417, B. 329. F. June, July. P. (*Scirpus*, L.)

Common in marshy places.

E. multicaulis, Sm. Many-stalked Spike-rush. H. 417, B. 329.—F. July. P. (*Scirpus*, Sm. *S. palustris*, β . Linn. Lapp. ed. 2d.)

Banks of Forfar Lake, &c.

E. pauciflora, Link. Chocolate-headed Spike-rush. H.

418, B. 331.—F. June, Aug. P. (*Scirpus pauciflorus*, Lightf. *S. Bæothryon*, Ehrh.)

Moist ground on the Sands of Barrie, particularly abundant in a spot immediately to the west of the old fir wood. Hare Craigs, west end.

Moors of Guthrie, *Mr A. Croall*. Rescobie, Balgavies, and Monroman Moor, *Mr J. Cruickshank*. Near the Kirkton of Clova, *Mr H. C. Watson*.

E. cæspitosa, Link. Scaly-stalked Spike-rush. H. 418, B. 331.—F. June, Aug. P. (*Scirpus cæspitosus*, L., Bab.)

Abundant on moory places on the hills and mountains, known by the name of “*deer’s-hair*.”

E. fluitans, Hook. Floating Spike-rush. H. 419, B. 332.—F. June, July. P. (*Scirpus fluitans*, L. *Isolepis*, Br. *Eleogiton*, Link.)

Found in the county by *Mr G. Don*, likely in some of the lakes.

ERIOPHORUM, L. Cotton-grass.

Br. sp. and v. 8. F. 6.

E. alpinum, L. Alpine Cotton-grass. H. 419, B. 333.—F. June. P.

This can only be recorded as a former native of the county, the Moss of Restenet, where it was originally discovered by *Mr Brown* and *Mr G. Don*, being long since drained.

E. vaginatum, L. Hare’s-tail Cotton-Grass. H. 419, B. 333.—F. May, June. P.

Bogs and moist heaths, abundant on the hills and mountains to their summits.

E. polystachion, L. Broad-leaved Cotton-grass. H. 240, B. 333.—F. May, June. P. (*E. polystachion*, γ . *elatus*, Koch., Bab.)

Frequent in bogs.

E. pubescens, Sm. Downy-stalked Cotton-grass. H. 420, B. 334.—F. May, June. P.

In a marsh a short distance below the foot of Glen Dole, Clova, *Mr A. Croall*.

E. angustifolium, Roth. Common Cotton-grass. H. 420, B. 333. (*E. polystachion*, L., Bab.)

More common than the last, and in boggy places, ascending to nearly 3000 feet.

E. gracile, Roth? Slender Mountain Cotton-grass. H. 420, B. 334.—F. July. P.

Clova mountains, *Mr G. Don*. It is doubtful whether Don's plant is identical with that of Roth, or merely a slender state of *E. angustifolium*, common on the mountains.

CAREX, L. Carex, or Sedge.

Br. sp. and v. (*Hook. 65. Bab. 72.*) F. 48.

C. dioica, L. Creeping Separate-headed Carex. H. 421, B. 334. F. May, June. P.

Dun's Dish, *Mr J. Cruickshank*. In a springy spot at the foot of Marten's Den, north side, margin of the stream, *Mr Croall*.

C. pulicaris, L. Flea Carex. H. 421, B. 335.—F. May, June. P.

In wet places, from the coast, as at Hare Craigs, to shelving rocks high on the mountains. A tall slender form occurs in Baldovan Woods.

C. rupestris, All. Rock Carex. H. 421, B. 335.—F. July, Aug. P. (*C. petræa*, Wahl. *C. attenuata*, Br.)

Glen Dole, Clova, abundant, Aug. 1846, the specimens unusually large, *Prof. Balfour*.

C. pauciflora, Lightf. Few-flowered Carex. H. 422, B. 335.—F. June, July. P. (*C. leucoglochis*, Ehrh.)

Clova mountains, sparingly, *Mr G. Don*.

C. incurva, Lightf. Curved Carex. H. 422, B. 335.—F. May, June. P. (*C. juncifolia*, All.)

Sea-shore, in several places between Monifieth and Budon Burn.

Near Usan, *Messrs Kerr and Croall*.

C. stellulata, Good. Little Prickly Carex. H. 422, B. 338.—F. May, June. P.

Common in wet and marshy places from the coast to the mountains.

C. ovalis, Good. Oval-spiked Carex. H. 422, B. 339.—F. July, Aug. P.

Wayside near Bradooney, and near the Kirkton, Glen Clova, and near the *shieling* of Canlochen, at the foot of Monega.

Rescobie, and ditch on the farm of Cothills, Guthrie, *Mr A. Croall*.

C. curta, Good. White Carex. H. 423, B. 339.—F. June, Aug. P.

Marshy banks of Rescobie Lake, and among the Clova mountains, as on the Bassies, and above the Falls of Feula, from six inches to a foot high, the stems usually reclining. A small state frequent on the mountains is perhaps *β. alpicola*, Wahl.

C. intermedia, Good. Soft Brown Carex. H. 424, B. 336.—F. June, Augt. P.

Marshy banks of the Lakes of Rescobie and Balgavies, plentiful.

Marshes near Montrose, and foot of Marten's Den, *Mr A. Croall*. Banks of the North Esk near Logie, *Mr G. M'Farlane*.

C. arenaria, L. Sea Carex. H. 424, B. 336.—F. June, July. P.

Abundant on the coast on sandy downs. Its creeping roots (or perhaps underground stems) often extend in straight lines for three or four yards, throwing up flower-stems at intervals of a few inches, and frequently intersecting one another in such a manner as to form a net-work admirably adapted, with the intermixture of other plants, for binding the loose sand.

C. divisa, Huds. Bracteated Marsh Carex. H. 424, B. 335.—F. May, June. P.

Wayside between Montrose and the North Water Bridge,
Mr G. Don.

C. vulpina, L. Great Carex. H. 424, B. 336.—F. June. P. (*C. nemorosa*, Willd.)

In a small den, banks of the Tay, at Will's Braes, now destroyed.

Sea shore a little to the westward of Usan, and in a ditch near Rossie cottages, on the banks of Montrose Basin, *Mr A. Croall.*

C. teretiuseula, Good. Lesser Panicked Carex. H. 425, B. 337.—F. June. P.

C. paniculata, L. Great Panicked Carex. H. 425, B. 337.—F. June, July. P.

Both plentiful on the marshy banks of Rescobie Lake; and the latter, *Mr J. Laing*, found in a bog near Kinnaird.

C. VahlIIi, Schkh. Close-headed Alpine Carex. H. 425, B. 339.—F. Augt. P. (*C. alpina* Vahl.)

Rare. Glen Phee, Clova, *Prof. Balfour.*

C. atrata, L. Black Carex. H. 426, B. 340.—F. June, July. P.

Rocks of Glen Dole and Canlochen, abundant. Spikes three to five, more or less approximate.

C. Goodenovii, Gay. Goodenow's Carex. H. 426, B. 340.—F. May, July. P. (*C. caespitosa*, Hook., Sm., Koch., &c.—not L.)

In marshy places from the coast to the summits of the mountains. In specimens gathered from drains on the Sands of Barrie, many had no sterile spike, but the upper half of the highest, the third or fourth, was furnished with sterile flowers. In one specimen the lower spike was supported upon a stalk five inches long, with a bract the size of an ordinary leaf.

C. rigida, Good. Rigid Carex. H. 426, B. 341.—F. June, July. P. (*C. caespitosa*, β . Hook. Scot. *C. saxatilis*, Schk.)

On and near the summits of the mountains, rarely descending below 2000 feet.

C. aquatilis, Wahl. Straight-leaved Water Carex. H. 427, B. 341.—F. July, Augt. P. (*C. rigida*, β . Hook. Br. Fl. ed. 2d.)

Wet and marshy places on the table-lands of the Clova and Canlochen mountains, abundant; as banks of Feula Burn, foot of the Little Culrannoch, bog at the head of Glen Phee, banks of the Glashie Burn, and bog at the head of Canlochen, where it was first detected, with *C. rariflora*, by *H. C. Watson, Esq.*

β . *elatior*, Bab. B. 341. Banks of the South Esk, about half-way up Glen Clova, and at a short distance below the Inn. Two to three feet high.

C. acuta, L. Slender-spiked Carex. H. 427, B. 341.—F. June, Augt. P. (*C. gracilis*, Curt.)

Near Tealing, on the old Glammis road, rare.

Marten's Den, and ditch a little to the south of the old church of Logie, *Mr A. Croall.*

C. cæspitosa, L. Tufted Bog Carex. H. 427, B. 341.—F. June, Augt. P. (*C. stricta*, Good.)

Plentiful in marshy ground on the summits of the Clova and Canlochen mountains.

C. saxatilis, L. Russet Carex. H. 428, B. 342.—F. June, July. P. (*C. pulla*, Good.)

Clova, *Prof. Balfour.*

C. flava, L. Yellow Carex. H. 428, B. 342.—F. May, July. P.

Wet places common, varying from one inch in height on the Sands of Barrie, to a foot on wet shelving rocks among the Clova mountains. A specimen picked on the Bassies, Clova, one foot high, had four fertile spikes, the three upper approximate, the lower fully two inches distant, with a long peduncle half included in its sheath, and the foliaceous bract overtopping the other spikes. The sterile one had an acute apex, and was almost sessile. On the banks of Rescobie Lake it occurs sixteen inches high, with the fertile spikes

from half an inch to three inches distant from each other, and the sterile spike very distinctly stalked.

C. Œderi, Ehrh. Œderian Carex. H. 428, B. 342.—F. May, June. P. (*C. flava* β . Hook. Scot. *C. flava*, β . *Œderi*, Bab.)

In wet places, but often confounded with the last very variable species, from which it is scarcely distinct.

Rescobie and Balgavies, and marsh S.E. from Dun's Dish, *Mr A. Croall*. Moor of Edzell, *Mr G. M'Farlane*.

C. fulva, Good. Tawny Carex. H. 429, B. 343.—F. June. P.

Dun's Dish, and at the Burn, *Mr J. Cruickshank*. Guthrie Moors, &c., *Mr A. Croall*.

C. pallescens, L. Pale Carex. H. 429, B. 343.—F. June, July. P.

Not unfrequent in wet places in the Highland valleys. Pools sea-shore, near Usan, *Mr A. Croall*.

C. distans, L. Loose Carex. H. 430, B. 343.—F. May, June. P.

Sea-shore, Dysart, *Mr John Laing*. To the west of Usan, *Mr A. Croall*. Between Montrose and Usan, *Mr J. Cruickshank*. Montrose Basin, *Mr G. M'Farlane*.

C. binervis, Sm. Green-ribbed Carex. H. 430, B. 344.—F. June, July. P.

Moory ground frequent. Abundant on the Sidlaw Hills and Clova mountains.

Rossie Moor, Edzell, and Caterthun, *Mr A. Croall*.

C. panicea, L. Pink-leaved Carex. H. 430, B. 344.—F. June. P.

Marshy places frequent.

C. phæostachya, Sm. Short Brown-spiked Carex. H. 430, B. 344.—F. July. P. (*C. vaginata*, Tausch., Bab. *C. salina*, Don. *C. Mielichoferi*, Sm. *C. Scotica*, Spreng. *C. panicea*, β . Wahl.)

About the Falls, head of Glen Phee, and in the ravine of the White Water, sparingly.

C. depauperata, Good. Starved Wood Carex. H. 431, B. 345.—F. June. P.

Near Forfar, *Hook. Br. Fl.*

C. capillaris, L. Dwarf Capillary Carex. H. 431, B. 345.—F. June, July. P.

Growing in tufts, from three to nine inches high, in marshy places and on wet rocks in Glen Dole and Glen Canlochen, plentiful.

C. limosa, L. Mud Carex. H. 431, B. 345.—F. June, P.

Marsh between the Lakes of Rescobie and Balgavies, *Dr William Reid*.

“Dr Reid is the son of Captain Reid, shipowner, Montrose. From his mother he seems to have inherited a strong predilection for the beauties of Nature, to the study of which he devoted his ardent and enthusiastic mind with a success seldom surpassed. He studied for the medical profession, and after obtaining his degrees, engaged to accompany some whalers on an expedition to the South Sea Islands. After spending three years among these island gems, he returned to his native home. But his eager mind soon yearned to enjoy again the glories of the sunny south in that paradise of Flora; and after some difficulty, he obtained permission from the Spanish Government to settle in one of the Spice Islands, to which he has returned, to seek fortune and fame, and it is hoped his unwearied perseverance will meet with an adequate reward.” *Mr A. Croall*.

C. rariflora, Sm. Loose-flowered Alpine Carex. H. 431, B. 345.—F. July. P. (*C. limosa*, γ . Wahl.)

Bog at the head of Glen Dole, plentiful. The exact station is a little to the west of a rock which appears conspicuous from the *shieling* of Lunkar, and about half-way between the rock at the head of the ravine of the White Water and the “sky-riggin,” or boundary of vision towards the hill top to S.W., the *shieling* bearing E.N.E. This is the station where it was originally discovered, and few botanists visiting the district care for coming away without a sample of it from that spot where so often it has been eagerly sought for by many an ardent lover of Flora. Economising of

time being indispensable in these mountain rambles, it is desirable to have a definite direction to any particular locality, and if the above is adhered to, no one can fail to find this station.

Bog on the south-east side of the Little Culrannoch, near to where the Culrannoch and Feula Burns join, plentiful, and associated with *C. aquatilis*. Bog at the head of Canlochen, between that and Glen Cállater, abundant.

C. sylvatica, Huds. Pendulous Wood Carex. H. 432, B. 346.—F. May, June. P.

Wood near Forfar, *Dr W. Reid*.

C. recurva, Huds. Glaucous Heath Carex. H. 433, B. 348.—F. June. P. (*C. glauca*, Scop., Bab.)

From the coast to the mountains, frequent, and very variable in size.

β . (*C. Micheliana*, Sm.) and γ . (*C. stictocarpa*, Sm.) were found on the Clova mountains by *Mr G. Lon*, but are considered by some scarcely distinct even as varieties.

C. præcox, Jacq. Vernal Carex. H. 433, B. 347.—F. April, May. P.

Frequent on dry banks.

C. pilulifera, L. Round-headed Carex. H. 433, B. 347.—F. May, June. P. (*C. montana*, L.)

Old wall Baldovan Woods, and in various places on the Sidlaw Hills. Rocks near Craig Wharral and on the Bassies, Clova.

Moors of Dun, Craigo, &c., *Mr A. Croall*.

C. filiformis, L. Slender-leaved Carex. H. 434, B. 348.—F. May, June. P.

Marshy banks of Rescobie Lake, not common; first discovered there by *Prof. Balfour*. Fertile spikes one to three, though generally two.

C. hirta, L. Hairy Carex. H. 434, B. 348.—F. May, June. P.

Banks of the North Esk and Balgavies Lake, *Mr A. Croall*.

C. ampullacea, Good. Slender-beaked Bottle Carex. H. 434, B. 349.—F. June, July. P.

Marshes and by sides of streams, plentiful. Rescobie, Sidlaws, Clova, &c.

C. hordeiformis, Wahl. Barley Carex. H. 435, B. 348.—F. June. P. (*C. secalina*, Sm., not Willd.)

“Small valley about three miles west of Panmure,” *Mr T. Drummond*.

A day in June, 1846, was entirely devoted to searching for the locality of this rare plant, without success. Every little hollow, nook, and crannie, in the direction indicated, was carefully examined, enquiries made about such a spot at many residents of the district, and the Den of Pitairlie explored from one end to the other, but no trace of the Barley Carex met with. Some future search may prove more fortunate, if, in these days of alteration and improvement, the station may not be destroyed.

C. paludosa, Good. Lesser Common Carex. H. 435. B. 349.—F. May, June. P. (*C. acuta*, Curt.)

Marshy places, frequent.

C. riparia, Curt. Great Common Carex. H. 485, B. 349.—F. April, May. P. (*C. acuta*, Huds.)

Logie, near Montrose, *Mr G. M'Farlane*. Lakes of Rescobie and Balgavies, *Mr A. Croall*.

(*C. remota*, *laevigata*, *pendula*, *sylvatica*, and *pallescens*, are mentioned being found in fir-woods near Forfar, by *M G. Don*.)

CLASS III.—ACOTYLEDONES, CELLULAR, OR
CRYPTOGAMIC PLANTS.

ORD. I.—FILICES.

SUBORD. I.—POLYPODIACEÆ. TRUE FERNS.

Gen. Br. 16. F. 12. Sp. and v. Br. 49. F. 29.

POLYPODIUM, L. Polypody.

Br. sp. and v. 6. F. 5.

P. vulgare, L. Common Polypody. H. 437, B. 383, N. 20.

Common on old walls, in woods, rocky dens, &c. very variable in size. The sori, though generally confined to the upper part of the frond, are frequently dispersed over the whole of the pinnæ.

P. Phegopteris, L. Pale Mountain Polypody. H. 437, B. 384, N. 24.

Near waterfalls, sides of streams, rocky places, and by waysides, Clova and Canlochen, &c. plentiful. The fronds vary from two to ten or twelve inches in length, usually six or seven inches.

P. Dryopteris, L. Tender Three-branched Polypody. H. 437, B. 384, N. 26.

In woods and among rocks and debris on the Sidlaw Hills and Clova mountains abundant. Panmure, *Mr J. Cruickshank*. Guthrie Woods, *Mr A. Croall*.

WOODSIA, Br. Woodsia.

Br. Sp. and v. 3.? F. 2.?

W. Ilvensis, Br. Oblong Woodsia. H. 437, B. 384, N. 29. (*Achrostichum*, L. &c.)

On the rocks near the stream which runs into Glen Phee on the west side, *Prof. Balfour*.

W. hyperborea, Br. Round-leaved Woodsia. H. 437, B. 384, N. 29. (*Polypodium hyperboreum*, Sw.)

In small quantity above the station of *Oxytropis campestris*, Bradooney, Clova, 1831, *Mr Brand*.

ASPIDIUM, Sw. Shield-fern.

Br. sp. and v. 14. *F.* 10.

A. Lonchitis, Sw. Rough Alpine Shield-Fern. H. 438, B. 387, N. 43. (*Polystichum*, Roth., Bab., *Polypodium*, L.)

Shady clefts of rocks plentiful in Glen Dole, on Carlowie, and near Loch Brandy, &c., Clova. Canlochen Glen abundant. The fronds vary from two inches to two feet in height.

A. lobatum, Sw. Close-leaved Prickly Shield-fern. H. 438, B. 386, N. 37. (*Polystichum*, Roth., Bab.)

Not unfrequent, with var. β . *lonchitidoides*, Hook., in shady dens, as those of Airlie, Glamis, Foulis, Pitairlie, &c.

A. Oreopteris, Sw. Heath Shield-fern. H. 439, B. 385, N. 47. (*Lastræa*, Presl., Bab.)

Abundant on the Clova mountains, and the Sidlaw Hills, but in finest condition in lower woods, as those of Baldovan.

A. Thelypteris, Sw. Marsh Shield-fern. H. 439, B. 385, N. 45. (*Lastræa*, Presl., Bab.)

Rescobie and Restenet, in marshes, not common.

A. Filix-mas, Sw. Blunt Shield-fern. H. 440, B. 385, N. 50. (*Lastræa*, Presl., Bab.)

Plentiful throughout the county, especially in woods and shady places, very variable in size and breadth of frond, as well as amount of fructification, some fronds having their inferior surface entirely covered with sori, while others have only a few scattered on the upper pinnæ.

A. spinulosum, dilatatum, and dumetorum of Smith, (Hook.

440) are referred by Babington, 386, and Newman, 58, to *Lastræa dilatata*, Presl., and are, with many intermediate forms, plentiful throughout the county, especially in woods and in rocky places on the mountains. The var. *recurvum*, Bree., has been found in the woods of Baldovan, Kinnordy, &c., but is not common.

CYSTOPTERIS, Bernh. Bladder-fern.

Br. sp. and v. 4. F. 2.

C. dentata, Hook. Toothed Bladder-fern. H. 441, B. 387, N. 32. (*Cystea dentata*, Sm. *C. fragilis*, Bernh., Bab., Newm.)

C. fragilis, Bernh. Brittle Bladder-fern. H. 441, B. 387, N. 33.

The former of these is frequent among the mountains, as Ben Red, Bassies, Craig Maid, Canlochen, &c., with fronds from two to eight inches high; the latter is abundant in shady dens, as those of Airlie, Glammis, Bonnington, Fullerton, Foulis, Pitairlie, &c., from three inches to upwards of a foot high. Both love moisture and shade, and thrive best in the crevices of wet rocks, yet I have found the *fragilis* associated with *Asplenium Trichomanes* among loose stones on the summits of the Sidlaw Hills. The extreme forms of these beautiful and delicate ferns appear distinct enough to the eye, but fronds with pinnæ and pinnules of all intermediate shapes occur, so that one feels it often difficult which name to apply.

ASPENIUM, L. Spleenwort.

Br. sp. and v. 11. F. 7.

A. septentrionale, Hull. Forked Spleenwort. H. 442, B. 389, N. 73.

“On rocks,” *Mr G. Don*. I am not aware in what part of the county these rocks are situated, or whether any other botanist has found them. Arthur’s Seat, near Edinburgh, and Stenton Rock, near Dunkeld, are perhaps the only Scottish stations known at present.

A. Trichomanes, L. Common Spleenwort. H. 442, B. 389, N. 80.

In shady and rocky places from the coast to the mountains, frequent. It is abundant in mostly all our dens.

A. viride, Huds. Green Spleenwort. H. 442, B. 389, N. 78.

Crevices of moist rocks, plentiful on most of the Clova and Canlochen mountains, in dense tufts, the fronds from two to ten inches in height.

A. marinum, L. Sea Spleenwort. H. 442, B. 389, N. 75.

Caves and crevices of rocks, sea-shore about Auchmithie. Redhead, *Messrs Croall* and *Kerr*. Dysart, *Mr A. Kerr*.

A. Ruta-muraria, L. Wall-rue Spleenwort. H. 442, B. 388, N. 70.

Not unfrequent on rocks and old buildings, as Hare Craigs, Lundie Craigs, Broughty Castle, old Steeple Dundee, &c.

A. Adiantum-nigrum, L. Black-stalked Spleenwort. H. 443, B. 388, N. 68.

Frequent in rocky places; fronds from an inch to a foot high, sometimes forked, which is also the case with *Cystopteris*, and other ferns.

A. Filix-femina, Bernh. Lady Fern. H. 443, B. 388. N. 62. (*Athyrium*, Roth., Bab., Newm.)

This very graceful species adorns many of our woods, banks of streams, shady dens, and rocky places among the Sidlaw Hills and Clova mountains. Scott most truthfully says,—

“ Where the copse-wood is the greenest,
Where the fountain glistens sheenest,
Where the morning dew lies longest,
There the lady fern grows strongest.”

SCOLOPENDRIUM, Sm. Hart's-tongue.

Br. sp. 1. F. 1.

S. vulgare, Sym. Common Hart's-tongue. H. 443, B.

389, N. 82. (*Asplenium Scolopendrium*, L. *Scolopendrium officinarum*, Sw.)

Abundant in the caves and among the maritime rocks of Auchmithie.

Den of Fullerton, *Messrs J. Laing*, and *M'Farlane*. Den of Airlie, *Rev. J. S. Barty*.

In the Auchmithie station, the fronds vary exceedingly in their forms. In the normal type they are linear or linear-lanceolate, from six inches to two feet long, entire, acute at the apex, and somewhat narrowed towards the cordate base. The outline is usually wavy, and frequently very irregular, the veins delicate dichotomous and anastomosing. In some specimens the midrib is branched upwards, dividing the frond into two, three, or four parts. The midrib commonly disappears below the apex, but occasionally projects beyond it, and then the apex is bifid with a blunt outline, indeed almost cordate. When the midrib does not extend beyond the naked portion of the rachis, the frond is reniform; and sometimes there are two reniform fronds from one rachis, and in one specimen a reniform and lanceolate frond are on the same rachis. All bear fructification, but the normal form in greatest regularity and abundance.

PTERIS, L. Brake.

Br. sp. 1. F. 1.

P. aquilina, L. Common, or Eagle Brake. H. 444, B. 390, N. 13.

The *Bracken* is abundantly distributed over the whole county.

CRYPTOGAMMA, Br. Rock Brake.

Br. sp. 1. F. 1.

C. crispa, Br. Curled Rock Brake. H. 444, B. 383, N. 17. (*Allosorus crispus*, Bernh., Bab., Newm. *Pteris crispa*, L.?)

Among debris and in rocky hollows near the summit of the White Hill plentiful, and on others of the Sidlaw range.

Ring of Catterthun, *Messrs Croall* and *M'Farlane*. Clova mountains, *Mr G. Don*.

BLECHNUM, *L.* Hard-fern.

Br. sp. 1. F. 1.

B. boreale, Sw. Northern Hard-fern. H. 444, B. 390, N. 11. (*Lomaria Spicant*, Desv., Newm.)

Plentiful in the woods, and ascending to nearly the summits of the Clova mountains, where its fronds become much smaller.

HYMENOPHYLLUM, Sm. Filmy-fern.

Br. sp. 2. F. 1.

H. Wilsoni, Hook. Scottish Filmy-fern, or Wilson's Filmy-fern. H. 446, B. 391, N. 94.

On mossy rocks Reeky Linn, and near a waterfall about half-way up the stream a little to the west of Whitehaugh, on the Bassies, Clova, not plentiful.

SUB-ORD. II.—OSMUNDACEÆ.

Gen. Br. 3. F. 2. Sp. Br. 3. F. 2.

BOTRYCHIUM, Sw. Moonwort.

Br. sp. 1. F. 1.

B. Lunaria, Sw. Common Moonwort. H. 447, B. 391 N. 100. (*Osmunda*, L.)

Sands of Barrie, frequent. Banks of Forfar Lake. Summit of Craig Owl, Sidlaw Hills. Rocks of Clova and Canlochen.

Old pastures Kinnaird, June 1844, *Mr A. Bousie*. In one of his specimens there are two stalks from the same root, and in another, eight inches high, several capsules on the upper margin of the lower pinnæ. The pinnæ are generally from three to five pairs. Old pastures Kinnordy, *Mr James Donald*. Montrose Links, *Messrs M'Farlane* and *Kerr*. Old quarries on the Hill of Stracathro, abundant, some of the specimens a foot high, *Mr A. Kerr*. Near Usan, and sandy shore between Arbroath and Carnoustie, *Mr A. Croall*.

OPHIOGLOSSUM, L. Adder's-Tongue.

Br. Sp. 1. F. 1.

O. vulgatum, L. Common Adder's-Tongue. H. 447, B. 391, N. 103.

Sands of Barrie, *Mr G. Don*. Not to my knowledge re-found, but may yet be detected in some of the marshy spots that abound on these sands.

SUB-ORD. III.—LYCOPODIACEÆ.

Gen. Br. 1. F. 1. Sp. Br. 6. F. 6.

LYCPODIUM, L. Club-moss.

Br. sp. 6. F. 6.

L. clavatum, L. Common Club-moss. H. 448, B. 393, N. (*Phytologist*, I. 1.)

Our most common species, abundant on the Sidlaw Hills, and ascending to upwards of 2000 feet on the Clova mountains.

It is known here as "*Tod's-tail*," and frequently manufactured into door-basses. Moors of Rossie, Dun, &c., *Mr A. Croall*.

L. annotinum, L. Interrupted Club-moss. H. 448, B. 393, N. (*Phyt.*, I. 17.)

Glen Dole, Clova, bearing fruit abundantly among the rocks of Craig Maid.* Loch Esk and Loch Brandy, *Mr A. Croall*.

L. inundatum, L. Marsh Club-moss. H. 448, B. 393, N. (*Phyt.*, I. 49.)

"Marsh by the side of a burn, on the south side of the old Forfar road, in Ardovie Wood, Monroman Moor," *Mr Reid*, Farnell.

L. selaginoides, L. Lesser Alpine Club-moss. H. 448, B. 393, N. (*Phyt.*, I. 65.)

Moist places on the Sands of Barrie and near Monifieth. Den of Pitairlie. Sidlaw Hills in various places. Not unfrequent on marshy banks and among wet rocks on most of the Clova and Canlochen mountains.

Banks of the Esk at the Burn, *Messrs G. M'Farlane and Croall*.

L. alpinum, L. Savin-leaved Club-moss. H. 448, B. 393, N. (*Phyt.*, I. 33.)

Abundant on the Sidlaw Hills and on the higher mountains to their summits.

L. Selago, L. Fir Club-moss. H. 448, B. 393, N. (*Phyt.*, I. 81.)

Plentiful on the Sidlaw Hills and Clova mountains to their summits, and in several parts of the low grounds, as Restenet moss.

SUB-ORD. IV.—MARSILEACEÆ.

Gen. Br. 2. F. 2. Sp. Br. 3? F. 2.

ISOETES, L. Quill-wort.

Br. sp. 2? F. 1.

I. lacustris, L. Quill-wort. H. 449, B. 392, N. (*Phyt.*, I. 153.)

Abundant in the small loch at the south-west corner of Loch Brandy, Clova.

Loch Feithy between Forfar and Arbroath, *Mr G. Don*. Near Kettins, *Mr James Gibb*.

PILULARIA, L. Pill-wort.

Br. sp. 1. F. 1.

P. globulifera, L. Pill-wort. H. 449, B. 392, N. (*Phyt.* I. 209.)

In marshes, *Mr G. Don*, but no station indicated, and I have only seen it in shallow pools on the moor of Alyth on the confines of the adjacent county, Perth.

Parish of Kettins, *Mr James Gibb*. Marsh, Monroman Moor, on the north side of the Forfar road, *Mr J. Cruickshank*.

SUB-ORD. V.—EQUISETACEÆ.

Gen. Br. 1. F. 1. Sp. and v. Br. 11. F. 10.

EQUISETUM, L. Horse-tail.

E. fluviatile, Huds. Great Water Horse-tail. H. 450, B. 379, N. (Phyt. I. 721. *E. Telmateia*, Ehrh.)

Ditch, north side of Montrose Basin, *Mr A. Craall*. Banks of the South Esk, *Mr J. Cruickshank*.

E. Drummondii. Drummond's Horse-tail. H. 450, B. 380, N. (Phyt. I. 697.) (*E. umbrosum*, Willd., Newman. Hooker doubts its identity with the plant so named by Willdenow and Linnæus.)

This beautiful species is one of the many interesting discoveries of the acute and interprising *Mr Thomas Drummond*, who first met with it on the banks of the Esk and Isla, and where it has subsequently been gathered by *Prof. Balfour*, &c. In Canlochen Glen, a little distance above the shieling, it was picked by *Prof. Balfour*, and I there found it in July 1846, but of course without catkins as these appear in April. *E. arvense* and *sylvaticum* were associated with it in this locality, from both of which it was evidently distinct at a glance. It has been also found in woods near Forfar by *Dr Greville*.

Sir W. J. Hooker named the plant in compliment to Mr Drummond, and no Scotchman will care to see such a well-merited honour thrown into the *shade*, especially as there is a *shade* of doubt about the continental plant being the same as ours.

Mr Drummond was perhaps the most enthusiastic practical botanist that Britain has produced, and with this county especially his name will ever be honourably associated. In the little Elysian botanic garden of "Dove-hill," at Forfar, he was successor to Mr G. Don, and, while there, published his *Musci Scotici*, a volume of specimens probably unequalled by any similar publication in this country. His researches in his native county were attended with the greatest success, especially among the cryptogamic tribes, and one beautiful moss, *Orthotrichum Drummondii*, has been dedicated to him as a testimony of the value of his labours in that department. The frequent record of his name in the pages of the *British Flora*, in connection with some of our rarest plants, affords ample proof of his zeal, and the valuable results of its appli-

cation to his favourite pursuit. The mountains, the inland woods, lakes, rivers, dens, and the sea-shore, were alike his field of exploration, and, with unwearied assiduity, he sought out and made known their floral treasures. He was an early riser, and, when botanizing about Auchmithie, he was frequently to be seen, scrutinizing with curious eye the caves and rocks of that picturesque shore, before the sun's earliest beam was mirrored in the German Ocean; and no doubt these early perambulations, when the mind, fresh from the night's repose, is open to all the sweet influences of Nature, tended in no small degree to nurse that enthusiasm which afterwards led him to investigate distant shores. The mountains were peculiarly his delight, and he frequently accompanied parties to those of Clova, whose numerous and beautiful alpine rarities richly rewarded their exertions.

Much as he did, however, to promote a knowledge of the vegetation of his native country, his fame rests more upon his labours in the "far west." He was engaged as assistant naturalist to Dr Richardson, in Franklin's Second Overland North American Expedition, and a very interesting account of his discoveries in botany and zoology, the nature of the country, and his perilous adventures among the Rocky Mountains, and on the Columbia River, is given from his own pen, in Hooker's *Botanical Miscellany*, first series, vol. i. pp. 178 to 219. The following sketch of an encounter with a grisly bear, will give some idea of the danger of his undertaking, and furnish a sample of the graphic style in which he describes such an occurrence:—

"Having crossed the Assinaboyné River, the party halted to breakfast, and I went on before them for a few miles, to procure specimens of a *Jungermannia*, which I had previously observed in a small rivulet on our track. On this occasion I had a narrow escape from the jaws of a grisly bear; for, while passing through a small open glade, intent upon discovering the moss of which I was in search, I was surprised by hearing a sudden rush, and then a harsh growl, just behind me; and, on looking round, I beheld a large bear approaching towards me, and two young ones making off in a contrary direction as fast as possible. My astonishment was great, for I had not calculated on seeing these animals so early in the season, and this was the first I had met with. She halted within two or three yards of me, growling and rearing herself on her hind feet, then suddenly wheeled about,

and went off in the direction the young ones had taken, probably to ascertain whether they were safe. During this momentary absence, I drew from my gun the small shot with which I had been firing at ducks during the morning, and which, I was well aware, would avail me nothing against so large and powerful a creature, and replaced it with ball. The bear, meanwhile, had advanced and retreated two or three times, apparently more furious than ever; halting at each interval within a shorter and shorter distance of me, always raising herself on her hind legs, and growling a horrible defiance, and at length approaching to within the length of my gun from me. Now was my time to fire: but judge of my alarm and mortification when I found that my gun would not go off! The morning had been wet, and the damp had communicated to the powder. My only resource was to plant myself firm and stationary, in the hope of disabling the bear by a blow on her head with the butt end of my gun, when she should throw herself on me to seize me. She had gone and returned ten or a dozen times, her rage apparently increasing with her additional confidence, and I momentarily expected to find myself in her gripe, when the dogs belonging to the brigade made their appearance; but, on beholding the bear, they fled with all possible speed. The horsemen were just behind, but such was the surprise and alarm of the whole party, that though there were several hunters, and at least half-a-dozen guns among them, the bear made her escape unhurt, passing one of the horsemen (whose gun, like mine, missed fire), and apparently intimidated by the number of the party. For the future, I took care to keep my gun in better order, but I found, by future experience, that the best mode of getting rid of the bears when attacked by them, was to rattle my vasculum, or specimen box, when they immediately decamp. This is the animal described by Lewis and Clark in their Travels on the Missouri, and so much dreaded by the Indians. My adventure with the bear did not, however, prevent my accomplishing the collecting of the *Jungermannia*. It is No. 17 of the 'American Mosses.'"

The American Mosses, *Musci Americani*, referred to above, is a collection made during this expedition, and published in two quarto volumes. This valuable work, together with his admirable collections, and what he had previously proved himself capable of accomplishing, induced Sir W. J. Hooker and Dr Graham to make arrangements for sending

him out to investigate the botany and zoology of some parts of the Southern and Western United States of North America; and, accordingly, in 1831, he was fully equipped for the expedition, by the liberality of a large circle of British botanists and naturalists, who felt a deep interest in the success of his enterprise. Their hopes were fully realized by the splendid collections he made in all departments of botany and zoology. These were not, however, made with ease; many a deprivation of comfort had to be experienced, seemingly insurmountable difficulties overcome, and formidable dangers encountered, to accomplish the object he had in view. In his letters we read of many hair-breadth escapes. At one time he narrowly escaped destruction in a small boat, exposed to the fury of the ocean during a tremendous thunder-storm; at another he was on the point of joining a surveying party, all of whom were shortly after murdered by savage Indians. He was attacked by cholera and fever, and at times suffered greatly from hunger and fatigue, as well as the severity of winter frosts, and the broiling heat of summer. Yet, in the last letter save one, which he wrote from Texas to his kind patron, Sir W. J. Hooker, he says:—"But amidst all these difficulties there is one blessing, for which I cannot be too thankful. I enjoy excellent health; and, I can assure you, that it has been tried with such fatigue as would have broken down thousands." Too soon was *he* destined to be broken down by these exertions; for, early in the following year (1835), at Havanna, in Cuba, death put an end to his useful labours, and deprived the botanical world of one of its most ardent votaries. Had he been spared to follow out his intentions to their full extent, the result would have been of vast importance to all lovers of Flora throughout the world; but, as it is, he has earned a deathless fame; for in our gardens he has reared living monuments of surpassing beauty to perpetuate his memory; and so long as the *Equisetum* and *Orthotrichum*, bearing his name, continue to flourish on our native hills, his enthusiastic devotion to the cause of botany, and self-sacrifice in its promotion, will be warmly remembered by his fellow-countrymen.

E. arvense, L. Corn Horse-tail. H. 450, B. 380, N. (Phyt. I. 727.)

Abundant by the sides of fields, and on banks, from the

coast to nearly the head of Canlochen ; ft. ripe unusually in April.

E. sylvaticum, L. Wood Horse-tail. H. 450, B. 380, N. (Phyt. I. 693.)

Abundant throughout the county, loving especially moist woods and the banks of rivers. The catkins appear in May and June, and in July the sterile fronds, full-grown and scattered in myriads through some of the woods, as those of Baldovan, Balkemnock, &c., afford an enchanting spectacle. With the author of the elegant "*History of British Ferns*," one may say,—“ Altogether I could have fancied it a magic scene, created by the fairies for their especial use and pleasure, and sacred to the solemnization of their moon-lit revels. It was a forest in miniature, and a forest of surpassing beauty.”

E. limosum, L. Smooth Naked Horse-tail. H. 450, B. 380, N. (Phyt. I. 689, and at 532 he shows the branched form to be *E. fluviatile*, L.)

Plentiful in pools and lakes, both the forms, branched and simple.

E. palustre, L. Marsh Horse-tail. H. 451, B. 380, N. (Phyt. I. 529.)

Common in marshy places from the coast to the mountain summits, very variable in size, in ramification, and in the number of angles on the stem, and teeth in the sheath. The alpine form (*β. alpinum*, Hook.), is plentiful about the head of Glen Dole, and other parts of Clova, as well as Canlochen. The var. *nudum*, Gibs. (Phyt. 628.), is not unfrequent on the Sands of Barrie, a little to the eastward of Monifieth, where it is simple or sparingly branched, and from two to ten inches high, growing on sand banks. It has also been found on these sands by Dr Greville. The usual form is abundant on the marshy banks of Rescobie Lake.

E. hyemale, L. Rough Horse-tail, or Dutch Rushes. H. 251, B. 380, N. (Phyt. I. 273.)

Margin of the Isla in the Den of Airlie, and near Reeky Linn ; in both localities bearing catkins in April.

E. variegatum, Schleich. Variegated Rough Horse-tail. H. 451, B. 381, N. (Phyt. I. 337.—*E. hyemale*, γ.)

Moist places, sands of Barrie, its procumbent stems from three to ten inches in length, and bearing catkins from April to Sept. It is a beautiful and distinct species, and was first detected as a native of Britain on these sands by *Mr G. Don*.

ORD. II.—MUSCI. MOSSES.

Gen. Br. 45. *F.* 36. *Sp. and v. Br.* 460. *F.* 277.

ANDRÆA, *Ehrh.* Andræa.

Br. sp. and v. 4. *F.* 3.

A. alpina, Hedw. Alpine Andræa. H. 1.

Clova and Canlochen mountains, on wet rocks, frequent. The fructification of this and the other species is abundant in the summer and autumn months.

A. rupestris, Hedw. Rock Andræa. H. 1.

Plentiful near the summits of the Sidlaw Hills, and on the mountains of Clova. Rossie Moor on stones, *Mr A. Bousie*.

A. Rothii, Mohr. Black falcate Andræa. H. 1.

Clova, frequent on rocks, as in Glen Dole, on the Bassies, and Carlowie, near Loch Brandy, &c. Catterthun and Glenesk, *Mr A. Croall*.

PHASCUM, *L.* Earth-moss.

Br. sp. and v. 21. *F.* 7.

P. serratum, Schreb. Serrated Earth-moss. II. 2.

Stobswell, near Dundee. Grounds north from Kinnaird garden, *Messrs Bousie* and *Laing*.

P. alternifolium, Dicks. Alternate-leaved Earth-moss. H. 2.

Near Menzies'-hill, a little above Invergowrie. Near

Kinnaird, where it was first detected in the county by *Messrs Bousie and Laing*.

P. subulatum, L. Awl-leaved Earth-moss. H. 3.

Dry banks frequent.

P. axillare, Dicks. Lateral-fruited Earth-moss. H. 3.

Kinnaird, *Mr A. Bousie*.

P. muticum, Schreb. Common Dwarf Earth-moss. H. 3.

On hedge banks, Stobswell, Dundee. Near Kinnaird, *Mr A. Bousie*.

P. cuspidatum, Schreb. Cuspidate Earth-moss. H. 4.

Fields and banks common.

β. piliferum, Hook.

Rocks on the Hill of Turin.

SPHAGNUM, L. Bog-moss.

Br. sp. and v. 10. *F.* 8.

(The species of this beautiful genus are exceedingly variable, and it is difficult to fix their limits as such. Linnæus supposed that all the forms constituted only one species, Bridel enumerates 16, Hooker 4 with 2 vars., and Wilson 10. Through the kindness of Dr Walker-Arnott, who has studied these plants minutely, I have been enabled to affix the proper names to those species found in the county, and full details of their distinctive characters will be published by Mr Wilson in the "*Manual of British Bryology*.")

S. cymbifolium, Dill. (*S. obtusifolium*, Ehrh. H. 5.) Blunt-leaved Bog-moss.

Common in bogs, and *γ. fluitans*, Hook. in boggy pools.

Dr Arnott observes that this may always be distinguished from its allies by the outer cellules of the ramuli containing *spiral fibres*.

S. compactum, Brid. (*S. obtusifolium*, *β. minus*, Hook.)

Heaths frequent, but rare in ft. Similar in habit to the last, though smaller, and *without spiral fibres*.

S. squarrosus, Pers. Spreading-leaved Bog-moss. H. 5.

Marshy banks of Rescobie Lake plentiful, bearing ft. abundantly.

S. subsecundum, Nees. (Identical with *S. contortum*, Schultz, according to Dr Arnott.)

Rescobie. Its stem is rigid, of a compact texture, and dark colour, covered with *only a single row of pellucid cellules*. The cells in the leaves too are minute.

S. intermedium (of authors—Arnott.)

Our most common species, usually considered as *S. acutifolium*.

On the Sidlaw Hills and Clova mountains it occurs in dense masses, bearing capsules plentifully, sometimes much tinged with red.

S. fimbriatum, Wils. MSS. (The true *S. acutifolium* of Ehrhart.) Slender Bog-moss. H. 5.

Rescobie plentiful, rare in ft. It is probably not uncommon, but may have been counfounded with some of the other species. The leaves on the stem are without any membrane or cellules between the net-work, so that the open ends of the latter projecting present a fimbriated appearance. It is the *S. acutifolium* of Drummond's *Musci Scotici*.

S. cuspidatum, Ehrh. Long-leaved Slender Bog-moss. H. 5.

Bogs common. Sparingly in ft. in a peat-bog east side of the White Hill, Sidlaw. The margins of the leaves in this species are undulated and slightly recurved, and of a whitish colour, as if a nerve or vein had run along it.

ÆDIPODIUM, *Schaegr.* Club-stalked Moss.

Br. sp. 1. F. 1.

Æ. *Griffithianum*, Sch. Griffithian Club-stalked Moss. H. 6.

Craig Mellon, and mountains bounding Glen Dole, Clova, ft. rare.

GLYPHOCARPA, *Wils.* Glyphocarpa.*Br. sp. 1. F. 1.**G. cernua*, *Wils. MSS.* Drooping Glyphocarpa.

On the mountain between the Dole and White Water, a little above their junction, and facing the glen, Sept. 1840, *Mr A. Croall*. This beautiful little moss was found by Mr Croall scattered over the shoulder of the mountain where the heath and grass had been burned in the spring, its stems spreading in a radiated manner, and together with the fruit gracefully drooping. It is an interesting addition to our county list.

GYMNOSTOMUM, *Hedw.* Beardless-Moss.*Br. sp. and v. 20. F. 12.*

G. lapponicum, *Hedw.* Lapland Beardless-moss. H. 7.
Mountains in Glen Dole, and other parts of the Clova range.

G. curvirostrum, *Hedw.* Curve-beaked Beardless-moss. H. 7.

Mr G. Don. Mr Don enumerates in his list many species as natives of the county without giving localities, but on his authority I insert them, believing it a good one, and that they will likely be refound.

G. ovatum, *Hedw.* Hairy-leaved Beardless-moss. H. 8.

This and β . *gracile*, *Hook.* are frequent on old walls, as at Blackness, Dighty Bridge, &c.

G. truncatulum, *Hoffm.* Blunt-fruited Beardless-moss. H. 8.

Banks and walls frequent.

β . *intermedium*, *Hook.* Stobswell Dundee, &c.

G. Wilsoni, *Hook.* Wilson's Beardless-moss. H. 8.

Near Forfar, *Mr Drummond*.

G. Heimii, Hedw. Long-stalked Beardless-moss. H. 9.

Side of a drain near Carnoustie, and in a salt marsh at Ninewells. Coast near Torrenshaven, *Mr G. Don*. Montrose Basin, *Mr A. Croall*. Grounds, Kinnaird Castle, *Mr A. Bousie*.

G. fasciculare, Hedw. Blunt Pear-shaped Beardless-moss. H. 9.

Glen Clova, near the foot, beyond the "smithy" on the west side. About Kinnaird, *Mr John Laing*. Mud fence on Guthrie Hill, *Mr A. Croall*. Near Farnell, *Mr A. Bousie*.

G. pyriforme, Hedw. Sharp Pear-shaped Beardless-moss. H. 9.

Hare Craigs. Restenet, and east end of Forfar Lake, *Mr A. Croall*. Moist banks north from Kinnaird, *Mr A. Bousie*.

G. Donianum, Sm. Donian Beardless-moss. H. 10.

Sandstone rocks Den of Airlie, *Messrs Don and Drummond*. Noran Water, *Mr Drummond*. This minute moss was first detected by the keen eye of *Mr G. Don* in the Den of Dupplin, Perthshire, and was named in compliment to him by his distinguished patron Sir J. E. Smith.

G. microstomum, Hedw. Small-mouthed Beardless-moss. H. 10.

Hare Craigs.

ANICTANGIUM, *Hedw.* Branched Beardless-moss.

Br. sp. and v. 5. F. 1.

A. ciliatum, Hedw. Hoary Branched Beardless-moss. H. 11.

Rocks, stones, and walls frequent, most plentiful on the hills.

DIPHYSCIUM, *Mohr.* Diphyscium.

Br. sp. 1. F. 1.

D. foliosum, *Mohr.* Leafy Diphyscium. H. 13.

Sidlaw Hills frequent, as White Hill on rocks east side, Kinpurny, near the Castle, &c. Hill of the Balloch, Glen Prosen, and on Carlowie and other of the Clova mountains.

TETRAPHIS, *Hedw.* Tetraphis.

Br. sp. 2. F. 1.

T. pellucida, Hedw. Pellucid Tetraphis. H. 14.

Den of Airlie, below the Castle, and Invergowrie Thicket, with gemmiferous cups, but no ft. Bassies, and Glen Dole, Clova, frequent, and in ft. Plentifully in ft. on decayed tree-roots near Kinnaird, *Mr A. Bousie*.

SPLACHNUM, *L.* Bottle-moss.

Br. sp. and v. 9. F. 8.

S. sphaericum, L. fil. Globe-fruited Bottle-moss. H. 14.

Frequent on the summits of the mountains on the droppings of cattle. Rare in the low grounds. Rossie Moor, *Mr J. Laing*. Near a spring west end of Restenet marsh, *Mr A. Croall*.

S. tenue, Dicks. Slender Bottle-moss. H. 15.

Clova, July 1824, *Hooker, Greville, Burchell, Drummond, Mr G. Don*.

S. mnioides, L. fil. Brown Tapering Bottle-moss. H. 15.

Clova mountains frequent (with β . *majus*, Hook., which is scarcely distinct). Sidlaw Hills, but rare. Rossie Moor, *Mr J. Laing*.

S. angustatum, L. fil. Narrow-leaved Bottle-moss. H. 15. *Mr G. Don*.

S. ampullaceum, L. Flagon-fruited Bottle-moss. H. 15.

In a marsh at the east end of a small lake near Pitcur, June 1832. *Mr Don* also found it, but gives no station.

S. vasculosum, Hedw. Large-fruited Bottle-moss. H. 16.

Clova, *Mr Drummond*. I have found this elegant species

in the following stations in the Clova district:—Feula burn above the falls. Near Loch Brandy, just below the “Loch-hillock,” west side. Near the large stone at the mouth of the Corrie of Clova. Near the foot of Ben Red. Near the “spring-well” at the top of the “eastern stripe of Raggs,” on the ascent to Loch Wharral. In two places top of the “western stripe (rivulet) of Raggs.” Corrie of North Inchdowrie. Eastern Craigie-bowies. Back of White Bent, in great profusion and very richly fruited. In all these places the plant grows in dense masses in what is called a “well-ee,” or marshy source of a spring, and is commonly associated with *Bartramia fontana* and *Dicranum squarrosum*, whose bright green foliage render these spots conspicuous at a distance.

Catlaw near Kinnordy, *Arnott* and *Hooker*.

CONOSTOMUM, *L.* Conostomum.

Br. sp. 1. F. 1.

C. boreale, Sw. Northern Conostomum. H. 17.

Mountains of Glen Dole, Loch Brandy, Bassies, &c., Clova; and on those of Canlochen, always near their summits.

ENCALYPTA, *Hedw.* Extinguisher-moss.

Br. sp. 5. F. 2.

E. vulgaris, Hedw. Common Extinguisher-moss. H. 13.

On walls at Blackness west from Dundee, at Mains Den, and near Mains church, plentiful. Walls east side of Kin-noul Woods, *Mr A. Croall*.

E. ciliata, Hedw. Fringed Extinguisher-moss. H. 18.

Reeky Linn. Bassies and Glen Dole, Clova, frequent. Den of Fullerton, *Mr A. Croall*.

WEISSIA, *Hedw.* Weissia.

Br. sp. and v. 19. F. 11.

W. nigrita, Hedw. Black-fruited Weissia. H. 19.

Sands of Barrie in several places, both to the east and west of the Lighthouses, bearing fruit abundantly in summer and autumn.

W. lanceolata, Hook. and Tayl. Lance-leaved Weissia. H. 20.

Bank near the beach at Ninewells, associated with *Tortula convoluta*, but the station now destroyed by the railway.

W. latifolia, Schwaegr. Broad-leaved Weissia. H. 20.

In crevices of rocks, Glen Dole, Clova, *Mr Drummond*.

W. striata, Hook. and Tayl. Striated Weissia. H. 21.

Rocks east side of the White Hill of Auchterhouse; Reeky Linn; Hill of the Balloch, Glen Prosen; Bassies, Clova, &c.

W. cirrata, Hedw. Curl-leaved Weissia. H. 21.

Mr G. Don.

W. curvirostra, Hook and Tayl. Curve-beaked Weissia. H. 22.

Rocks and walls frequent. Craig Owl, west side, near a small waterfall. Reeky Linn, Glen Dole, &c.

W. crispula, Hedw. Curled Weissia. H. 22.

Rocks on all the Clova mountains, plentiful.

W. controversa, Hedw. Green-cushioned Weissia. H. 22.

Shady banks very common.

W. recurvata, Hook. and Tayl. Recurved Weissia. H. 23.

On the old red sandstone, Den of Airlie.

W. verticillata, Schwaegr. Whorled Weissia. H. 23.

Wet rocks and caves on the coast near Auchmithie, without ft.

W. acuta, Hedw. Sharp-pointed Weissia. H. 24.

Wet rocks, Sidlaw Hills, banks of the Isla and Esk, and abundant among the mountains.

GRIMMIA, *Ehrh.* Grimmia.

Br. sp. and v. 17. F. 12.

G. apocarpa, Hedw. Sessile Grimmia. H. 24.

Walls and rocks abundant.

β. stricta. (*G. stricta*, Turn.)

Sidlaw Hills, Reeky Linn, and Clova mountains, frequent. Den of Foulis.

γ. alpicola. (*G. alpicola*, Sw.)

Summits of the Sidlaw Hills, and not uncommon on the mountains of Clova.

δ. rivularis. (*G. rivularis*, Brid.)

In streams, as the Isla, Esk, Melgum, &c.

G. maritima, Turn. Sea-side Grimmia. H. 24.

Rocks along the margin of the Tay, abundant. Carnoustie, Arbroath, Auchmithie, and indeed general along the coast where there are rocks.

G. pulvinata, Sm. Grey Cushioned Grimmia. H. 25.

Our most common species, on walls and rocks.

G. tricophylla, Grev. Hair-pointed Grimmia. H. 25.

Old wall, Woods of Baldovan, rare.

G. spiralis, Hook, and Tayl. Spiral-leaved Grimmia. H. 26.

G. torta, Hornsch. and Nees. Twisted-leaved Grimmia. H. 26.

Both species frequent on rocks on most of the Clova mountains, especially those of Glen Dole, and in Canlochen. *G. torta* also occurs about the Reeky Linn.

G. ovata, Web. and Mohr. Ovate Grimmia. H. 26.

Hare Craigs, *Rev. J. G. M'Vicar.*

G. Doniana, Sm. Donian Grimmia. H. 27.

Rocks and stones on the north side of the White Hill of Auchterhouse, in ft. April and May. Sparingly on the summit of Craig Owl, 1700 feet. Caterthun, *Mr A. Croall*.

G. unicolor, Hook. Dingy Grimmia. H. 27.

“Abundant on the steep, almost perpendicular, face of an exposed rock above Bachnagairn,” *Mr Drummond*. Bachnagairn is a shooting lodge of the Hon. Donald Ogilvy of Clova, and is situated in a very picturesque spot near the head of Glen Bradooney, about a mile to the eastward of Loch Esk, the source of the river South Esk. There is a beautiful waterfall in the vicinity, 60 feet high, surrounded by steep wooded rocks.

(The *G. atrata*, which I have found on Ben-Lawers, grows also above Glen Callater, and should be carefully sought for among the higher rocks of Canlochen.)

DIDYMODON, *Hedw.* Didymodon.

Br. sp. and v. 18. *F.* 10.

D. purpurens, Hook. and Tayl. Purple Didymodon. H. 28.

Abundant from the sea-shore to the mountain summits, on banks, rocks, and sandy-downs.

D. inclinatus, Sw. Inclined-fruited Didymodon. H. 28.

Sands of Barrie to the east and west of the Lighthouses, in broad dense patches, in ft. throughout the summer and autumn. It grows with *Weissia nigrita* and *Bryum trichodes*, and the three rarities were first found there by Mr Don.

D. glaucescens, Web. and Mohr. Glaucous Didymodon. H. 29.

In crevices of rocks, Glen Dole, Clova, *Don, Drummond, Greville, Hooker*.

D. Bruntoni, Arn. Brunton's Didymodon. H. 29.

Sidlaw Hills. Reeky Linn. Carlowie and Glen Dole, Clova. It generally grows on the perpendicular faces of rocks in broad patches, fruiting freely.

D. rigidulus, Hedw. Rigid-leaved Didymodon. H. 29.
Sands of Barrie. Loch Brandy, Clova. Hare Craigs, *Rev.*
J. G. M' Vicar.

D. trifarius Sw. Three-ranked Didymodon. H. 30.
Mr G. Don.

D. capillaceus, Schrad. Fine-leaved Didymodon. H. 30.
In dense tufts in the crevices of rocks near the small waterfalls on the Clova streams, as those of the Bassies, Loch Brandy, Glen Dole, &c. Canlochen. Reeky Linn. β . *ithyphylla*. In drier places on the mountains, smaller, but scarcely distinct.

D. flexicaulis, Schleich. Long-beaked Didymodon. H. 31. (*D. longirestris*? Web. and Mohr.)

Hill south-west from Newtyle, Reeky Linn, Glen Dole, &c., without ft.

D. heteromallus, Hook. and Tayl. Curve-leaved Didymodon. H. 31.

East banks of Rescobie Lake, margin of the wood next the marsh. Shaded banks near Logie Pert, *Mr A. Bousie*.

TRICHOSTOMUM, *Hedw.* Fringe-moss.

Br. sp. and v. 17. F. 10.

T. patens, Schwaegr. Spreading Fringe-moss. H. 32.
Common on the higher mountains.

T. funale, Schwaegr. Cord-like Fringe-moss. H. 32.
Clova, *Mr Drummond*.

T. lanuginosum, Hedw. Woolly Fringe-moss. H. 32.
Heaths plentiful, to the summits of the highest mountains.

T. canescens, Hedw. Hoary Fringe-moss. H. 33.
Not uncommon. Fair-moor, Dundee, and Sands of Barrie, abundant.

β . (*T. ericoides*, Schrad.) Walls and banks frequent, as about Baldovan, Auchterhouse, &c.

T. heterostichum, Hedw. Serrated Hoary Fringe-moss. H. 33.

Rocks and stones, common on the hills and mountains.

T. microcarpum, Hedw. Small-fruited Hoary Fringe-moss. H. 33.

On the higher mountains plentiful. Sidlaw Hills, rare.

T. aciculare, Beauv. Dark Mountain Fringe-moss. H. 34.

Wet rocks and in streams frequent.

T. fasciculare, Schrad. Beardless Hoary Fringe-moss. H. 34.

Plentiful on rocks on the hills and mountains.

T. polyphyllum, Schwaegr. Many-leaved Fringe-moss. H. 34.

Near Auchterhouse; foot of Craig Owl, on old walls south side; Reeky Linn; Clova, &c.

FISSIDENS, *Hedw.* Fern-like Fork-moss.

Br. sp. and v. 8. F. 4.

F. bryoides, Hedw. Small Fern-leaved Fork-moss. H. 35.

Shady banks, common.

F. osmundioides, Hedw. Larger Fern-leaved Fork-moss. H. 35.

Baldovan Woods, Forfar Loan, near Mains Castle, &c.

F. adiantoides, Sw. Adiantum-like Fork-moss. H. 36.

Frequent on wet and marshy banks throughout the county, varying from half an inch to four inches in height, capsules not uncommon.

F. taxifolius, Hedw. Yew-leaved Fork-moss. H. 36.

Will's Braes and Ninewells.

DICRANUM, *Hedw.* Fork-moss.*Br. sp. and v. 34. F. 26.**D. glaucum*, Hedw. Glaucous Fork-moss. H. 37.

In dense masses like those of *Sphagna* on the hills and mountains abundant, but sterile.

D. cerviculatum, Hedw. Red-necked Fork-moss. H. 37.
Mr G. Don.

D. flexuosum, Hedw. Zig-zag Fork-moss. H. 38. *Mr G. Don.* The var. β . *nigro-viride*, Hook., is frequent on the Sidlaw Hills and Clova mountains on wet stones, without ft.

D. virens, Hedw. Green Spur-fruited Fork-moss. H. 38.

Bassies, Clova, rare.

D. strumiferum, Ehrh. Strumose Fork-moss. H. 39.
Near Loch Brandy, Clova; and Hill of the Balloch, Glen Prosen.

D. polycarpon, Ehrh. Many-headed Fork-moss. H. 39.
Glen Dole and Carlowie, Clova.

D. falcatum, Hedw. Sickle-leaved Fork-moss. H. 39.

D. Starkii, Web. and Mohr. Starkian Fork-moss. H. 39.

Both on the rocks of Clova and Canlochen, frequent.

D. flavescens, Sm. Yellowish Fork-moss. H. 40.
Sandy banks of the Isla, Reeky Linn.

D. squarrosum, Schrad. Drooping-leaved Fork-moss. H. 40.

Plentiful from the coast to the mountain summits, in marshy places, ft. rare. In ft. marshy banks of a small lake, west side of White Hill. Glen Phee, Clova, *Mr A. Croall.*

D. pellucidum, Sw. Pellucid Fork-moss. H. 40.

Dryburn rivulet, Sidlaw Hills, ft. Sept. 1836. Den of Fotheringham, ft. Dec. 1836, *Mr J. Donald.* Rocks, Gan-nachy Bridge, *Mr A. Bousie.*

D. spurium, Hedw. Spurious Fork-moss. H. 40.

Moss of Kinnordy, *C. Lyell, Esq. of Kinnordy.*

D. crispum, Hedw. Curl-leaved Fork-moss. H. 41.

Moist places, Hare Craigs, rare.

D. flagellare, Hedw. Upright-fruited Fork-moss. H. 41.

D. Scottianum, Turn. Scottian Fork-moss. H. 41.

Mr G. Don; the latter, he remarks, rare.

D. undulatum, Ehrh. Waved-leaved Fork-moss. H. 41.

Fir woods near Forfar, *Mr G. Don.*

D. scoparium, Hedw. Broom Fork-moss. H. 42. (*β. majus*, Hook.)

Woods and banks frequent.

D. Dillenii, Tayl. Dilleniæ Fork-moss. H. 41. (*scoparium*, *α.* Hook.)

Woods, walls, and banks, more common than the last.

D. fuscescens, Turn. Brownish Fork-moss. H. 42. (*scoparium*, *γ.* Hook.)

Common on the higher mountains.

D. varium, Hedw. Variable Fork-moss. H. 42.

Fields near Strathmartin, and wet banks between Newtyle and Meigle by the wayside. Marytown, near Montrose, *Mr A. Croall.* Moist banks near Farnell, *Mr A. Bousie.* *β. rufescens*, Hook, *Mr G. Don.*

D. heteromallum, Hedw. Silky-leaved Fork-moss. H. 42.

Sidlaw Hills frequent, to their summits. Clova. Rescobie. Wood between Arbroath and Auchmithie, &c. Guthrie Woods, *Mr A. Croall.*

D. subulatum, Hedw. Awl-leaved Fork-moss. H. 43.

Frequent on the higher mountains.

D. fulvellum, Sm. Tawny Fork-moss. H. 43.

Head of Canlochen. Summit of the Bassies, *Mr A. Croall.*

TORTULA, *Hedw.* Screw-moss.*Br. sp. and v. 29. F. 12.**T. rigida*, Turn. Aloe-like Screw-moss. H. 43.Sands of Barrie, frequent. Rocks in the Bridge-end quarry, Brechin, *Mr J. Laing*.*T. convoluta*, Sw. Convolute Screw-moss. H. 44.

Bank, Ninewells, but the spot now destroyed.

T. muralis, Hedw. Wall Screw-moss. H. 44.

Walls common.

T. ruralis, Sw. Great Hairy Screw-moss. H. 45.

Walls, rocks, and sandy sea-shore frequent.

T. subulata, Hedw. Awl-shaped Screw-moss. H. 45.This, with β . *obtusa*, Hook., is common on walls and banks.*T. unguiculata*, Hook. and Tayl. Bird's-claw screw-moss. H. 45.

Walls frequent, and on the Sands of Barrie.

T. tortuosa, Hedw. Frizzled Mountain Screw-moss. H. 46.

Reeky Linn, Glen Dole, Glen Prosen, &c., sterile.

T. fallax, Sw. Fallacious Screw-moss. H. 46.Common on banks. γ . *brevicaulis*, Hook. Powrie Brae, Invergøwrie, &c.*T. gracilis*, Hook. and Grev. β . *viridis*, Hook. *Mr G Don*.CINCLIDOTUS, *Beauv.* Lattice-moss.*Br. sp. 1. F. 1.**C. fontinaloides*, Beauv. Fountain Lattice-moss. H. 47.

In the Isla, Den of Airlie, plentiful.

POLYTRICHUM, L. Hair-moss.

*Br. sp. nd v. 17. F. 12.**P. undulatum*, Hedw. Undulated Hair-moss. H. 48.

Shady banks, ditches, woods, abundant.

P. hercynicum, Hedw. Hercynian Hair-moss. H. 48.

Clova mountains frequent, as Bassies, Loch Brandy, Craig Maid, &c.

P. piliferum, Schreb. Bristle-pointed Hair-moss. H. 48.

Frequent on rocky banks from the coast to the mountains.

P. juniperinum, Willd. Juniper-leaved Hair-moss. H. 49.

Hare Craigs,* Balgay, Ballutheron, and other places on banks and walls.

β. gracilius, Hook. (*P. strictum*, Menz.) Peat-bog, Sidlaw Hills. Bassies, and Corrie of Clova, in ft.*P. commune*, L. Common Hair-moss. H. 49.

Woods, and on the hills and mountains abundant. The stems are variable in height, in moist shady situations often exceeding a foot.

P. gracile, Menz. Slender Hair-moss. H. 49. (*P. commune*, *β. attenuatum*, Hook.)

Restenet Moss, plentiful.

P. alpinum, L. Alpine Hair-moss. H. 50.

The most common species on the mountains, from two to five inches high, and with from one to twelve capsules. Old wall, Baldovan Woods, and summit of the White Hill of Auchterhouse, sparingly.

P. urnigerum, L. Urn-bearing Hair-moss. H. 50.Abundant by the side of the Newtyle Railway, about Balbeuchly and Pitpointie. Den of Mains. Rescobie. Kin-noul Wood, *Mr A. Croall*. West from the Den of Fullerton, *Mr A Bousie*.

* Specimens were found in this station with two capsules enclosed in one calyptra.

P. aloides, Hedw. Dwarf Long-headed Hair-moss. H. 50.

Wet banks, common. Variable in size; at the Hare Craigs I have picked it with setæ two to three inches long. γ . *subglobosum*, Tayl., with shorter capsules, is not uncommon.

P. nanum, Hedw. Dwarf Hair-moss. H. 51.

Banks frequent, especially on the Sidlaw Hills.

FUNARIA, *Schreb.* Cord-moss.

Br. sp. 3. F. 2.

F. hygrometrica, Hedw. Hygrometric Cord-moss. H. 52.

Banks and walls, common.

F. Muhlenbergii, Turn. Muhlenberg's Cord-moss. H. 52.

Baldovan, on walls near the Forfar road; Ninewells; Hare Craigs; sandy ground near Monifieth; probably not uncommon.

ZYGODON, *Hook. and Tayl.* Yoke-moss.

Br. sp. 2. F. 1.

Z. Mougeotii, Bruch. and Schimp. Mougeot's Yoke-moss.

Crevices of moist rocks in large pulvinate masses frequent; as east side of White Hill, Sidlaw, Hatton Den, Dens of Glammis, Airlie, &c.; Glen Dole, Glen Prosen, and Canlochen, but always sterile.

ORTHOTRICHUM, *Hedw.* Bristle-moss.

Br. sp. and v. 25. F. 13.

O. cupulatum, Hoffm. Single-fringed sessile-fruited Bristle-moss. H. 53.

Trees and rocks Balgay Wood, Baldovan, Will's Braes, Reeky Linn, &c. Near Balgavies, *Mr A. Croall*.

O. anomalum, Hedw. Anomalous Bristle-moss. H. 53.
Near Usan, *Mr A. Croall*.

O. Drummondii, Hook. Drummond's Bristle-moss. H. 54.

Trunks of old birch-trees, Glen Dole, Clova.

O. affine, Schrad. Pale straight-leaved Bristle-moss. H. 54.

Walls and trees, common.

O. pumilum, Schwaegr. Lesser pale straight-leaved Bristle-moss. H. 54. (*O. affine*, β . Hook.) *Spruce*, Lond. Journ. Bot., iv. 185.

Not uncommon, as at Will's Braes, Fothringham, Reeky Linn, &c.

O. rupicola, Funck. Rock Bristle-moss. H. 54.

Old walls Auchterhouse and Pitpointie, plentiful. Reeky Linn. Den of Foulis. Gannachy Bridge, *Mr J. Laing*.

O. diaphanum, Schrad. Diaphanous-pointed Bristle-moss. H. 54.

Old walls frequent, as at Will's Braes, Baldovan, &c.

O. striatum, Hedw. Common Bristle-moss. H. 55.

On trees frequent. Hunters' Hill, Reeky Linn, Loups of Kenny, Baldovan, &c.

O. speciosum, Nees. Showy Bristle-moss. H. 55.

Clova, July 1824, *Hooker*, *Greville*, *Burchell*, *Drummond*. Near Montrose, *Mr Reid*. Den of Fullerton (probably *Mr Reid's* station), *Mr J. Cruickshank*. Near Forfar, *Mr Drummond*.

O. crispum, Hedw. Curled Bristle-moss. H. 56.

On trees frequent.

O. coarctatum, Beauv. (*Spruce*, Lond. Journ. Bot., iv. 183.)

Trees, Den of Glammis, Reeky Linn, &c. Probably not uncommon in the county, but generally taken, like the following, for *O. crispum*.

O. stramineum, Hornsch. (*Spruce*, Trans. Ed. Bot. Soc. ii. 82.)

Trees, Glen Dole, Clova, among *Pterogonium gracile*.

O. pulchellum, Sm. Elegant Bristle-moss. H. 56.

Trees, Den of Glammis, Reeky Linn, and more abundantly

about the Loups of Kenny on the Melgum. On pales Hill-side, and on a large boulder near Marten's Den, *Mr A. Croall*.

BRYUM, L. Thread-moss.

Br. sp. and v. 54. F. 33.

B. androgynum, Hedw. Narrow-leaved Thread-moss. H. 57.

Den of Airlie, near the foot, on rocky banks, with gemmiferous heads but no ft.

B. palustre, Sw. Marsh Thread-moss. H. 57.

Marshes frequent. Sidlaw Hills, Kinnordy, and Clova, in ft.

B. trichodes, L. Capillary Thread-moss. H. 57.

Sands of Barrie in several places abundant, especially to the eastward of the larger lighthouse.

B. dealbatum, Dicks. Pale-leaved Thread-moss. H. 58.

Deerhill Wood, Tealing, in ft. Fotheringham Hill, sterile, *Mr J. Donald*.

B. julaceum, Schrad. Slender-branched Thread-moss. H. 58.

Reeky Linn, in ft. Clova frequent, with ft. on the Bassies.

B. crudum, Huds. Transparent green Thread-moss. H. 58.

Crevices of rocks and shady places frequent. Dens of Mains, Glammis, Hatton, Airlie, &c. Deerhill Wood. Loch Brandy, Ben Red, Bassies, Glen Dole, and other places in the Clova district, ft. not common.

B. carneum, L. Soft-leaved Thread-moss. H. 59.

Moist rocks Ninewells, and side of the Newtyle Railway between Baldovan and Dundee, in the latter station observed in 1836.

Fields near the Bridge of Dun, and side of the Montrose Basin, *Mr A. Croall*. Grounds of Kinnaird, and banks of the South Esk near Brechin Castle, *Messrs Bousie and Laing*.

B. Wahlenbergii, Schwaegr. Pale-leaved Thread-moss. H. 59. (*B. albicans*, Wahl.)

This beautiful moss, which was first found in the county by *Charles Lyell, Esq.* of Kinnordy, occurs on a wet bank by the wayside between Newtyle and Meigle; and among the Clova mountains, as Loch Brandy, Glen Dole, &c. Woods, Kinnaird, and east gate of Carreston, *Mr A. Bousie*.

B. Ludwigii, Spreng. Ludwig's Thread-moss. H. 59.

Clova mountains, *Arnott, Drummond, Greville, Hooker*. Principally in marshy spots on the table-lands, and more frequent in the adjoining district of Braemar.

B. argenteum, L. Silvery Thread-moss. H. 60.

Banks and walls, frequent.

B. Zierii, Dicks. Zierian Thread-moss. H. 60.

Clova and Glen Prosen, not common.

B. capillare, L. Greater matted Thread-moss. H. 60.

B. cæspitium, L. Lesser matted Thread-moss. H. 61.

Both common on walls, rocks, and thatched cottages.

B. turbinatum, Sw., *B. pallens*, B. and S., *B. uliginosum*, B. and S., and *B. inclinatum*, B. and S., occur frequently (the latter abundantly on the Sands of Barrie) in various parts of the county from the coast to the mountains, but are often confounded with each other, so that few recorded stations can be depended upon. *B. pallens* and *uliginosum* are found in Glen Dole, and the latter on the Sidlaw Hills.

B. nutans, Schreb. Silky pendulous Thread-moss. H. 61.

Woods and mountains frequent.

B. cernuum, B. and S. Drooping-fruited Thread-moss. (*Spruce, Trans. Ed. Bot. Soc. ii. 73.*)

Clova mountains.

B. elongatum, Dicks. Long-necked Thread-moss. H. 62.

Glen Dole near the falls, and other places in Clova.

B. alpinum, L. Red Alpine Thread-moss. H. 62.

Summit of Hunters' Hill, Glamis, and on the Clova mountains frequent, rare in ft.

B. ventricosum, Dicks. Swelling Bog Thread-moss. H. 62.

Marshy places frequent, from the coast to the mountains.

B. bimum, Schreb.

Mr G. Don.

B. roseum, Schreb. Rosaceous Thyme Thread-moss. H. 63.

Den of Bonnington, *Mr J. Cruickshank*. Den of Fullerton, *Mr A. Bousie*. In neither place has this fine species been found with capsules.

B. ligulatum, Schreb. Long-leaved Thyme Thread-moss. H. 63.

Woods and shady banks frequent. The ft. is scarce, but has been found at Kinnaird, Kinnordy, Dens of Glamis, Pitairlie, &c.

B. punctatum, Schreb. Dotted Thyme Thread-moss. H. 63.

Glen Ogilvy, Den of Glamis, Reeky Linn, Clova, in ft. Woods near Kinnaird, *Mr A. Bousie*. Guthrie Woods, and Werron Hill, *Mr A. Croall*.

β. aquaticum, Hook.

Clova, *Mr Drummond*. *Catlaw, Arnott, Hooker*.

B. mnioides, Wils. MSS.

Rescobie marsh, and west end of Hare Craigs, with ft. in both places. First discovered in Yorkshire by that indefatigable muscologist, *Mr John Nowell*, whose specimens of this I have extensively distributed.

B. rostratum, Schrad. Long-beaked Thyme Thread-moss. H. 64.

Den of Glamis near the foot. Reeky Linn. Loups of Kenny, *Mr J. Donald*. Den of Fullerton, *Mr A. Croall*.

B. marginatum, Dicks. Thick-edged Thyme Thread-moss. H. 64.

Den of Airlie, and Clova mountains, frequent. Den of Fullerton, *Mr A. Kerr*.

B. hornum, Schreb. Swan's-neck Thyme Thread-moss. H. 64.

Woods, dens, and shady places from the coast to the mountains.

B. cuspidatum, Schreb. Pointed-leaved Thyme Thread-moss. H. 64.

Carlowie, and Glen Dole, Clova; sterile, with creeping shoots rooting at the extremity.

TIMMIA, *Hedw.* Timmia.

Br. sp. and v. 2. F. 1.

T. megapolitana, Hedw. Mecklenburg Timmia. H. 66.

“Rocks on the banks of the Isla, above Airlie Castle, discovered there by *Mr Drummond* in 1824.”

BARTRAMIA, *Hedw.* Apple-moss.

Br. Sp. and v. 9. F. 8.

B. pomiformis, Hedw. Common Apple-moss. H. 66.

Old walls and banks frequent. *β. major*, Hook. On the mountains, and in some of the shady dens, as Airlie, Glamis, &c.

B. ithyphylla, Brid. Straight-leaved Apple-moss. H. 66.

Plentiful on the mountains.

B. gracilis, Flöerke. Slender Apple-moss. H. 67.

Cramb's Wood, Reeky Linn, and Clova. Den of Fullerton, *Mr J. Laing*. In ft. in all the stations.

B. fontana, Sw. Fountain Apple-moss. H. 67.

Marshy places common, bearing ft. abundantly. On the

Bassies, Clova, a form occurs four or five inches high, with slender fasciculated branches overtopping the ft. *β. marchica* has been found by *Mr G. Don*, but no station given.

B. Halleriana, Hedw. Hallerian Apple-moss. H. 67.

Reeky Linn. Bassies, and Craig Maid, Clova, in ft.

B. arcuata, Brid. Curve-stalked Apple-moss. H. 67.

Abundant on the Sidlaw Hills, and not unfrequent on the higher mountains. Rare in ft. In April 1840 I picked 40 fruited specimens on the margin of a small marsh on the north-west side of the White Hill of Auchterhouse; and *Mr Croall* has met with it in that state in Guthrie Woods, half a mile west from the Brechin road.

BUXBAUMIA, L. Buxbaumia.

Br. Sp. 1. F. 1.

B. aphylla, L. Leafless Buxbaumia. H. 68.

This interesting little plant, esteemed alike for its rarity and curious structure, I had the pleasure of detecting on the White Hill of Auchterhouse, one of the Sidlaws, in May 1840, and have gathered it fifteen times since. The *White Hill* derives its name from the encrustation of its rocky front with various white lichens, as *Variolaria lactea*, *Isidium paradoxum*, &c. It rises with a peaked-like summit behind the village of Auchterhouse to the height of 1400 feet above the sea-level. On its northern slope there is a secondary hill, and here the plant was first found sparingly scattered in small bare hollows among the heath, where the snow had lain longest in the spring. In these spots its associates were small *Polytricha* and *Scyphophori*, which rendered its detection more difficult. In June, the same year, two more specimens were obtained, and several in April 1841. In May 1841 seventy-two specimens were picked, and forty-three in May 1842. In May 1843 sixteen specimens were met with in the old ground; and in April a single plant under the shade of heath at the south-west corner of Deerhill Wood, nearly three miles distant. In 1844 ten specimens were gathered in March, forty in April, and fifty in May. One was procured in March, and twenty in May, 1845. In 1846 seven were picked in February, and three

in April; and in March 1847 five specimens,—making in all nearly 300, which have been distributed to botanists throughout Scotland, England, and Ireland. Thirty of these in May 1844, and thirteen in May 1845, were obtained from a third station, the east shoulder of the White Hill.

As a curious coincidence, it may be mentioned, that in the same month and year that the *Buabannia* was noticed as a native of this county, my friend, *G. J. Lyon, Esq.*, of Glasgow, found it on hills near that place; and subsequently he gathered it on Benledi and the Campsie Hills.

A great extent of ground, similar to the White Hill station, has been examined on the Sidlaws and the Clova range in search of other stations for this rarity, but hitherto without success.

HEDWIGIA, *Hook.* Hedwigia.

Br. sp. 1: F. 1.

H. æstiva, *Hook.* Summer Hedwigia. H. 68.

Reeky Linn.

PTEROGONIUM, *Sw.* Pterogonium.

Br. sp. 3: F. 2.

P. gracile, *Sw.* Slender Pterogonium. H. 69.

Den of Glammis, Reeky Linn, Loch Brandy, Glen Dole, &c. Rare in ft. Den of Fullerton, *Mr A. Bousie.*

P. filiforme *Schwaegr.* Filiform Pterogonium. H. 70.

Clova mountains, not common.

NECKERA, *Hedw.* Neckera.

Br. sp. 3: F. 3.

N. pumila, *Hedw.* Small Neckera. H. 71.

Mr G. Don. On a beech-tree, Kinnaird Deer-park, sterile, 1844. *Mr J. Laing.*

N. pennata, *Hedw.* Feathered Neckera. H. 71.

On the trunk of a beech at Fotheringham, *Mr T. Drummond*, who alone has found it.

N. crispa, Hedw. Crisped Neckera. H. 71.

In the crevice of a rock between the White Hill and slate quarries, Sidlaw, sterile. Reeky Linn, in ft. plentiful. Glen Dole, Clova, sterile. Rocky bank of the N. Esk above the Burn, *Mr A. Croall*.

ANOMODON, *Hook and Tayl.* Anomodon.

Br. sp. 2. F. 2.

A. curtispiculum, H. and T. Pendulous Anomodon. H. 72.

Old wall, Baldovan; heaths, White Hill of Auchterhouse; and birch-trees, Glen Dole, sterile. In ft. on trunks of trees Hunters' Hill, Glamis. Wall near the old castle of Meldrum, abundantly in ft. *Mr A. Croall*.

A. viticulosum, H. and T. Cylindrical Anomodon. H. 72.

Dens of Fullerton, Hatton, Airlie, &c. Ft. rare.

DALTONIA, *Hook. and Tayl.* Daltonia.

Br. sp. 1. F. 1.

D. heteromalla, H. and T. Lateral Daltonia. H. 72.

Kinnordy, July 1824, *Hooker, Greville, Burchell, Drummond*. On a tree about 300 yards east of Craigo Manse, May 1842, *Mr A. Kerr*. On trees in the garden of Old Montrose, July 1847, *Mr J. Laing*. On trees in the Deer-park, Kinnaird, *Mr A. Bousie*.

FONTINALIS, *L.* Water-moss.

Br. sp. 3. F. 1.

F. antipyretica, *L.* Greater Water-moss. H. 73.

Rivulets and ditches frequent, ft. rare. A slender alpine form occurs in most of the Clova streams, and in those of Feula and Loch Brandy it was fructifying freely in July 1846.

HOOKERIA, *Sm.* Hookeria.*Br. sp. 3. F. 1.**H. lucens*, *Sm.* Shining Hookeria. H. 74.

Rather rare, and seldom fructifying. Drains in Baldovan and Strathmartin Woods. Cramb's Wood, Glammis. Woods of Ardovie, *Mr J. Cruickshank*. Banks of the N. Esk below, and in the Burn Woods above Gannachy Bridge, in ft. *Messrs Bousie* and *Laing*. It occurs in Den Finella, in the neighbouring county of Kincardine, where *Mr Kerr* gathers it annually in ft.

HYPNUM, *L.* Feather-moss.*Br. sp. and v. 99. F. 62.**H. trichomanoides*, *L.* Blunt Fern-like Feather-moss. H. 75.

Banks and trees frequent. In ft., Dens of Fullerton and Foulis.

H. complanatum, *L.* Flat Feather-moss. H. 75.

Shady banks and trees, frequent, ft. not common, Sidlaw Hills, Dens of Fullerton, Airlie, &c.

H. riparium, *L.* Short-beaked Water Feather-moss. H. 76.

Shady dens, as Glammis, Airlie, &c.

H. undulatum, *L.* Waved Feather-moss. H. 76.

Woods, and on the mountains plentiful, ft. not common.

H. denticulatum, *L.* Sharp Fern-like Feather-moss. H. 76.

Woods and walls, frequent, ft. plentiful. *β. obtusifolium*, *Hook*, is common on the mountains.

H. tenellum, *Dicks.* Tender awl-leaved Feather-moss. H. 77.

Wet sandstone rocks and caves near Auchmithie, sterile.

H. serpens, *L.* Creeping White-veiled Feather-moss. H. 77.

Plentiful on stones, banks, walls, and trees, ft. common.

H. populeum, Hedw. Matted Feather-moss. H. 78.

Old walls frequent, generally in ft.

H. molle, Dicks. Soft Water Feather-moss. H. 78.

In the "deaf-burn," Loch Brandy, Clova, growing in dense masses in the stream from half-way up to its top, with few capsules. The leaves of those branches that rise above the water are somewhat secund and paler. Stream on Craig Maid, Glen Dole, in ft. sparingly.

H. stramineum, Dicks. Straw-like Feather-moss. H. 79.

Feula, and other streams in the Clova district, sterile. Rescobie marsh, dark-coloured, slender, and sterile. *Mr Drummond* found it in ft. "on moist sandy places near Dundee," but the station has not been refound,—probably, indeed, destroyed.

H. purum, L. Neat Meadow Feather-moss. H. 80.

Woods plentiful, ft. rare. In ft. Woods of Balgay and Strathmartin.

H. piliferum, Schreb. Hair-pointed Feather-moss. H. 80.

Den of Fullerton, without ft., *Mr A. Croall*.

H. Schreberi, Willd. Schreberian Feather-moss. H. 80.

Woods and heaths plentiful. In ft. in Baldovan and Deer-hill Woods.

H. catenulatum, Schwaegr. Catenulated Feather-moss. H. 81.

Dens of Glammis and Airlie. Ben Red, Clova, &c. without ft.

H. plumosum, L. Rusty Feather-moss. H. 81.

Reeky Linn. Woods, Deer-park of Kinnaird, *Mr A. Bousie*.

H. pulchellum, Dicks. Elegant Feather-moss. H. 82.

Hatton Den. Reeky Linn. Bassies, Clova. In ft. in the three stations named.

H. rufescens, Dicks. Red mountain Feather-moss. H. 82.

Glen Dole and Glen Phee, Clova, without ft., and smaller than the Glen Callater specimens.

H. polyanthos, Hook. Many-fruited Feather-moss. H. 82.
Rocks and trees about Forfar, *Mr Drummond*.

H. sericeum, L. Silky Feather-moss. H. 83.
Walls and rocks abundant, less frequent on trees.

H. salebrosum, Hoffm. Smooth-stalked yellow Feather-moss. H. 83.
Near the Loch of Forfar, *Mr Drummond*.

H. lutescens, Huds. Rough-stalked yellow Feather-moss. H. 83.
Baldovan Woods, sterile. Sands of Barrie, abundant, and in ft.

H. albicans, Neck. Whitish Feather-moss. H. 84.
Sands of Barrie, in ft. abundant.

H. alopecurum, L. Fox-tail Feather-moss. H. 84.
Dens of Linlathen and Airlie. Den of Fullerton, with var. β . *aquaticum*, Hook. *Mr A. Croall*.

H. dendroides, L. Tree-like Feather-moss. H. 84.
Frequent in marshy and wet places, ft. rare. Wet sandy ground near Monifieth, with from five to seventy setæ on each plant, most of them bearing capsules. In ft. near Forfar, *Mr G. Don*. In ft. Balgavies and Restenet, *Mr A. Croall*.

H. curvatum, Sw. Curved Feather-moss. H. 85.
On shady rocks frequent, as Balgay Wood, Reeky Linn, &c.

H. myosuroides, L. Mouse-tail Feather-moss. H. 85.
Reeky Linn. Clova. Marten's Den, *Mr A. Croall*.

H. splendens, Hedw. Glittering Feather-moss. H. 85.
Woods, banks, and wall-tops, common, ft. copious.

H. proliferum, L. Proliferous Feather-moss. H. 85.

Abundant in woods and on banks, rarely fructifying. In ft. sparingly, Cramb's Wood. Den of Airlie and Loups of Kenny, *Mr J. Donald*.

H. prælongum, L. Very long Feather-moss. H. 86.

Shady places frequent.

H. flagellare, Dicks. Flagellate Feather-moss. H. 86.

Clova, July 1824, *Hooker, Greville, Burchell, Drummond*.

H. abietinum, L. Spruce-tree Feather-moss. H. 87.

Sands of Barrie frequent, but sterile.

H. rutabulum, L. Common Rough-stalked Feather-moss. H. 88.

Hedge-banks, walls, &c. common.

H. velutinum, L. Velvet Feather-moss. H. 89.

Banks frequent.

H. ruscifolium, Neck. Long-beaked Water Feather-moss. H. 89.

In streams, ft. not uncommon. Small cascade, Den of Mains. Rivulet by the side of the old Glamis road west from Tealing. Den of Glamis. Invergowrie. Den of Fullerton, *Mr A. Croall*. Den of Bonnington, *Mr A. Bousie*.

H. striatum, Schreb. Common striated Feather-moss. H. 89.

Glamis, Reeky Linn, &c. with β . *minus*, Hook.

H. confertum, Dicks. Clustered Feather-moss. H. 89.

Banks common.

H. cuspidatum, L. Pointed Bog Feather-moss. H. 90.

Banks of a rivulet near a chalybeate spring, between Broughty and Monifieth, ft. April. Marshes Rescobie, plentiful, ft. June. Reeky Linn, ft. May.

H. cordifolium, Hedw. Heart-leaved Feather-moss. H. 90.

Rivulets, Sidlaw Hills, sterile. Marshes, Rescobie, in ft.

H. polymorphum, Hedw. Variable-leaved Feather-moss. H. 90.

Sands of Barrie, in moist places, ft. rare.

H. stellatum, Schreb. Yellow Starry Feather-moss. H. 90.

Sidlaw Hills, in ft. Turin Hill. β . minus, *Hook.* Sands of Barrie, a little to the east of the light-houses, sterile.

H. loreum, L. Rambling Mountain Feather-moss. H. 91.

Hills and woods abundant, ft. frequent.

H. triquetrum, L. Triquetrous Feather-moss. H. 91.

Abundant in woods, not common in ft. Loups of Kenny, Den of Foulis, &c. with four or five setæ from the same perichæcium bearing ripe capsules, May, October. Woods north from Kinnaird, ft. March, *Mr A. Bousie.*

H. squarrosus, L. Drooping-leaved Feather-moss. H. 92.

Banks and woods frequent, ft. not uncommon.

H. filicinum, L. Lesser golden Fern Feather-moss. H. 92.

White Hill, Sidlaw, and Reeky Linn, with ft. in both places.

H. atro-virens, Dicks. Dark-green Feather-moss. H. 93.

Den of Airlie, on rocky banks below the Castle, and in Hatton Den, near Newtyle, sterile.

H. palustre, L. Marsh Feather-moss. H. 93.

Wet places and banks of streams frequent, very variable in size.

H. fluitans, L. Floating Feather-moss. H. 93.

Pools and rivulets frequent, ft. rare. With ft. in Kinnordy Moss, and Dryburn rivulet, which descends from the Sidlaws into Glen Ogilvy.

H. aduncum, L. Claw-leaved Feather-moss. H. 94.

Bogs common, β . *rugosum*, Hook. Sidlaw Hills.

H. lycopodioides, Schwaegr. Lycopodium-like Feather-moss.

Sands of Barrie to the east of the light-houses, sterile.

H. uncinatum, Hedw. Sickle-leaved Feather-moss. H. 94.

Old walls and rocks from the coast to the mountains, ft. common.

H. commutatum, Hedw. Curled Fern Feather-moss. H. 94.

Spring, Ninewells, sterile. In ft. near Auchmithie, Den of Glammis, and Reeky Linn. Near Marten's Den, and rocks near Dysart, *Mr A. Croall*.

H. scorpioides, L. Scorpion Feather-moss. H. 95.

Bogs and marshy banks of streams, ft. rare. With ft. near Dun's Dish, *Mr A. Croall*.

H. Silesianum, Beauv. Silesian Feather-moss. H. 95.

Loch Brandy, among rocks and boggy hollows, just where the "loch stream" issues from the Lake, in ft.

H. cupressiforme, L. Cypress-leaved Feather-moss. H. 95.

This and β . *compressum*, Hook., are common on walls, &c.

H. Crista-castrensis, L. Ostrich-plume, or Prince's-feather-moss. H. 96.

Abundant on the rocks below the Falls of the White Water, Glen Dole, in ft. sparingly. (Plentiful in ft. Augt. 1838, *Mr A. Croall*.) Fir-wood north-east from Forfar; Deerhill Wood, southside; and Baldovan Woods, in several places; sterile. Guthrie Woods, rare, *Mr A. Croall*.

H. molluscum, Hedw. Plumy-crested Feather-Moss. H. 96.

Baldovan Woods. Reeky Linn. Banks below Marten's

Den, *Mr A. Croall*. Old wall west from Brechin, *Mr A. Bousie*.

ORD. III.—HEPATICÆ. LIVERWORTS.

Gen. Br. 10. F. 5. Sp. and v. Br. 152. F. 66.

RICCIA, *L.* Riccia.

Br. sp. and v. 5. F. 1.

R. crystallina, *L.* Crystalline Riccia. H. 98.

Kinnaird, *Mr A. Bousie*. Garden, Hillside, Montrose; and Moor of Guthrie, on clay, *Mr A. Croall*, who remarks that “the plant is at first of a glaucous green colour, with a thick fleshy texture, eventually becoming thinner, transparent, and of a yellowish hue.”

ANTHOCEROS, *L.* Anthoceros.

Br. sp. and v. 2. F. 1.

A. punctatus, *L.* Dotted Anthoceros. H. 100.

South side of Montrose Basin, ft. rare, *Mr A. Croall*. Banks of the Pow (or lint-pond), Kinnaird, and moist places by the North Esk at Stracathro, *Mr A. Bousie*.

MARCHANTIA, *Mich.* Marchantia.

Br. sp. 2. F. 1.

M. polymorpha, *L.* Polymorphous Marchantia. H. 102.

In ft. Den of Mains. Small marsh, in a fir wood north-east from Forfar, side of a rivulet south from Lumley Den, Dens of Foulis and Liff, and banks of Feula Burn, Clova, above the falls, with dioecious fructification. Rivulets Sidlaw Hills, not uncommon with gemmiferous cups on the fronds. Moist shaded places, deer-park, Kinnaird, *Mr A. Bousie*.

FEGATELLA, *Cæsalp.* Fegatella.

Br. sp. 2. F. 2.

F. conica, *Tayl.* Conical-fruited Fegatella. H. 103.

Reeky Linn, plentiful in ft. Mill-dam in the moor above Bonnington, *Mr A. Croall*. Not uncommon, sterile.

F. hemispherica, Tayl. Hemispherical-fruited Fegatella. H. 104.

Abundant in moist places on the Sands of Barrie and among the Clova Mountains. Hare Craigs. Reeky Linn. Den of Fullerton, *Mr A. Bousie*.

JUNGERMANNIA, *L.* Jungermannia.

Br. sp. and v. 133. *F.* 61.

J. Hookeri, Sm. Hookerian Jungermannia. H. 107.

Kinnordy Moss, *C. Lyell, Esq. of Kinnordy*.

J. asplenoides, *L.* Spleenwort *J.* H. 107.

Balgay, Rescobie, Airlie, Sidlaw Hills, &c., sterile. In ft. Guthrie Woods, *Mr A. Croall*, and Kinnaird Woods, *Mr A. Bousie*.

J. Dillenii, Tayl. Dillenian *J.* (*Trans. Ed. Bot. Soc.* ii. 116.)

Banks of Rescobie Lake, and other places, sterile.

J. spinulosa, Dicks. Prickly-leaved *J.* H. 107.

Shady places frequent: with calyces at Reeky Linn.

J. Doniana, Hook. Donian *J.* H. 108.

Clova, July 1824, *Hooker, Greville, Burchell, Drummond*. Calyces found by *Dr Greville*.

J. pumila With. Dwarf *J.* H. 108.

Moist places, Sidlaw Hills, frequent in ft.

J. cordifolia, Hook. Heart-leaved *J.* H. 108.

Streams, Sidlaw Hills and Clova Mountains, frequent. Calyces have been found by *C. Lyell, Esq. of Kinnordy*.

J. crenulata, Sm. Crenulated *J.* H. 109.

Hare Craigs, Sidlaw Hills, Reeky Linn, ft. common.

J. compressa, Hook. Compressed upright *J.* H. 109.

Clova, 1843.

J. emarginata, Ehrh. Notched *J.* H. 110.

Abundant on the rocks of Clova and Canlochen, very variable in size. Baldovan, Sidlaws, Reeky Linn, &c. Calyces and capsules occur, but are not common in any of the stations.

J. concinnata, Lightf. Braided J. H. 110.

Bassies, Loch Brandy, Glen Dole, &c. Canlochen. Not uncommon among the mountains, but rare in ft.

J. Orcadensis, Hook. Orkney J. H. 110.

Frequent on the Clova Mountains, sterile.

J. inflata, Huds. Inflated J. H. 110.

Hare Craigs, and Lawhill, Dundee.

J. excisa, Dicks. Small notch-leaved J. H. 111.

White Hill of Auchterhouse, ft. plentiful. Moist banks west from Kinnaird, *Mr A. Bousie*.

J. ventricosa, Dicks. Tumid J. H. 111.

Boggy places, Clova, sterile.

J. bicuspidata, L. Bicurpidate J. H. 111.

Old tree roots Invergowrie Thicket, sterile.

J. byssacea, Roth. Byssus-like J. H. 112.

Clova Mountains, *Mr G. Don*. Guthrie Moors, *Mr A. Croall*.

J. curvifolia, Dicks. Curve-leaved J. H. 112.

Clova Mountains, *Mr G. Don*.

J. incisa, Schrad. Jaey-leaved J. H. 113.

Old wall foot of White Hill of Auchterhouse.

J. pusilla, L. Dwarf J. H. 113.

Den of Foulis in ft. Moist banks frequent.

J. nemorosa, L. Wood J. H. 113.

Sidlaw Hills and Clova Mountains, in rivulets and marshy places frequent.

β. purpurascens, Hook. Clova.

J. undulata, L. Wavy-leaved J. H. 114.

- Reeky Linn, in ft. Clova, *Mr J. Cruickshank*.
- J. resupinata*, L. Curled J. H. 114.
Clova Mountains, July 1846.
- J. albicans*, L. Whitish J. H. 114.
Moist woods, heaths, dens, old walls, &c., ft. not common.
β. procumbens, Hook. Mountains frequent.
- J. Dicksoni*, Hook. Dicksonian, J. H. 115.
Castle-hill, Kirriemuir, and Kinnordy, *C. Lyell, Esq.*
- J. cochleariformis*, Weis. Hollow-leaved J. H. 115.
Clova mountains, *Mr G. Don*.
- J. complanata*, L. Flat J. H. 116.
Trees common, less so on walls, ft. plentiful.
- J. Taylori*, Hook. Taylorian J. H. 116.
Moist rocks foot of Craig Maid, Glen Dole, plentiful. West Werron, *Mr A. Croall*.
- J. scalaris*, Schrad. Ladder J. H. 116.
Reeky Linn and Clova, frequent.
- J. polyanthos*, L. Many-flowered J. H. 117.
Lead near Dryburn, Glen Ogilvy, and streams, Clova, sterile. Sidlaw Hills in ft.
- J. Trichomanis*, Dicks. Fern J. H. 117.
Moist banks frequent.
- J. bidentata*, L. Triangular-sheathed J. H. 118.
Woods and on walls frequent, ft. not uncommon:
- J. barbata*, Schreb. Toothed J. H. 119
Frequent on the Sidlaw Hills, ft. rare. *β. minor*, Hook.
Clova.
- J. Lyoni*, Tayl. Lyon's J. (*Trans. Bot. Soc. Ed. i. 116.*)
Deerhill Wood, White Hill, Reeky Linn, &c. First discovered at Dunoon near Glasgow by *G. J. Lyon, Esq.*

J. albescens, Hook. Small pale J. H.

Clova, July 1824, *Hooker, Greville, Burchell, Drummond.*

J. reptans, L. Creeping J. H. 119.

Clova mountains, *Mr G. Don.*

J. trilobata, L. Three-toothed J. H. 119.

Rocks, base of Craig Maid, Glen Dole.

J. juniperina, Sw. Juniper-leaved J. H. 120.

Clova mountains, *Mr G. Don.* Glen Phee, &c.

J. julacea, L. Silvery alpine J. H. 120.

Glen Dole and Glen Phee frequent, ft. rare. Plentiful on Lochnagar, in the neighbouring county of Aberdeen.

J. tricophylla, L. Hairy J. H. 121.

Recky Linn, rare.

J. setiformis, Ehrh. Four-lobed J. H. 121.

Ben Red, Glen Phee, Glen Dole, and other places in Clova, frequent, in broad cushioned tufts on rocks, sterile.

J. platyphylla, L. Flat-leaved J. H. 121.

Dens of Airlie, Glammis, Foulis, Linlathen, Fullerton, &c.

β. major, Hook. Recky Linn.

J. ciliaris, L. Ciliated J. H. 122.

Sidlaw Hills plentiful, but sterile. Bassies, Clova, with calyces, 1840, among *Dicrana*; and in spreading flaky patches on old birches foot of Craig Maid, Glen Dole, 1846, bearing abundance of capsules. Hooker says, "This beautiful species has never, so far as I am aware, been seen with *capsules* in this country. Even the calyces are rare." The discovery of its fructification is therefore interesting, and various botanists will have an opportunity of examining it. The mountain form is very different in appearance from that of the lower hills and woods, being small and procumbent; but the structure of the leaves and their colour are the same.

J. tomentella, Ehrh. Spongy J. H. 122.

Near the *pond* of Kinnaird, and by the side of the N. Esk, a little above Gannachy Bridge, *Mr A. Bousie*.

J. serpyllifolia, Dicks. Thyme-leaved J. H. 123.

Den of Airlie, and Clova, sterile.

J. dilatata, L. Dilated J. H. 125.

Walls and trees common, ft. frequent.

J. Tamarisci, L. Tamarisk J. H. 125.

Old walls, trees, and banks, plentiful, ft. not uncommon.

J. multifida, L. Many-lobed J. 125.

Moist places frequent. Monifieth, Sands of Barrie, Strathmartin, &c.

J. Blasia, Hook. Flask-bearing J. H. 126.

Reeky Linn, with ft. in April 1842. Milltown of Monifieth, west side of the railway bridge at the mouth of the Dighty, ft. young, Feb. 1847. Mericmoor Wood (now destroyed). Glen Dole, Clova.

J. epiphylla, L. Broad-leaved J. H. 126.

Sides of springs and shady banks, frequent. In ft. Fotheringham, Deerhill, and Baldovan Woods, March to June.

β. longifolia, Hook.

In ft. near a small waterfall west side of Craig Owl, Sidlaw, April. Side of a small rill between Broughty and Monifieth. Moist places on the "terrace" or steep rocks on the north banks of the Esk, west from Brechin Castle, April 1847, *Mr W. Anderson*.

J. calycina, Tayl. (*J. epiphylla*, *γ. furcigera*, Hook. 127.)

Wet rocks, Den of Pitlyall, sterile.

J. furcata, L. Forked J. H. 127.

Rocks and trees frequent, ft. not common.

γ. aruginosa, Hook.

Reeky Linn, and on trunks of trees between the marsh of Rescobie and the lake, investing them with dense spreading

masses of a yellowish-green colour, the small upright fronds assuming a verdigris-green hue after drying.

J. pubescens, Schrank. Downy J. H. 127.

Den of Airlie, plentiful. Loups of Kenny, *Mr J. Donald*.

J. Lyellii, Hook. Lyell's J. H. 127.

Drumly Airy, a waterfall on the Noran; and β . *Hibernica*, Hook. Catlaw, *C. Lyell, Esq. of Kinnordy*.

ORD. IV.—LICHENES. LICHENS.

Gen. Br. 39. *F.* 36. *Sp. and v. Br.* 472. *F.* 181.

BÆOMYCES, *Pers.* Bæomyces.

Br. sp. 3. *F.* 3.

B. roseus, *Pers.* Rose-coloured Mushroom Bæomyces. H. 137.

Old walls Baldovan, Sidlaw Hills, and Clova.

B. rufus, *Wahl.* Brown Mushroom Bæomyces. H. 137.

Walls and rocks, Baldovan; Sidlaw Hills, &c.

B. placophyllus, *Wahl.* Thick-crustcd Bæomyces. H. 137.

Sidlaw Hills frequent, ft. not common.

CALICIUM, *Ach.* Calicium.

Br. sp. and v. 20. *F.* 1.

C. furfuraceum, *Pers.* Sulphureous Calicium. H. 142.

Cramb's wood, near Glammis, in ft. rare. (Future observation will undoubtedly increase our county list of these and other minute lichens. *C. sessile* has been found by *Mr Bousie* in the Carse of Gowrie.)

ARTHONIA, *Ach.* Arthonia.*Br. sp.* 3. *F.* 1.

A. Swartziana, *Ach.* Swartzian Arthonia. H. 143.
On trees Will's Braes.

OPEGRAPHA, *Ach.* Opegrapha.*Br. sp. and v.* 17. *F.* 1.

O. atra, *Pers.* Black Opegrapha. H. 145.
Trees frequent.

VERRUCARIA, *Pers.* Verrucaria.*Br. sp. and v.* 32. *F.* 6.

V. biformis, *Borr.* Deceptive bark Verrucaria. H. 150.
Trees near Camperdown, rare.

V. maura, *Ach.* Black-moor Rock Verrucaria. H. 154.

On porphyretic rocks banks of the Tay, but most abundant on the Fife side. Its usual associate, the bright yellow *Squamaria elegans*, is rendered more conspicuous by the black hue which this lichen gives to the rocks.

V. nitida, *Schrad.*, *cinerea*, *Pers.*, *epidermis*, *Ach.*, and *nigrescens*, *Pers.*, are enumerated in Don's Clova list.

ENDOCARPON, *Hedw.* Endocarpon.*Br. sp. and v.* 17. *F.* 4.

E. miniatum, *Ach.* Grey cloudy Endocarpon. H. 156.

Bridge of Milna-craig above Reeky Linn. Don's list includes this species and the following:—*E. miniatum*, β . *complicatum*, *Hook.*, γ . *aquaticum*, *Hook.*, and *E. smaragdulum*, *Ach.*

PERTUSARIA, *Ach.* Pertusaria.*Br. sp.* 5. *F.* 2.

P. communis, *DC.* Common Pertusaria. H. 160.
Den of Glammis, Reeky Linn, and Clova, on trees.

P. fallax, Ach. Doubtful Pertusaria. H. 160.
Mr G. Don.

LEPRARIA, *Ach.* Lepraria.

Br. sp. 9. F. 2.

L. flava, Ach. Bright Yellow Lepraria. H. 163.
On trees Den of Mains, and rocks on the Bassies, Clova.

L. alba, Ach. White Lepraria. H. 163.
On mosses, Sidlaw Hills, Reeky Linn, and Clova.

SPILOMA, *Ach.* Spiloma.

Br. sp. and v. 19. F. 1.

S. sphaerale, Ach. Globose parasitic Spiloma. H. 165.
On *Isidium paradoxum*, Sidlaw Hills, frequent.

VARIOLARIA, *Pers.* Variolaria.

Br. sp. and v. 17. F. 3.

V. globulifera, Turn. Globuliferous Variolaria. H. 169.
On rocks, Sidlaw Hills.

V. discoidea, Pers. *Inspid* zoned Variolaria. H. 169.
On trees, Den of Mains.

V. faginea, Pers. *Bitter* zoned Variolaria. H. 169.
Trees, Deerhill, and Hunters' Hill Woods. Kinnaird,
Mr J. Laing.

URCEOLARIA, *Ach.* Urceolaria.

Br. Sp. and v. 7. F. 6.

U. scruposa, Ach. Common Urceolaria. H. 172.
Den of Mains, Auchterhouse, and Sidlaw Hills.

U. gibbosa, Ach. Gibbous-fruited Urceolaria. H. 172.
Sidlaw Hills, on rocks.

U. calcarea, Ach. Calcareous Urceolaria. H. 172.

Lawhill, Dundee; Baldovan; Sidlaw Hills, &c.

U. cinerea, Ach. Grey Urceolaria. H. 172.

Sidlaw Hills.

U. Acharii, Wahl. Acharian Urceolaria. H. 172, and var. β . *cyrtaspis*, Hook., with the others named above, are recorded in Don's Clova list.

LECIDEA, Ach. Lecidea.

Br. sp. and v. 73. *F.* 25.

L. atrata, Wahl. ? Inky-crusted Lecidea. H. 174.

Granitic rocks in Glen Esk, *Mr G. Don*.

L. cechumena, Ach. Confused black and olive Lecidea. H. 175.

Coast; Lawhill; Sidlaws; Clova.

L. petræa, Ach. Rock Lecidea. H. 175.

Walls and rocks frequent.

L. confluens, Ach. Confluent-shielded Lecidea. H. 175.

Rocks and walls plentiful, apothecia very variable in form, size, and disposition.

L. eleochroma, Ach. Common black-shielded Lecidea. H. 176. (*L. parasema*, Ach.)

On trees common.

L. geographica, Hook. Map Lecidea. H. 178.

Plentiful on the primitive rocks from the coast to the highest mountain summits.

L. silacea, Ach. and *L. Æderi*, Ach. H. 178.

On the Sidlaw Hills and Clova mountains frequent, associated with *L. confluens*, from some states of which they are scarcely to be distinguished except by the colour of the thallus, and that is variable. Not unfrequently, indeed, the grey, yellow, and red hues are blended in one specimen, and

the apothecia being alike, it is difficult to say which of the reputed species it should be referred to.

L. albo-atra, Borr. Black and white Lecidea. H. 180.
Rocks on the coast, frequent.

L. fusco-lutea, Ach. Brownish-yellow Lecidea. H. 183.
Clova mountains.

L. ferruginea, Hook. Rusty-shielded Lecidea. H. 184.
Rocks on the coast; Lundie Craigs; Turin; Sidlaws; Clova.

L. icmadophila, Ach. Heath Lecidea. H. 184.
Sidlaw Hills, and Clova mountains plentiful, on the earth
or coating mosses, ft. common.

L. polytropa, Ach. Horn-coloured Lecidea. H. 185.
White Hill, Sidlaw. Clova, *Mr G. Don*.

L. erythrella, Borr. Orange stone Lecidea. H. 186.
Lundie Craigs, in ft. rare.

The following are inserted on the authority of *Mr G. Don*,
who gives them in his list of Clova lichens:—

L. atro-alba, Ach., *L. fusca-atra*, Ach., *L. muscorum*,
Hook., *L. viridi-atra*, Ach., *L. rivulosa*, Ach., *L. pruinosa*,
Ach., *L. expallens*, Borr., *L. quadricolor*, Borr., *L. pezi-*
zoides, Dicks., *L. rupestris*, Ach., *L. vernalis*, Borr., and
L. marmorea, Ach.

LECANORA, *Ach.* Lecanora.

Br. sp. and v. 33. *F.* 14.

L. atra, Ach. Black-shielded Lecanora. H. 186.
Walls and rocks, ft. plentiful.

L. glaucoma, Ach. Wall-eyed Lecanora. H. 189.
Rocks and walls frequent. On the Lawhill, Dundee, and
the Sidlaw Hills, ft. plentiful.

L. subfusca, Ach. Brown-shielded Lecanora. H. 189.
Common on trees, less so on rocks and walls.

L. ventosa, Ach. Red-spangled Lecanora. H. 189.

White Hill, Sidlaw, rare; common on rocks on all the Clova mountains. The crust varies in colour, being greenish, grey, or pale pink.

L. Hæmatomma, Ach. Blood-specked Lecanora. H. 190.

Lundie Craigs, but less plentiful than at West Water on the south banks of the Tay. Clova, *Mr G. Don*.

L. crenulata, Hook. Little crenulated Lecanora. H. 190.
Rocks, Will's Braes, &c.

L. varia, Ach. Variable-shielded Lecanora. H. 190.
Ben Red, Clova, not common.

L. albella, Ach. Cream-coloured Lecanora. H. 191.
On trees, Baldovan, Camperdown, &c. Apparently a mere var. of β . *subfusca*.

L. Parella, Ach. Crab's-eye Lecanora. H. 191.
Walls and rocks frequent.

L. tartarea, Ach. Tartareous Lecanora, or Cudbear. H. 191.

Rocks, Clova, plentiful. Rare on the Sidlaw Hills, and at Reeky Linn. β . *Upsaliensis*, Hook., on the summits of most of the Clova mountains, spreading over the heaths and mosses.

L. vitellina, Ach. Yolk-of-Egg Lecanora. H. 192.
Rocks, Will's Braes; Kinpurny, Sidlaw; and Clova.

The following species are enumerated by Don as natives of the Clova mountains: *L. cerina*, Ach., *L. crenulata*, Hook., and *L. Hæmatomma*, Ach.

PSORA, *Hoffm.* Psora.

Br. sp. 6. *F.* 3.

P. cœrulea-nigrescens, Hook., and *P. atro-rufa*, Hook., are in Don's list of Clova species.

P. scalaris, Hook. Olive and black imbricated Psora. H. 192.

Reeky Linn.

SQUAMARIA, *Hook.* Squamaria.

Br. sp. and v. 21. F. 7.

S. hypnorum, Hook. Spreading ground Squamaria. H. 194.

Glen Dole, Clova, not common.

S. candelaria, Hook. Yellow candle Squamaria. H. 194.
Walls and rocks, not common. Clova; Balbeuchly; Invergowrie.

S. elegans, Hook. Elegant orange Squamaria. H. 195.
Rocks on the coast frequent.

S. gelida, Delise. Flesh-coloured alpine Squamaria. H. 195.

Clova mountains near their summits. It also occurs near the summit of Ben Lawers, Perthshire, and at the Linn of Dee, Aberdeenshire, as in Clova, always upon the micaceous schist.

S. affinis, Hook. Spongy Squamaria. H. 196.

On trees, Glen Dole, Clova, not common, in ft.

S. circinata, Hook. Circinate Squamaria. H. 196.

Clova, *Mr G. Don.*

S. saxicola, Hook. Radiated wall Squamaria. H. 197.

Walls and rocks frequent. Clova; Reeky Linn; near Brechin; Balbeuchly; Broughty Castle; Hare Craigs; Ninewells; and on the "*Paddock Stane*" near Invergowrie—a large boulder of gneiss which is probably the remaining pillar of a Druidical temple.

PLACODIUM, *Fée.* Placodium.

Br. sp. 4. F. 2.

P. canescens, DC. Greytree Placodium. H. 197.

On trees frequent ; and not uncommon on walls and rocks, as Broughty Castle ; Blackness ; Will's Braes ; Mains ; Auldbar, &c.

P. plumbeum, Hook. Lead-coloured spongy Placodium. H. 197.

Clova, *Mr G. Don*.

PARMELIA, *Ach.* Parmelia.

Br. Sp. 32. *F.* 18.

P. glomulifera, Ach. Glomuliferous Parmelia. H. 198.
Lundie Craigs, rare. Clova, *Mr G. Don*.

P. caperata, Ach. Wrinkled sulphur Parmelia. H. 198.
Baldovan and Deerhill Woods ; Hare Craigs. Clova, *Mr G. Don*. Old walls west from Kinnaird Castle, *Mr J. Laing*.

P. conspersa, Ach. Greenish chesnut-shielded Parmelia. H. 198.

Walls and rocks frequent from the coast to Clova. It is particularly abundant on the Hare Craigs west from Broughty Ferry, and bearing fr. copiously.

P. saxatilis, Ach. Grey stone Parmelia. H. 199.

Walls and rocks abundant from the coast to the mountains, fr. not uncommon.

P. omphalodes, Ach. Purple rock Parmelia. H. 199.
Sidlaw Hills, and more abundant on the Clova mountains, fr. common.

P. perlata, Ach. Pearly Parmelia. H. 200.

Walls, Pitponitie, rare, sterile.

P. herbacea, Ach. Bright-green Parmelia. H. 200.

Old walls near Auldbar, sterile. Old elms near Kinnaird, *Mr A. Croall*. Clova, *Mr G. Don*.

P. olivacea, Ach. Olive-coloured Parmelia. H. 200.

Walls, rocks, and trees, common, fr. rather rare. In fr. Reeky Linn, Airlie, Camperdown, Hare Craigs, and Clova.

P. pulverulenta, Ach. Green powdery Parmelia. H. 201.

Walls plentiful, ft. frequent.

P. pityrea, Ach? Scurfy imbricated Parmelia. H. 201.
Marten's Den, rare, sterile, *Mr A. Croall*.

P. stellaris, Ach. Black-shielded stellated Parmelia. H. 201.

Walls, trees, and old pales, frequent, with ft.

P. Fahlunensis, Ach. Flat black Parmelia. H. 202.
Rocks on most of the Clova mountains, ft. abundant.

P. stygia, Ach. Stygian Parmelia. H. 202.
Rocks, Clova, in ft., but not common.

P. aquila, Ach. Sun-burnt Parmelia. H. 203.
Rocks on the coast plentiful, and on Turin Hill and Lundie Craigs, ft. common.

P. ambigua, Ach. Yellowish powdery Parmelia. H. 203.

Kinnordy, sterile, *H. B. F.*

P. parietina, Ach. Yellow wall Parmelia. H. 204.
Walls, rocks, and trees, plentiful, the thallus from pale yellowish green to deep orange, ft. abundant.

P. physodes, Ach. Inflated Parmelia. H. 204.
Walls and trees common, ft. rather rare. In ft. on trees in Baldovan and Deerhill Woods; and on walls, Baldovan, Camperdown, Auchterhouse, Auldbar, &c. Near Kinnaird, *Mr A. Bousie*.

P. erosa, Bort. MSS. Corroded Parmelia. Walls, Will's Braes, and Auldbar, sterile.

STICTA, Ach. Sticta.

Br. sp. 8. F. 4.

S. pulmonaria, Hook. Lungwort Sticta. H. 206.

Old birch trees, Glen Dole. Craigs of Lundie; Hill of Turin; Reeky Linn. North face of the Rock of St Skae, near Usan, *Mr A. Croall*. No ft.

S. scrobiculata, Ach. Pitted Sticta. H. 206.

Clova; Reeky Linn; Lundie Craigs; Sands of Barrie, sterile. In the latter station it grows on the bare sand, in the others on rocks and trees.

S. limbata, Ach. Mealy-bordered Sticta. H. 206.

Clova, *Mr G. Don*.

S. sylvatica, Ach. Pitted wood Sticta. H. 207.

On rocks, Reeky Linn, sterile.

COLLEMA, *Ach.* Collema.

Br. sp. and v. 33. F. 9.

C. nigrescens, Ach. Bat's-wing Collema. H. 211.

Reeky Linn; Den of Glammiss; Glen Dole, &c., mostly on rocks.

C. flaccidum, Ach. Flaccid Collema. H. 211.

Reeky Linn. Clova, *Mr G. Don*.

C. lacerum, Ach. Jagged Collema. H. 213.

Among mosses in shady places frequent, as the Dens of Glammiss, Airlie, Glen Dole, &c., in ft. at Reeky Linn.

C. subtile, Ach. Fine-spun Collema. H. 213.

Reeky Linn.

C. tenuissimum, Ach. Fine-cut Collema.

C. spongiosum, Ach. Spongy Collema. H. 213.

Both on the sands of Barrie.

Mr G. Don enumerates the following species: *C. saturninum*, Ach., *C. crispum*, Borr., and *C. fasciculare*, Ach., and probably many others will be added by future observation.

SOLORINA, *Ach.* Solorina.*Br. sp.* 2. *F.* 2.*S. crocea*, *Ach.* Saffron Solorina. H. 214.

Summits of the Bassies, White Bent, &c., Clova ; in ft.

S. saccata, *Ach.* Socket Solorina. H. 214.

Crevices of rocks, Glen Dole ; Canlochen ; Glen Prosen ; Reeky Linn, &c., in ft.

PELTIDEA, *Ach.* Peltidea.*Br. sp.* 8. *F.* 6.*P. venosa*, *Ach.* Black-veined Peltidea. H. 215.Rocky banks Reeky Linn ; and on an old wall foot of the White Hill, a little above the village of Auchterhouse, ft. West Water, near the old Castle of Edzell, *Mr A. Croall*.*P. scutata*, *Ach.* Target-fruited Peltidea. H. 215.

Clova, not common.

P. horizontalis, *Ach.* Brown horizontal Peltidea. H. 215.

Banks and rocky places frequent.

P. aphthosa, *Ach.* Thrush Peltidea. H. 215.

Rocky places frequent, but the ft. rare. In that state on the Sands of Barrie, and on the west side of the White Hill.

P. canina, *Ach.* Canine Peltidea. H. 215.

Woods, heaths, and banks plentiful.

P. polydactyla, *Ach.* Many-fingered Peltidea. H. 216.

Waysides frequent.

NEPHROMA, *Ach.* Nephroma.*Br. sp.* 2. *F.* 1.*N. resupinata*, *Ach.* Resupinate Nephroma. H. 216.Rocks and trees, in ft., not common. Reeky Linn ; Lundingie Craigs ; Turin Hill ; Glen Dole. Between Usan and Lunan Bay, *Mr A. Croall*.

GYROPHORA, *Ach.* Gyrophora.*Br. Sp. and v. 8. F. 6.**G. polyphylla*, Hook. Many-leaved Gyrophora. H. 217.*G. proboscidea*, Ach. Proboscis Gyrophora. H. 217.*G. deusta*, Ach. Burnt Gyrophora. H. 218.*G. erosa*, Ach. Corroded Gyrophora. H. 218.*G. cylindrica*, Ach. Fringed Gyrophora. H. 218.*G. pellita*, Ach. Fleecy Gyrophora. H. 219.

These all occur more or less abundantly on stones and rocks on most of the higher mountains; and the first one has also been picked on the Sidlaw Hills and Hare Craigs, though rarely.

UMBILICARIA, *Fée.* Umbilicaria.*Br. sp. 1. F. 1.**U. pustulata*, Schrad. Blistered Umbilicaria. H. 219.Clova mountains, *Mr G. Don.*CETRARIA, *Ach.* Cetraria.*Br. sp. and v. 7. F. 6.**C. juniperina*, Ach. Golden Cetraria, β . *pinastri*, Hook. H. 220.Trees, Kinnordy, *C. Lyell, Esq.**C. sepincola*, Ach. Fence Cetraria. H. 220.

Deerhill Wood, plentiful on the trunks and branches of fir trees, the apothecia rare. Old wall, foot of White Hill, seldom, however, found on stone. Kinnordy, *C. Lyell, Esq.*

C. glauca, Ach. Glaucous Cetraria. H. 220.

Trunks and branches of trees, especially firs, and on rocks and the ground, Clova mountains, frequent. Frequent in ft. in Deerhill Wood, and sterile fronds very much ciliated occur in Baldovan Woods, and on the rocks of Clova. The underside is usually brown or blackish, but often chequered with white,

and when almost wholly white is β . *fallax*, Hook. (*C. fallax*, Ach.)

C. nivalis, Ach. Snow Cetraria. H. 221.

Bassies; Ben Red; Loch Brandy; and other of the Clova summits, never descending much below 3000 feet, always sterile.

C. Islandica, Ach. Iceland Cetraria, (the *Iceland Moss* of commerce.) Sidlaw Hills frequent; but more abundant on the Clova mountains. Moors around Forfar, *Mr A. Croall*. The ft. is rarer on the Clova mountains than on those of Braemar; I picked several specimens on a hill near Loch Wharral, known as the "*Cat's-tae*."

Dr Davidson of Glasgow states, on the authority of Berzelius, that this lichen in 100 parts comprises the following ingredients:—

Chlorophylle,	..	..	1.6
Bitter principle,	..	..	3.0
Uncrystallizable sugar,	..	..	3.6
Gum,	..	..	3.7
Apothem of extractive,	..	..	7.0
Starch,	..	..	44.6
Bilichinates of potass and lime, &c.			1.9
Amylaceous fibrin,	..	..	36.2

When deprived of the bitter principle by boiling, a fine jelly is procured, which, when mixed with wheaten flour, forms, it is said, a "perfectly sweet bread." It is much used in medicine.

BORRERA, *Ach.* Borrera.

Br. Sp. 7. *F.* 3.

B. ciliaris, Ach. Larger ciliated Borrera. H. 222.

Old walls frequent, as Baldovan, Mains, Auldbar, Foulis, &c., *apothecia* not uncommon. In profusion, in ft., on old trees at the Castle of Melgund, and on old walls half way between Forfar and Kirriemuir, *Mr A. Croall*.

B. tenella, Ach. Lesser ciliated Borrera. H. 222.

Old walls, ft. common.

B. furfuracea, Ach. Branny Borrera. H. 223.

On trees common, the segments of the fronds very variable in breadth and the amount of their farinaceous covering. The ft. is found sparingly in Deerhill and Baldovan Woods.

EVERNIA, *Ach.* Evernia.

Br. Sp. and v. 2. F. 1.

E. prunastri, *Ach.* Ragged hoary Evernia. H. 224.

Woods and pales abundant. The ft. is frequent in the Deerhill and other woods on the Sidlaws.

RAMALINA, *Ach.* Ramalina.

Br. Sp. 6. F. 4.

R. fraxinea, *Ach.* Ash Ramalina. H. 225.

Trees plentiful, and exceedingly variable in the size and ramification of its fronds.

R. fastigiata, *Ach.* Fastigate Ramalina. H. 225.

Woods common.

R. scopulorum, *Ach.* Rock Ramalina. H. 225.

Rocks on the banks of the Tay, frequent. Lundie Craigs ; and Turin Hill. "Druidical monuments at Clova," *Mr A. Croall*.

R. farinacea, *Ach.* Narrow meally Ramalina. H. 225.

Walls, rocks, and trees frequent. Ft. Deerhill Wood, rare.

USNEA, *Ach.* Usnea.

Br. Sp. and v. 5. F. 2.

U. florida, *Ach.* Flowery Usnea. H. 226.

Trees common, ft. not so. With *apothecia* occasionally in Deerhill Wood. Kinnoul Wood, *Mr A. Croall*. Kinnaird, *Mr J. Laing*.

U. barbata, *Ach.* Jointed Usnea. H. 226.

Deerhill and other woods plentiful, but rare in ft.

ALECTORIA, *Ach.* Alectoria.

A. jubata, *Ach.* Wiry Alectoria, or Rock-Hair. H. 227.

Woods plentiful, depending from the branches of the trees in loose tufts, often a foot long, varying in colour, from greyish white through various shades of olive and brown, to nearly black. The *true* apothecia I have had the pleasure of finding for the first time in Britain, in Deerhill Wood, and have distributed many specimens. They are usually met with from March to May, but are not abundant. The Deerhill Wood is spread over the Hill of Tealing, one of the southern slopes of the Sidlaws, and is composed mainly of firs. Its undulated interior is a pleasant rambling-place on a summer day, when the *Vaccinium Myrtillus* is in full bloom, and the voice of the cuckoo is heard at intervals amid the innumerable warblings of forest birds; and to the lover of Flora it is ever interesting. In summer it presents a luxuriance of woodland flowers; in autumn beautiful ferns and mosses; and in winter and spring the exuberance of lichens on the trees, especially in the northern part, will give a charm to the place though he is compelled to gather them knee-deep in snow.

β . *chalybeiformis*, *Hook.* Common on rocks on the Clova mountains.

CORNICULARIA, *Ach.* Cornicularia.

Br. Sp. and v. 7. F. 5.

C. tristis, *Ach.* Dark radiated Cornicularia. H. 228.

Rocks and stones, Clova, common.

C. aculeata, *Ach.* Aculeated Cornicularia. This and β . *hispidata* are found in heathy places from the coast to the mountain summits, ft. frequent.

C. bicolor, *Ach.* Black and Grey Cornicularia. H. 228.

Clova mountains, but not common. More frequent in Braemar.

C. lanata, *Ach.* Black woolly Cornicularia. H. 229.

Rocks on most of the Clova mountains, ft. not rare.

ISIDIUM, *Ach.* Isidium.*Br. sp. and v. 10. F. 3.*I. *Westringii*, Ach. Speckled Isidium. H. 231.Clova, *Mr G. Don.*I. *paradoxum*, Ach. Dubious Isidium. H. 231.

Abundant on the Sidlaw hills, often whitening the rocks.

I. *corallinum*, Ach. White Isidium. H. 231.

Baldovan; Sidlaw Hills; Clova, &c., on rocks and walls.

SPHÆROPHORON, *Ach.* Sphærophoron.*Br. sp. and v. 3. F. 3.*S. *coralloides*, Turn. and Borr. Coral-like Sphærophoron. H. 232. *γ. laxum*, Hook.

Walls and rocks frequent, from the coast to the mountains; ft. not common, the branches lax, and often tinged with a tawny hue.

β. cæspitosum, Hook. (*S. fragile*, Ach.)

In dense rounded very cæspitose masses on rocks upon the higher mountains, common; ft. not uncommon. The branches straight, regularly dichotomous, and generally pure white, or tinged with a leaden grey.

S. *compressum*, Ach. Compressed Sphærophoron. H. 232.Clova mountains, *Mr G. Don.*STEREOCAULON, *Ach.* Stereocaulon.*Br. sp. 8. F. 6.*S. *tomentosum*, Laur.“Podetia (stems) lax, taper, very much branched, clothed with the densest spongy whitish woolliness, scales roundish cut and notched, cinereous-cæsius, apothecia minute *lateral*, at length globose.“Horizontal thallus *none*; podetia *free at the base*, and only *gently sticking* by its wool, which distinguishes it from

all the following species. Apothecia constantly *lateral*." *Fries*.

In several places on the Sands of Barrie, and on heaths about the head of Canlochen.

S. corallinum, Schreb.

"Podetia lax, slightly compressed, *smooth*, very much branched, scales fibrillose, digitated-branchy, cinereous-cæsius, apothecia scattered or clustered, subglobose.

"Horizontal thallus *none*. Podetia clustered into a dense tuft, *united at the base*, and sticking like a Gyrophora to the rock. Scales splitting into coral-like branches, which make this species very like *Sphærophoron coralloides*."

Churchill Babington, Esq., who has kindly translated for me the characters of the various species of this genus from *Fries*, remarks that this is the *S. paschale* of *E. Bot*.

Sidlaw Hills frequent. Old wall Balgay. Clova and Canlochen.

S. paschale, L.

"Podetia lax, slightly compressed, very much branched, *smoothish*, scales leaf-like granular, notched, clustered, glaucous, apothecia nearly terminal dilated flat.

"Horizontal thallus crustaceous, *soon evanescent*. Podetia crowded below but not centrally united (like *S. corallinum*.) Young podetia a little downy, soon smooth, densely incrustated; scales thicker than in the rest of this series, roundish, glaucous."

Old walls Strathmartin.

S. condensatum, Laur.

"Podetia erect taper subdivided, clothed with thin whitish flesh-coloured woolliness, scales roundish taperish and confluent, glaucous. Apothecia terminal dilated flat, somewhat peltate.

"Horizontal thallus *persistent*. Podetia nearly simple distinct, erect, when old smooth. Apothecia almost solitary very much dilated, margin at length reflexed."

Old walls near Auchterhouse, and Balkemnock.

S. denudatum, Flörke.

“*Podetia lax*, taper branched, smooth; granules roundish, somewhat cinereous, then flattened lobed and crenulated olivaceous edged with white; apothecia lateral minute flattish.”

Abundant on the Sidlaw Hills and Clova mountains, ft. rare.

S. nanum, Ach.

“*Podetia erect*, *very slender*, fastigiate-branched, below naked blackish, above most delicately pulverulent; granules wart-shaped minute pale-greenish *floccose*. ‘Apothecia lateral convex.’

“Quite different from all the rest by its *floccose* granules, which are usually ochre mixed with verdigris-green. The most typical specimens have the thallus very granular, and resemble a miniature of the preceding species.”

This occurred in considerable abundance on the rocks on the north banks of the Isla, a little to the west of the Reeky Linn. It is the true plant of Acharius, different from that previously considered so, and quite new to our Flora. I first detected it on rocks at West Water, on the south banks of the Tay, and Mr Babington determined it.

CLADONIA, *Fée*. Cladonia.

Br. sp. and v. 8. F. 7.

C. vermicularis, DC. Vermicelli Cladonia. H. 234.

Frequent on the summits of the higher mountains, spreading over mosses, heath, and the bare ground, sterile.

C. uncialis, Hook. Short perforated Cladonia. H. 234.

Heaths plentiful.

β. turgida, Hook. Sidlaw Hills and Clova not uncommon.

C. rangiferina, Hoffm. Rein-deer Cladonia, or Rein-deer Moss. H. 235.

Moors, heaths, and woods throughout the county abundant, ft. not scarce.

C. furcata, Hoffm. Forked Cladonia. H. 236.

This variable species is found on the Sands of Barrie, and

on walls, banks, rocks, &c., from thence to the summits of the Clova mountains, ft. frequent.

β. subulata, Hook. Old walls, Baldovan; Auchterhouse, &c.

γ. spinosa, Hook. Kinnordy; Sidlaw Hills; Clova, &c.

SCYPHOPHORUS, *Fée*. Cup-Lichen.

Br. sp. and v. 19. *F.* 13.

S. sparrasus, Hook. Torn-coated Cup-Lichen. H. 237.
Reeky Linn; Sidlaw Hills; Clova, &c.

S. alcicornis, Hook. Elk's-horn Cup-Lichen. H. 238.
Sands of Barrie and Sidlaw Hills, ft. rare.

S. anomæus, Hook. Confused brown-headed Cup-Lichen.
H. 238.

Sidlaw Hills, in ft., rare.

S. endivifolius, Hook. Endive-leaved Cup-Lichen. H.
238.

Sidlaw Hills, rare.

S. cervicornis, Hook. Buck's-horn Cup-Lichen. H. 238.
Common on heaths and rocky banks from the coast to the mountains, often prolific.

S. pyxidatus, Hook. Common Cup-Lichen. H. 238.
Old walls and banks frequent. *Var. neglecta*, Fries. On boggy heaths, Clova.

S. fimbriatus, Hook. Fringed Cup-Lichen. H. 239.
Sidlaw Hills and Clova mountains, not common.

S. gracilis, Hook. Slender Cup-Lichen. H. 239.
Plentiful on the Sidlaw Hills and Clova mountains. Kinnoul Wood, *Mr A. Croall*.

S. filiformis, Hook. Thread-shaped Cup-Lichen. H.
239.

Sidlaw Hills and Clova mountains, frequent. Kinnoul Wood, *Mr A. Croall*.

S. deformis, Hook. Clumsy indented Cup-Lichen. H. 240.

Sidlaw Hills and Clova. Kinnoul Wood, *Mr A. Croall*.

S. cocciferus, Hook. Scarlet Cup-Lichen. H. 240.

Our most common species on the hills and mountains.

S. bellidiflorus, Hook. Daisy-flowered Cup-Lichen. H. 240.

Frequent on the mountains, chiefly on boggy heaths on the table-lands.

PYCNOTHELIA, *Dufour*. Pycnothelia.

Br. sp. 1. F. 1.

P. Papillaria, Hook. Papillary Pycnothelia. H. 241.
Clova, *Mr G. Don*.

ORD. V.—CHARACEÆ.

Gen. Br. 1. F. 1. Sp. and v. Br. 9. F. 3.

CHARA, *Vaill.* Chara.

C. flexilis, L. Flaccid Chara. H. 245.

Restenet, *Mr A. Croall*. Ditches near the South Esk, east from Kinnaird, *Mr J. Laing*.

C. vulgaris, L. Common Chara. H. 246.

Boggy pools Sidlaw Hills, frequent. Pool near the Life-boat house, Sands of Barrie. Restenet, *Mr A. Croall*.

C. hispida, L. Hispid Chara. H. 246.

Pools Restenet marsh. In a small pond, wayside between Brechin and Carreston, with *C. vulgaris*, *Mr A. Bousie*.

ORD. VI.—ALGÆ. SEA-WEEDS, &c.

(So far as I am aware, no one has devoted such attention to the *Algæ* and *Fungi* of this county as to render the lists of these tribes complete, and on that account the comparative

numbers of British and Forfarshire genera and species are omitted. The following lists must therefore be considered merely as a contribution to the *Algology* and *Mycology* of the county, embracing such plants as have been satisfactorily ascertained to be natives. Most of the *Fungi* collected by myself have been examined and confirmed or named by the *Rev. M. J. Berkeley*, our best British authority; and those species of algæ and fungi marked with a * are given solely on the authority of *Mr G. Don*. Many species of fresh-water algæ, and not a few of the smaller marine ones, will undoubtedly reward future research; and perhaps not a tithe of our mushrooms are yet ascertained.)

DIV. I.—INARTICULATÆ.

- Halidrys*, Lyngb. H. 266.
siliquosa, Lyngb.
 β. *minor*, Hook.
- Fucus*, Ag. H. 266-9.
vesiculous, L.
 * β. *spiralis*, Hook.
 γ. *linearis*, Hook.
 * *ceranoides*, L.
serratus, L.
nodosus, L.
canaliculatus, L.
- Himantholia*, Lyngb. H. 269.
lorea, Lyngb.
- Lichina*, Ag. H. 270.
 * *pygmæa*, Ag.
- Alaria*, Grev. H. 271.
esculenta, Grev.
- Laminaria*, Lamour. H. 271.
digitata, Lamour.
 * *bulbosa*, Lamour.
 * *saccharina*, Lamour.
 * *Phyllitis*, Lamour.
- Desmarestia*, Lamour. H. 273.
 * *ligulata*, Lamour.
aculeata, Lamour.
- Sporochnus*, Ag. H. 274.
 * *villosus*, Ag.
- Chordaria*, Ag. H. 275.
 * *flagelliformis*, Ag.
- Corda*, Stackh. H. 276.
Filum, Lamour.
lomentaria, Grev. Mr A. Croall.
- Asperococcus*, Lamour. H. 276.
fistulosa, Hook.
- Dictyosiphon*, Grev. H. 279.
fœniculaceus, Grev.
- Furcellaria*, Lamour. H. 283.
fastigiata, Lamour.
- Polyides*, Ag. H. 283.
rotundus, Grev.
- Delesseria*, Lamour. H. 285.
sanguinea, Lamour.
sinuosa, Lamour.
alata, Lamour.
 * *Hypoglossum*, Ag.
 * *ruscifolia*, Lamour.
- Rhodomenia*, Grev. H. 288.
bifida, Grev.
laciniata, Grev.
 * *jubata*, Grev.
palmata, Grev.
- Plocamium*, Lamour. H. 292.
coccineum, Lyngb.
- Odonthalia*, Lyngb. H. 293.
dentata, Lyngb.
rhodomela, Ag. H. 294.
lycopodioides, Ag.
subfusca, Ag.
 * *scorpioides*, Ag.
- Laurencia*, Lamour. H. 295.
pinnatifida, Lamour.
- Chylocladia*, Grev. H. 297.
 * *ovalis*, Hook.
kaliformis, Hook.
 * *articulata*, Hook.

- Gigartina*, Lamour. H. 298.
purpurascens, Lamour.
confervoides, Lamour.
plicata, Lamour.
- Chondrus*, Stackh. H. 301.
mammillosus, Grev.
crispus, Lyngb. and Vars.
membranifolius, Grev.
- Phyllophora*, Grev. H. 303.
rubens, Grev. Usan, Mr A. Croall.
- Gelidium*, Lamour. H. 304.
rostratum.
- Ptilota*, Ag. H. 307.
plumosa, Ag.
β. capillaris, Hook.
- Iridea*, Bory. H. 307.
** edulis*, Bory.
- Dumontia*, Lamour. H. 308.
** filiformis*, Grev. Mr A. Croall.
- Catenella*, Grev. H. 309.
** Opuntia*, Grev.
- Porphyra*, Ag. H. 310.
laciniata. Ag.
- Ulva*, L. H. 311.
latissima, L.
Lactuca, L.
Linza, L.
- Enteromorpha*, Link. H. 313.
intestinalis, Link.
compressa, Grev.
- Vaucheria*, DC. H. 319.
** Dillwynii*, Ag.
- Lemania*, Bory. H. 321.
fluviatilis, Ag.
 (In streams.)

DIV. II.—CONFERVOIDÆ.

- Cladostephus*, Ag. H. 322.
verticillatus, Lyngb.
spongiosus, Lyngb.
- Sphacelaria*, Lyngb. H. 323.
scoparia, Lyngb.
olivacea, Ag.
velutina, Grev.
- Ectocarpus*, Lyngb. H. 325. *My*

- littoralis*, Lyngb.
- Polysiphonia*, Grev. H. 327.
fibrata, Hook.
** atro-rubescens*, Grev.
nigrescens, Grev.
fastigiata, Grev.
elongata, Grev.
- Dasya*, Ag. H. 334.
coccinea, Ag.
- Ceramium*, Adans. H. 336.
rubrum, Ag.
diaphanum, Roth.
ciliatum, Ducluz.
- Calithamnion*, Lyngb. H. 338.
Rothii, Lyngb.
repens, Lyngb.
- Conferva*, Ag. H. 350.
** bombycina*, Ag.
floccosa, Ag.
vesicata, Ag.
rivularis, L.
** capillaris*, L.
implexa, Dillw.
ærea, Dillw.
fucciola, Velley.
flavescens, Roth.
** fracta*, Fl. Dan.
** β. flexuosa*, Hook.
glomerata, L.
rupestris, L.
albida, Huds.
arcta, Dillw.
** æruginosa*, Huds.
- Zygnema*, Ag. H. 362.
** nitidum*, Ag.
quininum, Ag. Mr A. Croall.
- Stigonema*, Ag. H. 363.
** atrovirens*, Ag.
- Calothrix*, Ag. H. 366.
** confervicola*, Ag.
- Lyngbya*, Ag. H. 369.
muralis, Ag.
 (Common on damp walls, giving them a green colour.)
- Oscillatoria*, Vauch. H. 372.
** tenuis*, Ag.
** decorticans*, Grev.
** nigra*, Vauch.
** ochracea*, Grev.
- inema*, Ag. H. 379.

- M. * rubiginosum*, Ag. (On *Orthotrichum crispum*, Hunters' Hill, Glamis.)
- Chroolepus*, Ag. H. 380.
aureus, Hook.
Jolithus, Ag.
lichenocolus, Ag.
 (On trees and rocks, the first about Reeky Linn abundant, the second Clova, and the last on trees near Kinnaird, *Mr J. Laing*.)
- Trentepohlia*, Ag. H. 382.
 * *purpurea*, Ag.
- Protonema*, Ag. H. 383.
Orthotrichi, Ag.
- Batrachospermum*, Roth.
moniliforme, Ag.
 * *β. deterrentum*, Hook.
- Diatoma*, Ag.
obliquatum, Lyngb.
marinum, Lyngb.
 (The former is frequent on various marine algæ; the latter I have found on *Ptilota plumosa*, var. *β. capillaris*.)
- Schizonema*, Ag.
 * *comoides*, Ag.

Most of the above-named algæ are found on the coast, either upon the rocks or thrown ashore from deep water. Several species are eaten in the crude state, as the *Hen-ware*, *Alaria esculenta*; the *Dulce*, *Rhodomènia palmata*; the *Pepper-dulce*, *Laurentia pinnatifida*; and the *Tangle*, or stems of the various species of *Laminaria*. The *Chondrus mammillo-sus* and *Fucus canaliculatus* bear the name of *Crow-dulce*, being not quite so palatable as the others. The *Chondrus crispus* is often found on the beach bleached white, and is then the *Carrageen*, or *Irish moss*, used for the same purpose as the *Cetraria Islandica*, or *Iceland moss*.

ORD. VII.—FUNGI. MUSHROOMS.

Agaricus, L.

- nivalis*, Grev. H. 3. Alpine pastures frequent.
- muscarius*, L. H. 4. Woods not uncommon.
- asper*, Pers. H. 6. Balgay Wood.
- melleus*, Vahl. H. 11. Kincaldrum Woods.
- vaccinus*, Schœff. H. 17. Kinnordy, *Klotzsch*.
- Columbetta*, Fries. H. 19. Balgay Wood.
- luteus*, Huds. H. 21. Kinnordy, *Klotzsch*.
- emeticus*, Schœff. H. 21. Balgay Wood.
- adustus*, Pers.
- * *β. elephantinus*, Grev. H. 23. Woods of Burnside.
- zonarius*, With. H. 25. Kinnordy, *Klotzsch*.
- acris*, Bolt. H. 25. Kinnordy, *Klotzsch*.
- * *deliciosus*, L. H. 26. Woods of Burnside, near Forfar.
- phillophilus*, Pers. H. 34. Kinnordy, *Klotzsch*.

- A. nebularis*, Batsch. H. 34. Balgay Wood.
candicans, Pers. H. 36. Balgay Wood.
Xanthopus, Fries. H. 46. Kirriemuir, *Klotzsch*.
orcades, Bolt. H. 48. Meadows common.
ocellatus, Fries. H. 51. Kinnordy, *Klotzsch*.
androsaceus, L. H. 53. On dead beech and fir leaves,
 common.
galericulatus, Scop. var. H. 58. Baldovan Woods.
Adonis, Bull. H. 60. Kirriemuir, *Klotzsch*.
umbelliferus, L. H. 65. Kirriemuir, *Klotzsch*.
stypticus, Bull. H. 73. Balgay Wood.
chalybeus, Pers. H. 80. Kirriemuir, *Klotzsch*.
violaceus, L. H. 85. Near Kinnordy, *Klotzsch*.
varius, Schœff. H. 87. Balgay Wood.
 * *cinnamomeus*, L. H. 88. Fir woods near Forfar.
mutabilis, Schœff. H. 92. Balgay Wood.
fastibilis, Pers. H. 94. Balgay Wood.
scaber, Müll. H. 96. Kirriemuir, *Klotzsch*.
reclinus, Fries. H. 96. Kinnordy, *Klotzsch*.
Cucumis, Pers. H. 99. Kirriemuir, *Klotzsch*.
campestris, L. H. 106. Pastures and woods, frequent.
semiglobatus, Batsch. H. 108. Balgay Wood.
lateritius, Schœff. H. 110.
fascicularis, Huds. H. 111. Baldovan Woods.
stipatus, Pers. var. c. *Klotzsch* MSS. H. 113. Kirriemuir, *Klot*.
plicatilis, Sowerb. H. 122. Damp places frequent.
- Polyporus*, Mich.
- squamosus*, Huds. H. 134. Balgay Wood.
perennis, L. *Mr G. Don*.
adustus, Willd. H. 139. Balgay Wood.
amorphus, Fries. H. 139. Baldovan Woods.
velutinus, Pers. H. 141. Baldovan Woods.
suaveolens, L. H. 140. *Mr G. Don*. Balgay Wood.
versicolor, L. H. 141. Woods, common.
abietinus, Pers. H. 141. Trees, Baldovan Woods and
 Auchterhouse.
igniarius, L. H. 144. *Mr G. Don*.
- Boletus*, Dill.
- Grevillei*, *Klotzsch*. H. 148. Woods, common.
piperatus, Bull. H. 150. Kinnordy, *Klotzsch*.

Fistulina, Bull.

hepatica, With. H. 154. On the back pillars, Hammermen's Hall, Dundee, Aug. 1833.

Hydnum, L.

imbricatum, L. H. 155.

repandum, L. H. 155.

auriscalpium, L. H. 156. All three in fir woods east from Forfar, *Mr G. Don*.

Sistotrema, Pers.

confluens, Pers. H. 160. Fir woods east from Forfar, *Mr G. Don*.

Thelephora, Ehrh.

palmata, Scop. H. 163. Baldovan Woods.

laciniata, Pers. H. 165. Baldovan Woods.

terrestris, Ehrh. H. 165. Baldovan Woods. Burnside Woods, *Mr G. Don*.

purpurea, Pers. H. 166. On tree roots in Den of Linlathen and Balgay Wood.

ochracea, Fries. H. 170. Den of Airlie.

spadicea, Hillier. Balgay Wood.

Clavaria, Vaill.

abietina, Pers. H. 174. Baldovan Woods.

rugosa, Bull. H. 175. Baldovan Woods.

helvola, Pers. H. 176. Old walls, Baldovan Woods.

Calocera, Fries.

viscosa, Pers. H. 177. Baldovan Woods. Kinnordy, *Klotzsch*.

Geoglossum, Pers.

hirsutum, Pers. H. 178. Sands of Barrie, frequent, especially about the east end.

glabrum, Pers. H. 178. Near Monifieth.

Spathularia, Pers.

flavida, Pers. H. 179. Burnside Woods, *Mr G. Don*.

Mitrula, Fries.

M. paludosa, Fries. H. 180. Marshy places in Baldovan Woods.

Peziza, Dill.

vesiculosa, Bull. H. 188. Near Airlie.

cupularis, L. H. 189. In one spot near spruce trees, where the old stump of a tree had been burnt, a little above the N.W. corner of Deerhill Wood, April 1845. In small quantity, varying in diameter from half a line to a quarter of an inch.

rutilans, Fries. H. 190. Baldovan Woods. δ . *alpestris*, Hook. On *Tetraphis pellucida*, Bassies, Clova, August 1843.

scutellata, L. H. 193. Rotten wood, banks, &c., frequent.

stercorea, Pers. H. 194. On droppings of cattle, frequent.

bicolor, Bull. H. 195. Invergowrie thicket.

Fusarioides, Berk. On twigs, Reeky Linn.

pulchella, Berk. On fallen larch twigs, Balgay Wood.

insidioides, Desm. On dead ivy leaves.

Cyphella, Fries.

musciicola, Fr. On *Hypna*, Reeky Linn. Baldovan Woods.

Exidia, Fries.

Auricula-Judæ, L. H. 217. Near Reeky Linn, on trees.

Sclerotium, Tode.

durum, Pers. H. 224. On dead stems near Monifieth.

minutum, Desm. (Described in Desmazier's *Plantæ Cryptogames*.) On the dead stems and seed-vessels of *Rhinanthus Crista-Galli*, west-end of Hare Craigs.

Phallus, Mich.

impudicus, L. H. 226. Balgay Wood, &c., frequent.

Tuber, Mich.

cibarium, Sibth. H. 228. Mr G. Don found them in trenching up his garden, about two and a half feet below the surface.

Sphaeria, Hall.

militaris, L. H. 232. Var. in turfey spots, Kirriemuir, Messrs Hooker and Klotzsch.

Hypoxylon, L. H. 234. On tree roots, common.

fusca, Pers. H. 237. On dead twigs, Den of Airlie.

leiphæmia, Fries. H. 250. Balgay Wood.

stilbostoma, Fries. H. 280. On dead twigs, Sidlaw Hills.

hypodermia, Fries. H. 251. Balgay Wood.

cinnabarina, Tode. H. 252. On dead twigs, Camperdown, &c.

coccinea, Pers. H. 253. Balgay Wood.

filicina, Fries. H. 255. On dead stems of *Pteris aquilina*, common.

Junci, Fries. H. 256. Frequent on *Juncus conglomeratus*.

striciformis, Fries. H. 256. On dead stems of herbaceous plants.

graminis, Pers. H. 257. On grasses, frequent.

myriocarpa, Fries. H. 266. On rotten branches and stumps of broom in Deerhill Wood, and heaths near it.

strobilina, Holl. and Schm. H. 271. On cones of *Pinus sylvestris*, Baldovan Woods.

Ilicis, Schleich. H. 273. On dead holly leaves, Mains Castle.

complanata, Tode. H. 274. On dead stems of umbelliferous plants, common. Var. *minor*, Fries. Den of Airlie.

hederæcola, Fries. H. 279. On ivy leaves, common.

(The following species are new to our Flora.)

cucubitula, Tode. Twigs on the beach, Sands of Barrie, probably wafted down the Tay, and may have come from either the county of Perth or Fife.

verrucosa, Berk. Invergowrie thicket, on fallen twigs.

herpotrichia, Fries. On old stems of *Amophila arundinacea*, Sands of Barrie. It is undescribed, but registered in the *Annals of Natural History*. It was associated with a species of *Peziza*, which the Rev. M. J. Berkeley thinks may be new.

Gardineri, Berk. MSS. On dead ivy leaves, first found near Balmerino, Fife, March 1845. A new species, and undescribed.

Another species, as yet undescribed and unnamed, was

found on the *Juncus Balticus*, upon the Sands of Barrie, Sep. 1845.

Ceuthospora, Fries.

phacidioides, Grev. H. 283. On dead holly leaves
Mains Castle.

Phoma, Fries.

Pustula, Pers. H. 284. On oak leaves, frequent.

Rhytisma, Fries.

Acerinum, Pers. H. 290. On decaying leaves of the
plane tree.

Phacidium, Fries.

Patella, Tode. H. 291. On dead stems, Reeky Linn.

Hysterium, Tode.

Fraxini, Pers. H. 294. Near Lundie.

rugosum, Fries. H. 294. Den of Airlie.

maculare, Fries. H. 296. On dead ivy leaves, frequent.

Leptostroma, Fries.

Spireæ, Kunz. H. 298. On dead stems of *Spiræa*
Ulmaria, Baldovan Woods.

litigiosa, Berk. On dead stems of *Pteris aquilina*, Sid-
law Hills, frequent.

Lycoperdon, Tourn.

gemmatum, Batsch. H. 304. Sands of Barrie, Balgay
Wood, &c.

Reticularia, Bull.

atra, Alb. and Schw. H. 308. Kirriemuir, *Klotzsch*.

Diderma, Pers.

vernicosum, Pers. H. 310. On mosses, Baldovan
Woods.

Illosporium, Mart.

roseum, Fries. H. 328. On the crust of lichens, as
Borrera tenella, *Parmelia olivacea*, *saxatilis*, &c.

Mucor, Mich.

Mucedo, L. H. 332. On old paste, &c., common.

Cladosporium, Link.

herbarum, Link. H. 338. On dead *Amophila arundinacea* and *Salsola Kali*, Sands of Barrie.

Acrospermum, Tode.

compressum, Tode. Reeky Linn.

Tubercularia, Tode.

vulgaris, Tode. H. 354. Invergowrie thicket, Camperdown, Den of Airlie, &c.

Puccinia, Pers.

Compositarum, Schlecht. H. 365. On *Apargia autumnalis*, Sands of Barrie.

Ægopodii, Link. H. 366. On *Ægopodium Podagrariæ*, near Baldovie.

Epilobii, DC. H. 368. On *Epilobium alpinum*, near Loch Brandy, Clova.

Rhodiolæ, Berk. On *Sedum Rhodiola*, Clova and Glen Callater. A new species.

Æcidium, Pers.

rubellum, Pers. H. 369. On docks and sorrels, not uncommon.

Menthæ, DC. H. 369. On mints, particularly the stems.

compositarum, Mart. H. 370. On *Crepis paludosa*, Hatton Den; on *Sonchus arvensis* near Baldovie; and on *Senecio Jacobæa*, Carnoustie.

Bunii, DC. H. 370. On *Heracleum sphondylium*, Baldovan; and on *Charophyllum sylvestre*, Den of Mains.

leucospermum, DC. H. 371. On *Anemone nemorosa*, Rescobie.

Thalictri, Grev. H. 371. On the leaves and stems of *Thalicttrum alpinum*, on the mountains, frequent.

Violæ, Schum. H. 372. On *Viola canina*, Baldovan Woods.

Urticæ, DC. H. 374. On *Urtica dioica*, Den of Mains.

Æ. Pini, Pers. H. 374. On living leaves of *Pinus sylvestris*, Sidlaw Hills.

Gallii, Berk. On *Galium verum*, Sands of Barrie.

Uredo, Pers.

segetum, Pers. H. 374. On the cereal plants, as oats, barley, and wheat, too common, especially on poor soils.

Rubigo, DC. H. 375. On grasses and corn, frequent.

oblongata, Grev. H. 376. On *Luzula sylvatica*, *Rhinanthacearum*, DC. H. 377. On *Euphrasia officinalis*, and *Bartsia Odontites*, common.

Labiatarum, DC. H. 378. On *Mentha aquatica*, Rescobie.

Vacciniorum, Johnst. H. 378. On *Vaccinium Vitis-Idæa*, Baldovan Woods.

Pyrolæ, Grev. H. 378. On *Pyrola minor*, Baldovan Woods.

Campanulæ, Pers. H. 378. On *Campanula rotundifolia*, near Monifieth, Lundie, &c.

compransor, Schlecht. H. 379. On *Tussilago farfara*, Rescobie.

Sonchi, Pers. H. 379. On *Sonchus arvensis*, not uncommon.

suaveolens, Pers. H. 379. On *Cnicus arvensis*, common.

Senecionis, Schlecht. H. 379. On *Senecio vulgaris* frequent.

Rosæ, DC. H. 381. On the leaves of various Roses.

effusa, Strauss. H. 381. On *Rosa canina*, Reeky Linn; on *Rosa spinosissima*, Den of Pitairlie, on the leaves and fruit; and more common on *Spiræa Ulmaria*.

Potentillarum, DC. H. 382. On *Potentilla Fragariastrum*, and more frequently on *Alchemilla vulgaris*.

bifrons, Grev. H. 382. On *Rumex Acetosa*.

confluens, DC. H. 383. On *Mercurialis perennis*, Den of Mains.

candida, Pers. H. 384. On *Arabis hirsuta*, near Carnoustie,

Lini, DC. H. 384. On *Linum catharticum*, Sands of Barrie.

- gyrosa*, Reb. H. 384. On leaves of *Rubus Idæus*, Baldovan Woods.
- cylindrica*, Strauss. H. 385. On poplar leaves, Auld-bar.
- mixta*, Berk. On *Salix viminalis* and *reticulata*.
- Caprearum*, DC. H. 385. On *Salix Capræa*, Rescobie.
- Galiorum*, Berk. On *Galium verum*, Sands of Barrie.
- vinosa*, Berk. On the flowers of *Oxyria reniformis*, Glendole, Clova, Aug. 1843.—“A new and extremely curious species.”—BERK.

The following species, new to our Flora, may be recorded :

- Diplodia Desmazierii*, Berk. MSS. On dead ivy leaves.
- Myxosporium paradoxum*, De Notaris. On living ivy leaves, Den of Airlie. “Described in the *Turin Transactions*.”—BERK.
- Cylindrispora deformans*, Berk. On *Vaccinium Vitis-Idæa*, Baldovan Woods, where I first detected it, and afterwards in several stations in Braemar. It is a new and undescribed fungus.

TABLE

OF THE

NATURAL ORDERS OF PLANTS INDIGENOUS TO BRITAIN; IN WHICH THOSE ABSENT FROM THE FLORA OF FORFARSHIRE ARE DISTINGUISHED BY BEING PRINTED IN ITALICS.

VASCULARES.

DICOTYLEDONES.

THALAMIFLORÆ.

Ranunculaceæ.
Berberideæ.
Nymphæaceæ.
Papaveraceæ.
Fumariaceæ.
Cruciferae.
Resedaceæ.
Cistineæ.
Violariæ.
Droseraceæ.
Polygaleæ.

Frankeniaceæ.
Elatineæ.
Caryophylleæ.
Lineæ.
Malvaceæ.
Tiliaceæ.
Hypericineæ.
Acerineæ.
Geraniaceæ.
Balsamineæ.
Oxalideæ.

CALYCIFLORÆ.

Celastrineæ.
Rhamnecæ.
Leguminosæ.
Rosaceæ.
Onagrariæ.
Halorageæ.
Ceratophylleæ.
Lythriariæ.
Tamariscineæ.
Cucurbitaceæ.
Portulaceæ.
Paronchiæ.
Crassulaceæ.

Grossulaceæ.
Saxifrageæ.
Umbelliferæ
Araliaceæ.
Corneæ.
Loranthæ.
Caprifoliaceæ.
Rubiaceæ.
Valerianeæ.
Dipsaceæ.
Compositæ.
Campanulaceæ.
Vaccinieæ.

COROLLIFLORÆ.

Ericææ.
Monotropeæ.
Illicineæ.
Jasmineæ.
Apocyneæ.
Gentianeæ.
Polemoniaceæ.
Convolvulaceæ.
Boragineæ.

Solaneæ.
Orobanchææ.
Scrophularineæ.
Labiatae.
Verbenaceæ.

Primulaceæ.
Plumbagineæ.
Plantagineæ.

MONOCHLAMYDEÆ.

Amaranthaceæ.
Chenopodeæ.
Polygonææ.
Eleagneæ.
Thymeleæ.
Santalaceæ.
Aristolochiææ.

Empetreæ.
Euphorbiæææ.
Urticææ.
Ulmaceææ.
Amentaceææ.
Myricææ.
Coniferææ.

MONOCOTYLEDONES.

PETALOIDEÆ.

Alismaceææ.
Butomeææ.
Juncagineææ.
Aroideææ.
Pistiaceææ.
Naiadesææ.
Smilaceææ.
Liliaceææ.

Asphodeleææ.
Melanthaceææ.
Restiaceææ.
Juncææ.
Hydrocharideææ.
Orchideææ.
Irideææ.
Amaryllideææ.
Dioscoreææ.

GLUMACEÆ.

Gramineææ.

Cyperaceææ.

CELLULARES.

FILICES.

Polypodiaceææ.
Osmundaceææ.
Lycopodiaceææ.

Marsileaceææ.
Equisetaceææ.

Musci.
Lichenes.
Algææ.

Hepaticææ.
Characeææ.
Fungiææ.

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ADDITIONS AND CORRECTIONS.

At p. 12, after *Camelina sativa*, insert, “*Koniga maritima*, Br. Sea-side Koniga. H. 24, B. 26. F. Augt. Oct. P. Montrose Links, south from the Asylum, *Mr A. Kerr.*”

P. 17. Add, after *Brassica campestris*, “In a field near the south side of Forfar Loch,” *Mr R. Maughan, New Bot. Guide.*

“*Brassica Monensis*, Br. Isle-of-Man cabbage. H. 31. B. 25. (*Sinapis monensis*, BAB.) F. June, Aug. B. or P. ? Between Dundee and Forfar. *Engl. Fl.*”

P. 26. After *Silene acaulis*, add, “with white flowers on rocks half-way up the left side of Glen Dole, *Mr H. C. Watson.*”

P. 47. After *Lotus corniculatus*, add, δ . *Bab.* 77. H. 83. “Fields near Forfar. *Engl. Fl.*”

P. 48. The exact station for *Oxytropis campestris*, *Mr Watson* has shown to be Craig Rennet, and that for *Astragalus alpinus* the higher rocks between Craig Rennet and Craig Maid.

P. 71. After *Myriophyllum* should be inserted,

CALLITRICHE, *L.* Water Starwort.

Br. sp. and v. 6. F. 1.

C. verna L. Vernal water Starwort. H. 115. B. 108. F. Apr. Sept. A. ? Ditches frequent.

P. 75. *Saxifraga nivalis*. Add, “below the *Oxytropis* station, and Garryburn rocks, *Mr H. C. Watson.*”

P. 121. Insert, after *Arbutus Uva-Ursi*, *A. alpina*, *L.* Black Bearberry. H. 211. B. 192. “Hill of the White Haugh, [The Bassies] *Mr J. Macnab*, and on White Bent, Clova, *Mr W. Brand.*”

P. 121. After *P. secunda*, add, “Loch Lee, *Mr W. Brand.*”

P. 154. After *Plantago maritima*, add, "wayside between Forfar and Kirriemuir, *Mr H. C. Watson*."

P. 142. After *Mentha viridis*, insert,

M. piperita, Sm. Peppermint. H. 249. B. 229. F. June, July, P. "Sides of a stream, the origin of the Brothick, near a spring called Nine Wells, about 6 miles from Arbroath; abundant, and undoubtedly wild, *New Bot. Guide*."

P. 162. Before *Ulmus* insert, Ord. LXXVII. ULMACEÆ; and before *Betula*, Ord. LXXVIII. AMENTACEÆ.

P. 163. After *Betula nana*, add, "Sparingly on the mountain between Glen Dole and Glen Bradooney, almost in a line with the old *Sonchus* station and the shooting-cottage [Bachnagairn], *Mr H. C. Watson*."

P. 181. After *Allium*, add,

GAGEA, *Salisb.* Gagea.

Br. sp. 1. F. 1.

G. lutea, Ker. Yellow Gagea. H. 349. B. 304. F. March, April, P. "Woods at Cortachy Castle, in abundance, and truly wild," *Fl. Scot*.

P. 184. After *Juncus triglumis*, add,

J. biglumis, L. Two-flowered Rush. H. 359. B. 312. F. July, Aug. P. "Clova mountains, *Flora Scotica*." I have not yet detected it there, though it occurs on the Breadalbane range, as Ben Lawers, &c.

P. 190. After *Iris Pseud-acorus*, add, "In a marsh near Colonel Kinloch's of Logie, I discovered, in 1810, the *Iris xiphoides*, new to Britain. It was growing among *Carices* and *Juncus effusus*, and *articulatus*, in a situation where it had never been cultivated," *Mr G. Don*. It had likely found its way to the spot accidentally, and become naturalized.

P. 288. For *rhodomela* read "*Rhodomela*," the third line below *Odonthalia*, it being the next *genus* after that.

Glyphocarpa cernua, p. 234. From a notice in the *Phytologist* ii. 1017, from my friend Mr Croall, the discoverer of this little beauty in Forfarshire, it appears to have been rechristened by Bruch and Schimper, and now wears the name of *Bartramidula Wilsoni*.

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1902
August 14. ~~1892~~

WILLIAM GARDINER AND GEORGE
DON.

TO THE EDITOR OF THE DUNDEE ADVERTISER.

SIR,—Local botanists are greatly indebted to you for the excellent and lengthy report of President Druce's address on Scottish botany, especially with regard to George Don and his work. Too little is known about this Forfar "worthy." The "Dictionary of National Biography" contains the lives of his two sons, but their greater father is not inserted either in book or supplement. The papers on Don's life and work by Mr Druce and Mr John Knox, of Forfar, are buried in the somewhat inaccessible pages of the "Scottish Naturalist," and it is a great convenience to have the report in your pages. Don's connection with Dundee is not sufficiently brought out, however. The parish of Muirhead, I presume, is Muirhead of Liff; but the general impression here is that Don was born in this city, where, as Professor George Lawson wrote in "Hogg's Instructor" in 1852, his father followed the trade of a carrier, afterwards removing to Forfar. Don himself had many friends in Dundee; William Gardiner's father and uncle botanised with him occasionally, and the "Dundee Advertiser," in its notice of Don's death in 1814, says he was "an honorary member of the Dundee Rational Institution," a Society which did much towards cultivating a taste for literature and natural science in the first decades of last century. Don has certainly suffered in the estimation of botanists from the fact that so many of his "finds" have not been verified. Dr Walker-Arnott, of Glasgow, was probably the strongest objector. Hewett C. Watson, while inclined to put a fair amount of credence in Don's statements, points out that so careful a botanist as William Gardiner has been unable to find the stations of plants indicated by Don. Mr Druce's examination of Don's actual specimens must add to the weight of his testimony in Don's favour. But the feeling of suspicion has long been abroad, although now and then we are gratified to see some of Don's "reputed finds," actually found in the places where he said he discovered them. The following quotation from a MSS. by William Gardiner, the Dundee botanist, may well see the light now, and may throw some light on the question. In June 1831 Gardiner spent a week in botanising on the eastern coast of Forfarshire, and part of his "Journal" appeared in "Loudon's Magazine of Natural History"—the whole paper will be found in the "Botanical Repository," a manuscript magazine, now in the Lamb Collection in our Free Library. The extract I quote refers to Auchmithie:—"Mine hostess of the great

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room' informed me that Mr Drummond, of Forfar (Don's successor at Dove Hillock) used to lodge sometimes whole weeks in her house for the purpose of botanising the adjacent rocks and braes, and would rise and walk out every morning by three or four o'clock in pursuit of plants. On my mentioning Mr Don, 'out spoke mine host,' and pronounced a warm invective against that gentleman, who, he observed, had ruined these braes, for since he had been prowling about there not a plant worthy of notice was to be seen. I had no reason to doubt the veracity of mine host's assertion, for I have frequently searched Mr Don's habitats in vain. I verily believe his plan respecting rare plants was—first to dig up all the specimens he could see, and then note the locality. I highly revere the memory of my distinguished countryman, and gratefully remember how richly he contributed to my favourite science; but the above mentioned practice is, I should think, justly deserving of censure."

In a pencil note written many years after, Mr Gardiner says—"If true—but I now remove the censure as premature." But the paragraph stands, and is worth something towards the elucidation of some of Don's "finds."—I am,
&c.,
ALEX. P. STEVENSON.

Dundee Advertiser.

February 21st 1902.

DUNDEE NATURALISTS' SOCIETY.—At the meeting of the Dundee Naturalists' Society last night a paper was read by Mr Alexander P. Stevenson on "William Gardiner, umbrella-maker and botanist." At the outset Mr Stevenson referred to Gardiner's association with the Overgate—a most unpromising street for the upbringing of a naturalist and poet—and yet here the life story of Gardiner was centred. In or near it he was born, and in it 50 years ago he died. An interesting sketch was given of Gardiner's father and uncle, who did much to develop his tastes. The kindred spirits with whom he met and botanised were alluded to, and the many MS. magazines prepared and circulated by him described and quoted from. Like many more men of mark, from Thomas Hood onwards, Gardiner first saw his effusions in print in the columns of the "Dundee Advertiser." Some of these were quoted by Mr Stevenson, and one of date, November 20th, 1829, was specially noted, as it contained a list of rare plants found in the vicinity of Dundee. Plants now got only on the cliffs of Arbroath grew freely on his "favourite walk," Will's Braes. Will's Braes were now a thing of the past, and the miles of stone and cement and unlimited "dumping ground" into which a Vandal Town Council had transformed them were a poor substitute for the wooded walk of Gardiner's days reaching from the west of the town to Invergowrie. Gardiner's connection with the old Watt Institution was touched upon, and the gradual devotion of his time to botanical work described. Reference was made to his relations with the most prominent botanists of his time. The story of the evolution of his "Flora of Forfarshire" was told, and mention made of his other interesting and able works. The tale of his botanical wanderings was recorded from the correspondence between himself and his wife—letters which along with many more of Gardiner's MSS. are now part of the "Lamb Collection," gifted recently to the town by Mr Edward Cox. The record of the closing of Gardiner's life in shadow and gloom and the efforts of Mr James Scrymgeour to alleviate his lot, brought the paper to a close. Copies of Gardiner's books, portfolios of his plants, and photographs of his writings and drawings were shown. On the motion of the Chairman, Dr Angus M'Gillivray, a hearty vote of thanks was awarded Mr Stevenson for his paper.

BOTANICAL RAMBLES AROUND FORGAN BOG.

On Saturday afternoon a large party, consisting of members of the Dundee Working Men's Field Club, enjoyed a botanical ramble in Forgan bog. It was a happy hunting-ground of the late Robert Smith, B.Sc., University College, whose death was such a blow to the cause of botanical study not only around Dundee, but over Scotland. The bog lies in a natural hollow just off the public road to St Andrews, near Comerton House. With the dry summer the bog was firm, so that many parts could be explored which otherwise would have been impossible. The bog is interesting from the individual plants to be found. There are two extreme types of marsh and bog, and between these is every stage of transition. The typical bog prevails on the heather area, and the vegetation consists of peat-firing and peat-frequentering plants. Mosses play an important part in the early stages of its formation. The plants of the marsh include the taller species of sedges, rushes, and grasses, with marsh-loving plants as marsh marigold, cuckoo flower, ragged robin, marsh-bed straw, orchids, bog beans, willows, and alders. In the bog the vegetation is low and stunted; in the marsh it grows rapidly and attains considerable height, or, as Dr Smith, late of Dundee, now of University College, Leeds, remarks in his recent botanical survey of Fife-shire—"The annual increment of plant material in the marsh is large; in the bog small." Typical marshes are to be found on the banks of the Tay between Perth and Dundee.

Forgan bog lies in a natural depression, about 70 feet above sea level, surrounded by rounded knolls of glacial sand and gravel, so great a feature of Fife between Newport and St Andrews. Although known as Forgan bog, it is really a marsh, and might be classed not as a reed marsh, but a sedge marsh, being filled with not only the commoner sedges, but two at least of a rare variety. *Carex limosa* was abundant, and the tall *Carex paniculata* attracted much attention.

After exploring the marsh a visit was paid to the old church of Forgan, with its aged and picturesque yew trees.

Bantleton July 15th 1845

My Adored Wife

I have only time at present to say that the box came about two hours ago, and I have now got it packed again and ready for Tommy McQueen, who I expect every minute. Many thanks for the oranges and biscuits. Send if you can a few more cakes of gingerbread next box, as I find that very useful when travelling. I was up yesterday at the Linn of Dee Cateuing. My landlord has lately bought a horse, and I can now have the convenience of horse and cart in some of my excursions.* I will likely
*This however adds to my expenses.

Stops. At three minutes
bandmaster of the St Margaret's Band and a
couple of bandsmen in Yeomanry uniform
took their places on the platform at Duddo
Park. They had journeyed from Stobs, and
hurried up to the park to be in their places at
the lifeboat service.

A MEMORIAL THOUGHT

Dundee may be apt to forget at times that she has at various times given to the world scientific sons, whose life-work deserves something more fitting than a mere casual memory. Yet we are not altogether forgetful. Walking along the path on the west side of the Howff Burying Ground yesterday, I noticed for the second year in succession a little posy of flowers laid on what is supposed to mark the last resting-place of William Gardiner, botanist and poet.

This humble and whole-hearted lover of nature was born in a house at the junction of Tay Street and West Port on 13th July 1808—three days after the foundation stone of the Bell Rock Lighthouse was laid. A son of parents in humble circumstances, his only schooling consisted of a little rudimentary instruction in reading and writing, and at an early age he was apprenticed to an umbrella maker, and even after reaching the position of a journeyman his wages never reached a much higher sum than 10s a week.

But his love for self-improvement, and particularly for botany, was intense. Prosecuting his studies in the early hours of the morning, and in his somewhat scanty hours of leisure in the evening, he achieved an acquaintance with both scientific and general literature, that is amply evidenced in his notebooks and manuscript magazines now housed in the Dundee Free Library collection.

The Den of Mains, Will's Braes, and the Law, which then yielded rarities that no longer exist, were favourite haunts, but his rambles covered a wide area, and Ben Lawers, the Braemar district, Lochnagar, and the Clova mountains were all explored by this ardent student of the beauties of the field and the hills, the fruitful results of his itineraries and his marvellous industry being recorded in his "Flora of Forfarshire," "Botanical Rambles in Braemar," "Twenty Lessons on British Mosses," and other books.

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Hampered throughout his career by lack of funds, Gardiner nevertheless pursued his outdoor studies with unflagging zeal. Nor was his interest entirely confined to botany. Zoology, entomology, and ornithology also claimed his interest.

His correspondents all over the country included such noted names as Sir W. J. Hooker, C. C. Babington, Professor Lindley, Professor J. H. Balfour, Edinburgh; and Sir Charles Lyell of Kinnordy.

After a series of years of such trying and exhaustive work spent out of doors in all kinds of weather—for he missed no opportunity of prosecuting his beloved studies in the open—this ardent gleaner in the fields of nature fell into ill health, and eventually succumbed to an attack of typhus fever, passing away at the age of 44 on 21st June 1852.

He was buried in the Howff, and no stone or mark of any kind indicates his final resting-place. It is peculiarly pleasing to find that after an interval of 70 years there are still anonymous admirers amongst us of the life and work of William Gardiner, but is there none of the local scientific societies sufficiently interested in his fine example of noble achievement in the pursuit of science under adverse circumstances to start a movement towards obtaining some more permanent, if modest, memorial of one of Dundee's truly worthy sons?—A.

Cantleton July 15th 1845

My Adored Wife

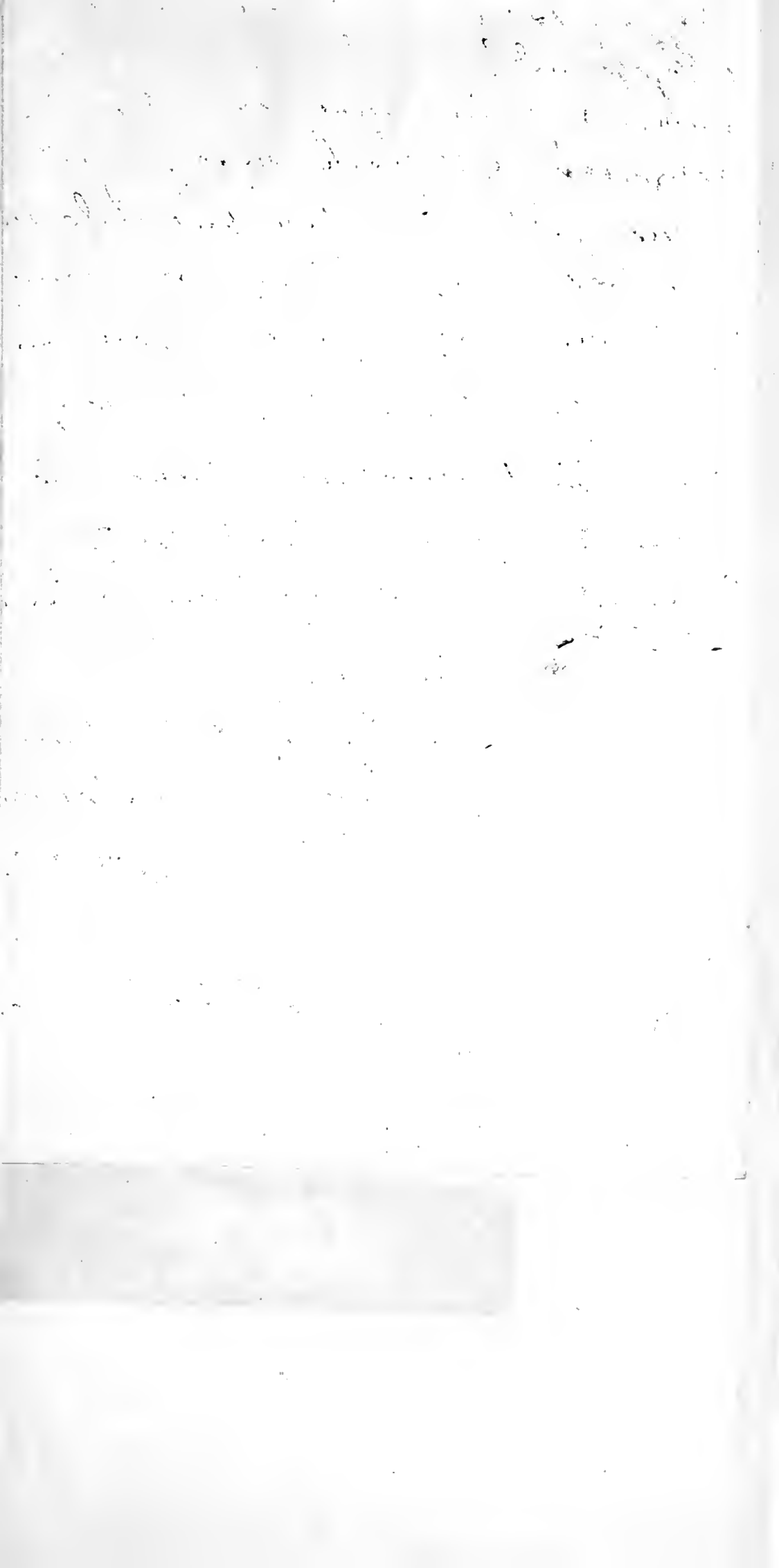
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be on Ben-na-Bond to-morrow.
My bundle is done, and I will
soon require more tea, coffee, &
sugar. A fresh supply could
come with the box, but I do not
know how you stand for money.
Let me know when you write.
I cannot venture to say
more just now as I have the
box to cord & direct yet, but
kind love to all our friends

Believe me

my dearest partner
Your ever faithful husband
William Miller

P.S. Letters are still very scarce -
do write often.



The Railway Cutting.

The earth was scar'd by the ruthless spade,
And an ugly gash in the hill was made,
That throbbing engine and rattling train,
Might break the peace of this fair domain.

But Nature came to her mission true,
And tended the wound with her silver dew,
And softly beneath her gentle care,
The scar on the hillside became less bare.

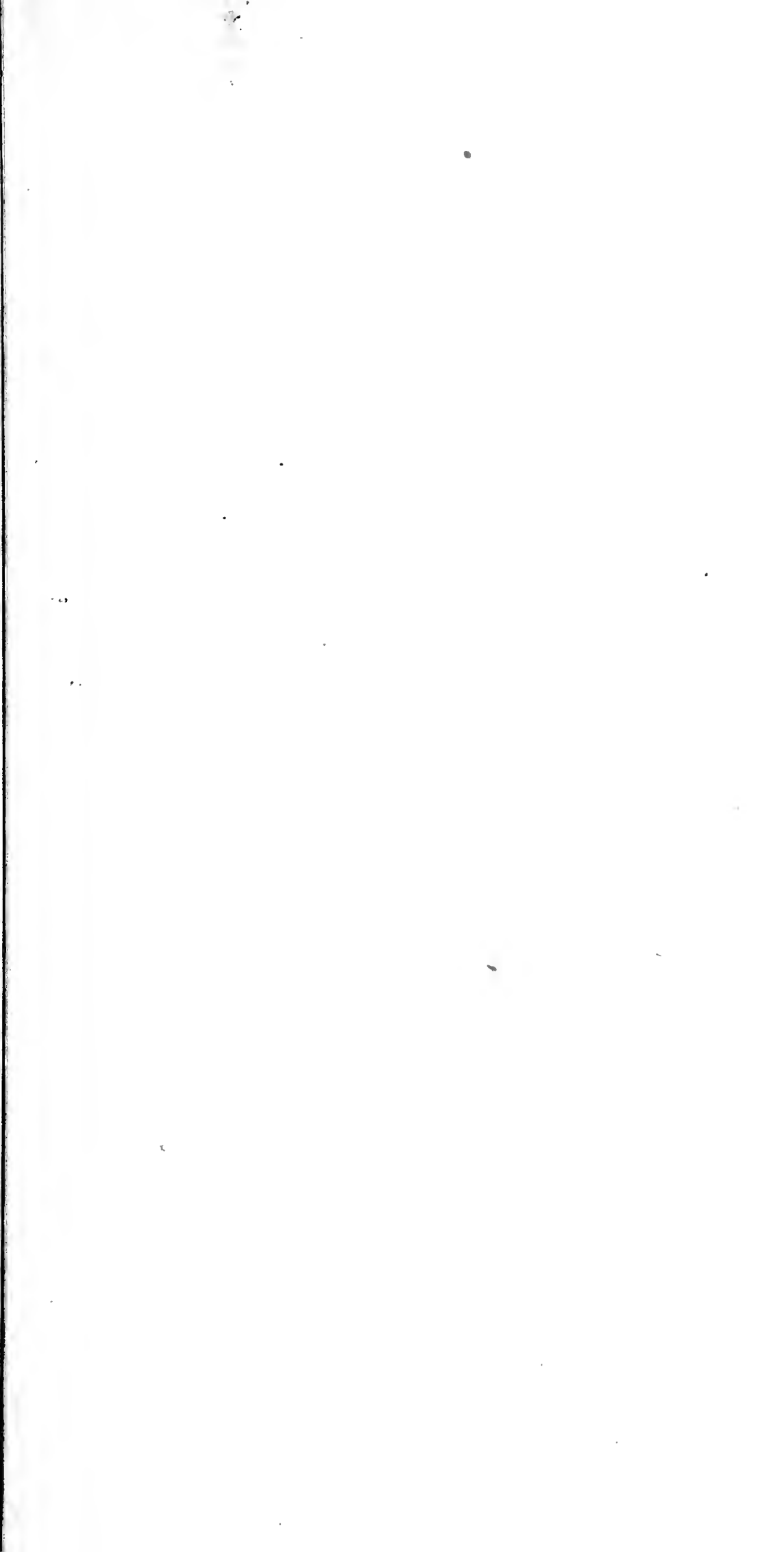
Then velvet grass in its richest green,
Stole over the place where the spade had been,
A living carpet of beauty rare,—
And starry daisies came thronging there.

And troops of the beautiful primrose came,—
The buttercup lifted its golden flame,—
The violet wafted her incense sweet,
And the honey-bee droned from his snug retreat.

The trains rushed up, and the trains rushed down,
But the cutting no longer was bare and brown,
For it looked in its wonderful beauty dressed,
Like a place by the fairies loved and blest.

And thus God tendeth the hearts that mourn,
And bindeth the spirits by sorrow torn;
Oh, thus to the troubled breast is given,
The ichor divine, the dew of heaven;
And beautiful flowers spring forth to bless
The soul we had thought a wilderness.

—Shapcott Wensley.



William Gardiner,
Overgate, Dundee.
B. about 1809. &

Made Assoc. Bst. &
" " " " " " " " " " " "

Published - (5) 20 &

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Remains

in a

- (3) Botanical K
- (4) Flora of For
- (1) Contributions

notes

of Nature poet,

William Gardiner, Umbrella maker, & Botanist,
Overgate, Dundee.

B. about 1809. D. June 21, 1852.

Made Assoc. Bot. Soc. Edinb 1838.

" " Lin. " London. 1849.

Published - (1) 20 Lessons in Brit. Mosses, 3 series 1846-9.

" (2) Several sets of Scottish Plants including
Cryptogams & Phanerogams ⁱⁿ at various
dates & in different forms.

(3) Botanical Remble in Braemar. 1845.

(4) Flora of Forfar. 1848.

(5) Contributions to London's Mag. Nat.
Hist. 1832. 6.

(6) Do. Trans. Bot. Soc. Edinb. 1839.

Ref. to in: Pritzgel's Thesaurus Litteraturae
Botanicae p. 117.

Jackson's Guide to Lit. of Bot. p. 549.

Roy. Soc. Cat. II. p. 767.

Gardener's Chronicle. 1852 H. 406, 423.

Cottage Gardening. VIII. p. 210.

Proc. Linn. Soc. II. p. 244.

W. Norris - Dundee Celebrities. p. 139.

Re-arrange in Chron. order as numbered.

Propriety by ⁵ ~~3~~ ^{transmission} from Bot. Soc. Edinb.
Commemorated by Sphaeria Gardineri Berkeley ¹⁸⁵²

(an Ascomycete fungus occurring, in the spore bearing phase, as small blackish eruptions on wood).

G.W.

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