



ROGER HENNEDY,
PROFESSOR OF BOTANY,
ANDERSONIAN UNIVERSITY, GLASGOW,
BY WM SIMPSON.

THE
CLYDESDALE FLORA:

A DESCRIPTION OF THE

FLOWERING PLANTS AND FERNS
OF THE CLYDE DISTRICT,

ARRANGED ACCORDING TO THE NATURAL ORDERS, WITH A GLOSSARY OF TERMS
AND DIAGRAMS.

BY THE LATE

ROGER HENNEDY,

LECTURER ON BOTANY IN THE ANDERSONIAN UNIVERSITY, GLASGOW.

APPENDIX BY PROFESSOR R. H. PATERSON.

BIOGRAPHICAL SKETCH BY WILLIAM SIMPSON, ESQ., F.R.G.S.

IN MEMORIAM EDITION, REVISED.

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GLASGOW:

HUGH HOPKINS, 85 RENFIELD STREET.

1878.

TO

WALTER CRUM, ESQ., F.R.S.,

President of Anderson's University,

WHOSE INTEREST IN THE DIFFUSION OF POPULAR SCIENCE IS SO WELL KNOWN,

"THE CLYDESDALE FLORA"

IS RESPECTFULLY DEDICATED BY HIS OBLIGED SERVANT,

THE AUTHOR.

GLASGOW, *May*, 1865.

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INTRODUCTION.

THIS work was undertaken at the request of some Members of the Committee of the POPULAR EVENING CLASSES, to supply a deficiency and obviate a source of regret which had long been felt, that no Field-Book existed giving descriptions of the Wild Flowers growing in the vicinity of Glasgow, which might be useful as a Text-Book, and at the same time so moderate in price as to meet the wants of all the Students who attend the POPULAR BOTANICAL CLASSES in ANDERSON'S UNIVERSITY.

The responsibility and risk of bringing out such a work seemed to forbid the attempt being made; but on this becoming known to WALTER CRUM, Esq., President of the Institution, he generously offered to aid in its publication; therefore, to this gentleman, and also to WILLIAM EUING, JAMES YOUNG, R. S. CUNLIFFE, and MICHAEL CONNAL, Esquires, for their personal sympathy and pecuniary assistance, the appearance of this work is due; and the Author tenders his sincere thanks to them, for himself, and also for the young men, Students in these Classes.

It is hoped that this Flora will be the means of stimulating and diffusing a taste for the study of Botany amongst those young Naturalists who are devoting a portion of their leisure hours in making acquaintance with the pure and beautiful in Nature.

In drawing up descriptions for a Flora such as the present, permanent characters are apt to be overlooked, and those taken which are trifling, or produced by merely local circumstances; to prevent this, it has been found necessary to compare the descriptions given in our best works with the plants themselves, and to choose and adopt the terms most suitable to the purpose, preferring where possible those most simple; but it is not to be considered that this work is put forward as original,—it is given only as a compilation.

The "British Flora," from the excellence of its arrangement, has been adopted as a standard in the following pages, and the

Author has to acknowledge the obligation which is due to Sir WILLIAM J. HOOKER, and Dr. WALKER-ARNOTT for the use he has made of their invaluable work; the names given in it are followed, thus preserving unity in our nomenclature, so that when the Student advances in the Science he will find but little to alter in his course of study.

The term "Clydesdale," as used in the title, was that chosen by a Society brought together by the late Mr. WILLIAM GOURLIE, and this opportunity is gladly embraced to express a sense of his worth as a gentleman, who was the soul of the Glasgow Naturalists—ever ready to soothe and soften by his charitable disposition the asperities of our nature, and to lighten by his kindliness the dull stream of existence. This Society contemplated the collection of the objects of Natural History belonging to the district, and the recording of their localities. The present work may be taken as a portion of the subject then proposed, confident that the gentlemen then associated will kindly overlook the deficiencies of this attempt.

The district comprehended in this Flora embraces the valley of the Clyde from the falls above Lanark on the East, to the Islands of Cumbræ, Bute, and Arran on the West; the Northern boundary being the Campsie and Kilpatrick ranges, following the sinuosities of the lovely Lochs on the Northern shores of the Firth. The Southern boundary includes the hills above Hamilton, Calderwood Glen, Cathkin, and Gleniffer Braes, the hills above Greenock, Inverkip, and Largs, ending at Port-Crawford. From numerous localities those of easy access have been chosen, where the Student on a Saturday evening, away from the busy haunts of man, can seek the lonely dell—

"Where the Blue-bell and Gowan lurk lowly unseen."

The visitant to our watering-places will find the term "Gourock to Arran," denoting the plant as found generally at all the watering-places on the Firth. To have noted the precise spot for each, with several stations, would have left no room for description; it is therefore hoped that sufficient has been given to enable the diligent student of Nature to find the plants recorded.

In 1813 the "Flora Glottiana" appeared, by THOMAS HOPKIRK of Dalbeth, the founder of our Botanic Garden, and in 1831,

“Patrick’s Indigenous Plants of Lanarkshire.” From these two works localities are frequently quoted; but owing to the many changes taking place in the vicinity of such a city as Glasgow, many of the stations are destroyed or converted into building ground. However, a good number are still in existence, as recorded in these works; further, they have been used principally to keep in mind our early workers, so that their names may not pass away without due recognition of their services. There are also quotations from “The History of Rutherglen and East Kilbride” (1793), the work of that most remarkable man, DAVID URE, A.M.—a book now becoming highly prized. Mr. JOHN GRAY has lately published an excellent Biographical Memoir of the author, including a critique on his work, in which may be found a list of the plants which URE thought worthy of notice, with the modern names appended.

In the highly instructive and elaborate “Cybele Britannica,” of H. C. Watson, wherein the Geographical relations of British plants are enumerated, the following types of distribution are given :—

1. *The British Type* are those plants more or less diffused all over Britain.
2. *The English Type*, plants distinguished by their being chiefly prevalent in England.
3. *The Scottish Type*, plants generally confined to Scotland, or becoming rare in the northern parts of England.
4. *The Highland Type* refers to the boreal plants, confined chiefly to high mountain tracts, or their vicinity, principally of Scotland, but including those which occur on the mountains of England and Wales.
5. *The Germanic Type*, plants characterized by a tendency to the south-eastern side of England, a few having their northern limit in the south of Scotland.
6. *The Atlantic Type*, those species found principally in the south-western and western sides of England, a few having their northern limit as far north as the mouth of the Firth of Clyde.
7. *A local or doubtful Type*, a few species showing no tendency to any of the former groups, and being of limited range.

In the present work the types given above are adopted; an

initial letter in parenthesis indicates the group to which each species belongs, following the list given in the 4th vol. of the "Cybele." Thus (B) is the British, (E) English, (S) Scottish, (H) Highland, (G) Germanic, (A) Atlantic, and (L) the Local types, with an (I) introduced to point out an intermediate type.

ANDERSON'S UNIVERSITY,
GLASGOW, *May*, 1865.

The success of the First Edition of the "Clydesdale Flora" has rendered a second necessary. This success may, in a great measure, be attributed to the aid so generously accorded by the Friends of Botanical Science whose names have been mentioned in the Introduction.

This Edition has been carefully revised, and a few changes introduced, among which, at the suggestion of Mr. J. G. BAKER, of Kew, the Roses have been rearranged, bringing this genus more in accordance with modern views: he has also kindly gone over and named—from specimens sent to him—the varieties found in the locality; others will no doubt be added as observation becomes extended, and the district more thoroughly examined.

ANDERSON'S UNIVERSITY,
GLASGOW, *May*, 1869.

The continued progress of a taste for Botanical pursuits among the young men of Glasgow has rendered a Third Edition of the "Clydesdale Flora" a necessity.

Many additions, alterations, and amendments have been introduced, which will enable the student to look with a more critical eye upon several species and their varieties. Mr. J. G. BAKER, of Kew, has in the kindest manner communicated several interesting notes upon the plants of Arran, which have been embodied in the present Edition.

ANDERSON'S UNIVERSITY,
GLASGOW, *May*, 1874.

PREFATORY NOTE.

OWING to a long acquaintance with ROGER HENNEDY, his widow has asked me to put together this short notice of her husband. The only difficulty the task presents is that of selection and condensation, for the limits are small, while at the same time ample materials are in existence which, if they had justice done to them, would make a long and most interesting history. The demand for another edition of the "Clydesdale Flora" has led to this. Its steady sale is an evidence that Botany is largely studied in the district. Much of this study, no doubt, is owing to the enthusiasm of Roger Hennedy and his teaching, and it is thus appropriate that the new issue should be called, being published since the death of the Author, the **In Memoriam Edition**, and that some notice of Mr. Hennedy's life and work should go with it. The "Clydesdale Flora" first appeared in 1865, and already it has gone through Three Editions.

W.S.

BIOGRAPHICAL SKETCH
OF
ROGER HENNEDY,

PROFESSOR OF BOTANY, ANDERSONIAN UNIVERSITY.

By WILLIAM SIMPSON, F.R.G.S.

ROGER HENNEDY was born, August, 1809, at Carrickfergus, near Belfast. Although thus an Irishman by birth, he was wholly Scotch by extraction, his mother having been born in Paisley, and his father, then localised at Carrickfergus, was originally from Scotland. His family was a branch of the Kennedys of Ailsa Craig, a relic of which still exists in the ruins of Kennedy Castle, near Stranraer. The very slight transformation of the name from Kennedy to Hennedy took place in Ireland, and must have been at a very recent date, for no others are known of the same name except this one family, and Mr. Hennedy had only one brother, who is still living, now in Chili.

Roger, when only about two years of age, lived with his grandfather in Carrickfergus, who kept a store, and when the child grew strong enough he helped his grandfather till his death. After this he was apprenticed to the block-cutting with a calico printer in the same locality. His new master was a Methodist, and much given to prayers and other outward forms of a devout heart; but his practice, particularly with regard to those in his employment, was far from being in harmony with his pretensions. To Roger's mind such a character became particularly hateful; and the impressions, formed at this time, tinged his thoughts and inspired him with a strong antipathy towards every form of religious cant, and this feeling remained with him, and affected in many ways

both his opinions and conduct to the end of his life. Thoroughly straightforward in all things himself, he expected the same standard in others, and any failure on the part of his acquaintances in relation to the code of honour among men at once placed them beyond the pale of his friendship; and if on such occasions there had been any religious pretensions along with the defective conduct, Roger's denunciations—his early associations always coming back to him—savoured much of the anathemas which have had their origin in the Vatican. His high spirit rebelled at the hypocrisy of this man, to whom he was bound, and the end was that he ran away. This was done without the permission of his father, and by some means he managed to cross over to the Clyde, and found a situation in M'Dougald's Printfield at Rutherglen, and here he finished what remained of his apprenticeship at the block-cutting. It might be pointed out here as an evidence that the true cause of his running away from his first master is that just stated above, and that it was not owing to unsteady habits, from the fact, that although at Rutherglen he had only six shillings a-week, being still an apprentice, he kept himself on this small sum, and was so simple and frugal in his habits that he had always something to spare, a point well-known to his shopmates, who often took advantage of it when they wanted assistance.

In 1832 he got an appointment in the Customs at Liverpool, where he went, but returned again after about a month's experience. The duties of a gauger, which Burns had to fulfil, were about as uncongenial as those which devolved on Roger in the Customs, which may explain why he threw up his appointment so soon.

He returned to Glasgow and got work at his old employment with a Mr. Maxwell in Nelson Street, who designed and cut blocks for printing Sewed Muslin and Tambour patterns. The patterns for these manufactures were all printed previously to being sewed by the same kind of blocks, but the new art of lithography had been recently introduced into Glasgow, and it finally superseded their use. This slight revolution in a trade had something to do with influencing Roger Henneidy's after life. It almost entirely destroyed the occupation by means of which he lived, and he had to adapt himself to the change. The patterns, instead of being cut on a block, had by the new process to be traced on transfer paper with lithographic ink,

so as to be transferred to the stone. He soon made himself master of this kind of work, and the constant use of the pencil and pen in drawing at last led to his becoming a designer of these patterns, and by this means he very much improved his position in life. During this transition he had not yet begun his botanical studies, but he had manifested a strong love for flowers from his childhood, and he possessed a good eye and a very delicate steady hand; this enabled him soon to pick up the drawing, and his love of floral forms gave him a great advantage in his designing. His designing again, no doubt, had a tendency to make him turn to flowers for his ideas, and here, we may presume, we have the changes which led to his turning his attention to Botany as a science.

It was in 1838 that, owing to a lull in his work, he went to Millport and took up the study of Botany merely to pass away the time; but, as already stated, his profession had, no doubt, some influence in directing his attention towards flowers. The natural bent of his mind had a great deal to do with it also, for he was endowed with a strong poetic temperament, which found a new world to live in among the vegetable creation. Every step in his studies opened up some new region of beauty to him; and as he advanced in the science and used the microscope for diatoms and vegetable physiology, the varied and wondrous forms which were thus revealed had become an overpowering attraction, which led him along in his researches. From his first beginning at Millport till his death, a period of thirty-nine years, he was a most ardent and unwearied worker. During that time he had gone over the whole field of Botanical Science, and made himself master of every branch of the subject.

This devotion to flowers occupied every spare moment of his time, for he had his daily work to attend to, and it is important to bear in mind that it was under such conditions that he carried on his studies, and reached such a high position as a Botanist. It was all along a struggle with difficulties, but the ardent soul of the man carried on the battle, triumphing at every step, till he had conquered the whole domain.

It will be sufficient, in relation to one aspect of his life, to state that he was for some time employed by Wilson & Kelso, in South Frederick Street, as designer of sewed muslin patterns, and after-

wards in the same capacity with Gibson & Service, in Virginia Place. In 1851 he entered into partnership with Mr. James Pritchard in the manufacture of sewed muslins. This connection lasted for about six years, after which he carried on a business on his own account—but his mind was more interested in Botany than in business, and the result was not a commercial success. The last few years of his life were spent almost in retirement, and he had little but his lectures in the Andersonian University to attend to. During these later years he became weak in body and unable for much physical exertion, and suffered severely from attacks of rheumatism. His death resulted at last from the breaking of a blood-vessel, and was, as is usual in such cases, very sudden and unexpected. It occurred at Whitehall, Bothwell, on the 22nd October, 1876, at the age of sixty-seven.

In 1834 he had married the daughter of Mr. David Cross, of Rutherglen, a lady whose energy and industry in relation to her husband's work deserves a better mention than can be possibly given in this notice.

My first acquaintance with Mr. Hennedy was from his undertaking to teach a small Botanical Class in the Athenæum in 1848—the year that institution first came into existence. My own liking for flowers, and a desire to learn something of Botany, and his own predilections towards art which his profession of a designer had given him, soon made us fast friends. We made many excursions together, not only about Glasgow, but also at the Coast and in the Highlands, when he botanised while I sketched. These rambles I look back to still with a feeling of pleasure; to me they were a source of great delight. By their means I picked up without any trouble on my part a slight knowledge of flowers, and I found a man who had read more than myself, whose conversation opened up new fields of thought, and to whom I still look back with that feeling of gratitude which ought always to belong to the relations of a student and faithful teacher. I have made this reference to Roger Hennedy, for I think it is due to his memory to record that he was not *only* a Botanist,—successful as he was in that science,—his reading and study were not by any means limited to that single subject. He was familiar with the whole range of natural history, and at one time he made a conchological collection of some extent. His mind was not confined to matters of a scientific character—general literature was

not forgotten by him, and his poetic nature found congenial food in the ample fields of old Scottish song. Here again is the link which formed such a long and close friendship between him and Hugh Macdonald. Had Hugh been still living, the duty of writing this Memoir ought to have been his. Those who are familiar with the "Days at the Coast," "Rambles round Glasgow," and particularly with his "Flower Lover's Song," will understand the similarity of tendencies which made these two men so intimate, and led to their companionship in many "Rambles"—Cathkin Braes and Kenmure Wood, on the Clyde above Carmyle, being, from their flowers, among their favourite haunts. There were a few other congenial spirits who joined in these excursions, the most of whom have now passed away. It was during these friendly walks that Hugh Macdonald made himself acquainted with the various spots, and which led to his selecting "The Rambles Round Glasgow" as a subject for his pen. In one of these rambles—the one to Robroyston—Mr. Hennedy and myself were Hugh's companions in the walk which he made over the ground when about to write it out. We are both alluded to in the Ramble, and I think that is the last occasion I had of meeting these two friends together.

Hugh's reference to Mr. Hennedy is so illustrative of both men, both true poets in their own way, that it must be repeated. After an allusion to myself, Hugh gives vent to his feelings, as follows:—"An old and dear friend, whose name is associated in our mind with all odorous things, he being familiar with all manner of plants, "from the cedar-tree that is in Lebanon, even unto the hyssop which springeth out of the wall !' By many a flowery, many a leafy, tie, are our affections interwoven ; and many, many a sweet memory of woods, and fields, and streams, and marshes, have we as common property." I know, as I knew both the men, that every word of this is true from the heart. Further on in this Ramble, Hugh gives such a characteristic sketch that duty demands its transference here:—"Our flower-loving friend is now in all his glory, poking and prying along the vegetable fringe that skirts our path. Every now and then we are startled by his exclamations of delight, as some specimen of more than ordinary beauty meets his gaze. Nor is his attention devoted altogether to the fair children of Flora. Now he directs our eyes to some richly-tinted moth, or butterfly, with coat of many

colours, all of whom he seems to know by name ; and anon he picks up strange shells with curious markings, and creeping things which we pretend to admire at his suggestion, although the very sight of them in reality makes us 'grue and scunner.' Odd fellows, I trow, are these same naturalists, with their 'books in running brooks,' and their 'sermons in stones,' and all that sort of thing. But now our friend has found some extraordinary prize, and calls us loudly to his side, that we may share in his rapture. 'What a beauty we have here!' he cries as we approach ; and hastening forward we find in his hand—(What dost thou think gentle reader? but we need not ask thee, for thou wouldst never guess)—Why, as we live, a huge bloated toad, ugly and venomous, having a jewel in its head. We venture at last to gaze with the air of a connoisseur upon the panting *Batrachian*, as we think he calls it, and pretend to see great beauty in the eye of the animal, which he explains is the 'jewel' alluded to by the immortal deer-stealer. A full, true, and horribly particular account of the monster's habits and mode of living is next inflicted upon us, when the loathsome creature is at length, to our infinite relief, permitted to crawl away." As Hugh had a good knowledge of flowers himself, as well as of other sciences, his good-natured chaff, in this case, will be understood.

As Mr. Hennedy's study of Botany advanced it brought him into contact with the late Professor Walker Arnot, of the Glasgow University, with whom he made many excursions, particularly for dredging purposes, and in the collection of diatoms. Mrs. Hennedy still retains a large accumulation of letters, the dates of which extend over a period of twenty years, written to her husband by Professor Arnot. These papers are of considerable scientific value as bearing on the more advanced branches of Botanical investigation. Mr. Hennedy also corresponded with most of the authorities on these recondite matters in England and Ireland as well as in Scotland. Amongst the names of Botanists with whom he was in communication may be mentioned, in addition to that of Arnot, the names of Smith, Gregory, Greville, and Rylands.

While studying diatoms, he came upon one or two which had only been found once before, and in addition to that he was so successful as to meet with at least two species which had never been found by any other botanist. One of them was named by Wm.

Smith the *Navicula Hennedii*, and to the other Gregory gave the name of *Synedra Hennedii*.

In 1849 Mr. Hennedy commenced to teach in the Mechanics' Institution, of Glasgow, and under his charge the class increased rapidly, and became a very popular one, so much so, that in 1863, on the Chair of Botany becoming vacant in the Andersonian University, he was appointed to it, and remained Professor of Botany in that Institution till his death.

As a lecturer on Botany Mr. Hennedy possessed one very great qualification, that was his power of sketching on a black board any form which he might be describing to the students. This power he derived from his long practice at designing. To this we have to add his great enthusiasm, and the willingness he at all times showed to do whatever lay within his ability in the interest of those who wished to study the gifts of Flora. Any of the students who manifested signs of ability, or were in the slightest degree anxious to advance in botanical study, Mr. Hennedy's time was at their service in any way that he could give assistance to them. With such a teacher it need scarcely be said that his classes were popular and well attended. The following document will illustrate this, as well as other points in Mr. Hennedy's character:—

*Copy of Extract from Minute of Meeting of Managers of Andersonian
University, 11th December, 1876.*

The Managers take this opportunity of recording their deep regret at the loss their University has sustained through the death of Mr. Hennedy, Professor of Botany. His connection with the Institution dates from 1863, when he was appointed to the chair in room of Dr. Joseph Bell, and for a number of years he held the office of Curator of the Museum.

Since Mr. Hennedy's appointment to the Chair of Botany his classes have been most successfully conducted; and it affords the Managers much pleasure to record that from his extensive knowledge of the subject, and his enthusiasm in the Science of Botany, the class has become one of the most popular in the University.

While regretting the loss the University has sustained, the Managers have likewise to express their sincere sympathy with the widow and family of the deceased in their bereavement; and instruct the Secretary to transmit an excerpt of the above to Mrs. Hennedy.

It will be seen by the date of the following document that the institution of a Popular Evening Class for Botany began with Professor Hennedy's connection with the University:—

Extracted from the Minutes of the Popular Evening Classes Committee.

Popular Evening Classes, Andersonian University,
GLASGOW, 20th November, 1876.

The Committee instructed to be put upon the Minutes its sense of the loss sustained by the Popular Evening Classes in the death of Professor Hennedy, who has conducted the Popular Class in Botany from its commencement in 1863.

The success of his teaching depending alike on the extensive knowledge which he possessed of Botany, the kindly manner with which he communicated that knowledge to his Students, and the help he was ready to give in cases of difficulty, in the lecture-room and in the field, will long be remembered by the many who attended on his instructions.

The "Clydesdale Flora," written by him for the use of the Botany Class in the Andersonian, is a memorial of his practical knowledge and of the interest he took in furthering Botanical Science.

The Committee desire an extract of this Minute to be forwarded to his widow and family with its sympathy for them in their great bereavement.

JOSEPH SOMMERVILLE, *Secretary.*

He had one rule, and a commendable one, with his classes ; he would never accept an invitation from any of them to enter a public-house for refreshment, during any of the excursions to the country. He had his biscuit and a drink of water at a well, and thus preserved his perfect independence among his students.

It is also due to the memory of my old friend to give a copy of the following document :—

6 Windsor Place, 27th Nov., 1876.

Dear Sir,

At the first meeting of the "Glasgow Society of Field Naturalists" it was agreed that a Minute should be entered in the Society's proceedings expressive of the sincere regret which the members felt at the loss Botanical Science had sustained by the death of Mr. Roger Hennedy, Professor of Botany in the Andersonian University. Many of the members miss not only an accomplished guide in their studies, but a warm personal friend. Mr. Hennedy's connection with this Society, though never of an official character, began with its foundation, and he continued to sympathise heartily with its aims and works. He was always ready to assist, advise, and encourage those who applied to him. Perhaps Mr. R. Hennedy did more than any other Lecturer to spread the knowledge of Botanical Science in this district, and, let it be said to his honour, that he worked without expectation of monetary reward. He worked because of a very love of his labour, and he strove by every means in his power to attract others to the same fields of study and research. His enthusiasm stimulated every one who came into contact with him, and some of the best botanists in Scotland were educated under his eye. It was decided that an extract of this Minute and an expression of deep sympathy should be forwarded to his son.

Yours faithfully,

R. H. PATERSON, F.G.S.A., *Secy.*

DAVID HENNEDY, Esq.

In stating that—"He worked without expectation of monetary reward—he worked because of a very love of his labour,"—we have a distinct recognition of an innate feature of Mr. Hennedy's nature. There are few men who pass through life and of whom it can be said they had as small a love of sordid pelf as the subject of this notice. That contempt for the material things of this world which is preached on the Sunday, Mr. Hennedy faithfully practised every day in the week. He never gathered to himself money, neither by means of Botany or by any other sources, for it was not in the nature of the man to do so. A large portion of the time he lectured to the Mechanics' Institution was done without any remuneration. And the time he devoted to his students beyond the lectures and excursions was all given from the fulness of his heart. In truth, it may be said that all the time, during a space of nearly forty years, which he devoted to flowers, was work given without expectation of monetary reward, and given because of a very love of his labour. It was this love which led to long walks or rambles round Glasgow, and into the country to his favourite "Stations" for flowers. He knew where every particular flower could be found, as well as the date, almost to a day, when it would bud and bloom, and might be gathered, so as to bring it into his class. The same love kept him hard at work at night, and often far into the morning, drying and arranging botanical specimens; the large collection which he formed being now in the Andersonian University, having been given to that institution by Mrs. Hennedy. He has also left a very large and important collection of diatoms, which has also been presented to the same institution.

In his botanical excursions he was often led into adventures. He had many incidents with gamekeepers, who naturally took him for a poacher. On an excursion he made eastward to the Clova Mountains he was, after a long day's hard work, benighted, and had to sleep in the hills—starving of hunger the next morning he met a shepherd, and managed to get a share of a very simple breakfast.

It is also known that on this excursion he had to strip and wade into the middle of Loch Brandy for a rare plant. Often there were considerable fears at home for his safety. When a Botanist is working at diatoms and the lower forms of vegetable life, he frequents bogs, marshes, and pools of all kinds, no matter how deep

and dangerous, if the water is stagnant and full of green slimy filth, then it is all the more attractive to the searcher after science; but the banks and footing on the margins of such spots are treacherous, and the more ardent and devoted the Botanist may be, the more reason for anxiety and fear that a false step might be disastrous. Often, on returning home, Mr. Hennedy's clothes bore evidence that fears of this nature regarding him were far from groundless. On one of these expeditions with Professor Arnot, they were in the neighbourhood of some coal-pits; a group of colliers gathered round, and were considerably puzzled as to what the two men of science could be doing. There were various efforts made by way of explanation, and critical remarks were freely expressed. Mr. Hennedy heard the following descriptive analysis of his own doings:—"That wee ane's daft, he's clean gyte; see, he's gathering glaur and pittin'd in a bottle." This, of course, was the uninviting-looking scum which floats on stinking pools, and which might be expected, when placed under the microscope, to reveal the existence of diatoms.

In reading the *Life*, lately published, of Thomas Edward the Naturalist, it had an interest to me from finding so much in it that resembled what I knew in the career of my friend. The German term of "Doppelgangers" might be applied to them, for there is much that is similar in their histories. There must be a resemblance in the lives of all self-made men. The fight with hard circumstances is often the same, and the thirst for knowledge, impelling the struggle to supply that thirst, has been an oft-repeated tale. The similarity of life which is evolved has been thus put by Carlyle—"that all men are to an unspeakable degree brothers, each man's life a strange emblem of every man's." Although this is true, in a sense, of the whole human kind, yet the words tell more directly when applied to men who have made their mark in life. Few people realise, when they hear of success achieved by some one in the walks of Science or of Art, how much may have been sacrificed in the struggle—how much had to be given up to gain the one point—what precious things had to be thrown away—what solitary hours had to be spent, and the ordinary pleasures of life refused; and, at the same time, to suffer the chilling influence, which is inevitable from the want of sympathy among so many around, towards what is

the particular world the man of thought lives in. To continue for years under such conditions requires particular mental characteristics. Without a certain amount of stamina there would be a break-down. It is not in the final victory of battle where the real trial of the soldier has been, but in the long march, and the weary watches, where rest and rations were wanting, that the true power and pluck of the man has been tested. The dull monotony of the campaign is seldom thought of, it is only the triumph at the end which calls forth the admiration and praise of the world. Roger Hennedy did go through the weary toil of an uphill contest in life; and although he conquered, it was with the loss of much that most men value. To a great extent he was a solitary. While others were enjoying themselves, he was spending his time in his own room, often till far in the night, among his botanical collections and with his microscope. While he was at work on the fungi, there was a constant fear that he might be found some morning poisoned, for some of the descriptive tests depend upon the taste of these dangerous growths, and he at times got his mouth into a dreadful condition from the necessity of tasting doubtful plants. I once manifested my perfect faith in his knowledge of the fungi by collecting a quantity, under his supervision, in the Cumbrae; after bringing them home and being cooked by Mrs. Hennedy, although I knew they were not mushrooms, yet, without fear, and in trust of my friend, I partook heartily of the dish, and found them good.

There is one adventure which I have heard Mr. Hennedy relate, and it is worth recording, as it will show that he had a very strong reliant spirit, the existence of which will explain how he was able to remain faithful to his long course of study. It must have been very early in his botanical period, for it was on his first finding of the Royal Fern. It took place at the coast, and on a Sunday. I can imagine his delight—it was a splendid specimen and in good condition. A treasure of this kind was not to be lost, and although he had to return through the town, and people would look at such a marked object—the fern was about as long as himself—and on a Sunday too, still that must be faced, for he had to go up to Glasgow early on Monday morning, and the gauntlet of public opinion must be run—*coute qui coute*—and all are aware how particular Mrs. Grundy is in Scotland as to what constitutes propriety in the proper

observance of the Sabbath; this sense of propriety is again still more exacting in such places as the coast, and this our botanist knew; but he did not quite calculate to what an extent he was to make an exhibition of himself. As he had turned to go home again with the fern, this had shortened his ramble, it thus brought him back much sooner than had been calculated on, and just as he entered the village, his feelings may be guessed when he found that the Established Kirk had just "skailed," and a march along in the face of a lengthened procession of serious faces was before him and the *Osmunda Regalis*. There may have been in his mind, under such circumstances, an impulse for an instant to drop the specimen and evade the difficulty, but it did not lead to such a line of action, a glance at the beautiful object, and his fingers clutched it more firmly as he marched up to face the wondering crowd. There was a sense of relief when the ordeal was over, and he found himself at the end; but the Free Kirk was yet between him and home—could he get beyond it before the congregation came out, was the enquiry which presented itself to his mind. He could not be included among those who had a preference for long prayers, but here, for once in his life at least, his wishes were directed towards this, as being a desirable thing. His wish was not granted. Before he came up to the church door the stream of people had begun to pour out, and their astonishment was great at seeing a man, on that day, walking along carrying such a conspicuous object in his hand; but, even the fear of Mrs. Grundy, as represented by the pious horror of the "Frees," did not for a moment shake his determination. The scandal of violating any of the "ten thousand proprieties" is a great controlling influence on the Chinese mind, but none of them would be greater to the celestial soul than this desecration of what is considered to be a propriety in regard to the seventh day of the week in Scotland. It required a good deal of determination and self-control to have gone through this ordeal. Some men could have done it from being possessed of a thick-skinned indifference, but that was not Mr. Henedy's nature, he was sensitive to a degree. It was in this instance his devotion to his science which led him into this disagreeable position, and the inward power which carried him through all difficulties enabled him to surmount this one. To his mind the fern contained as instructive a homily as any that would

be heard in the churches ; it was given to him in the temple not made with hands, about whose Builder he had no doubts, and in that temple he was a most devoted worshipper. He was religious in the true sense of the word, for his nature made him so—a sanguine constitution acting on a mind which made for itself an ideal standard—veneration strong, and at the same time ardent and sensitive—given these qualities and you have a soul which cannot help manifesting admiration and love towards the objective universe. The Book of Creation was not a sealed scroll to him ; it was constantly open as his daily study. The world of flowers did not lie before him as a desert of hard names, but rather it appeared as a temple of beauty, appealing to his inner nature. In this world he lived apart to a certain extent from his fellow-men, but yet as one of the flower-lovers, as his “old and dear friend” has expressed it, he went “wandering joyously,” doing his work faithfully to the end.

Forgive my grief for one removed,
Thy creature, whom I found so fair.
I trust he lives in thee, and there
I find him worthier to be loved.

NOTE.—It should be mentioned as a peculiarity of Mr. Hennedy that he never sat for his photograph, nor would he permit a portrait of himself to be done. I chanced to be on a visit only a few weeks before his death, and wanted him to sit to me, but no persuasion would prevail on him to do so. As the family were anxious to have some resemblance of him, I made notes of his face, without his knowledge, when opportunity offered, and I have been able from them to make something of a likeness. It is not so good as if I had got regular sittings, but still it is enough to recall the features of the man. The portrait which forms the frontispiece to this edition of the “Clydesdale Flora” has been done from these sketches, and what is here said will be an apology for any defects which may be found in it.



In Memoriam.

ROGER HENNEDY—Died 22nd October, 1876.

Strew flowers. Strew flowers upon the bier's dark lid;
Strew the wild flowers he loved the sable signs amid,
Ere dust to dust is gone, and is for ever hid.

Plant flowers. Plant flowers around and o'er his tomb—
To the loved flowers give space, make ample room,
Perennial flowers that *In Memoriam* bloom.

Worthy and true—an ardent student has he been,
His work will live—in it his monument is seen,
“CLYDESDALE FLORA,” thy leaves will keep his memory green.

On Mr. Henney's death the Press, not only of Glasgow, but also of Edinburgh and other places, even as far away as America, contained long notices, all of them tributes to character and work. One of these, which appeared in the form of verse in *The Bailie*, 1st Nov., 1876, was so true in feeling, that it is here, with only a slight change in some of the words, preserved.

CLASSES AND ORDERS

OF THE

LINNÆAN ARTIFICIAL SYSTEM OF BOTANY.

CLASSES.

A. Flowers perfect.

- | | |
|---|---------------------------|
| Class | Class. |
| 1. MONANDRIA—1 stamen. | 6. HEXANDRIA—6 stamens. |
| 2. DIANDRIA—2 stamens. | 7. HEPTANDRIA—7 stamens. |
| 3. TRIANDRIA—3 stamens. | 8. OCTANDRIA—8 stamens. |
| 4. TETRANDRIA—4 stamens. | 9. ENNEANDRIA—9 stamens. |
| 5. PENTANDRIA—5 stamens. | 10. DECANDRIA—10 stamens. |
| 11. DODECANDRIA, 12—19 stamens. | |
| 12. ICOSANDRIA, 20 or more stamens inserted on the calyx, <i>mostly Rosaceous</i> . | |
| 13. POLYANDRIA, 20 or more stamens inserted on the receptacle, <i>as in Ranunculus</i> . | |
| 14. DIDYNAMIA, 4 stamens; 2 long and 2 short. <i>Flowers irregular, mostly 2-lipped, as in Labiate</i> . | |
| 15. TETRADYNAMIA, 6 stamens; 4 long and 2 short. <i>Flowers Cruciform, as in the Wall-flower</i> . | |
| 16. MONADELPHIA, stamens united by their filaments in one set, <i>as in Mallow</i> . | |
| 17. DIADELPHIA, stamens united by their filaments into 2 sets or bundles. <i>Flowers mostly papilionaceous, as in the Pea</i> . | |
| 18. POLYADELPHIA, stamens united by their filaments in 3 or more sets or bundles, <i>as in St. John's Wort</i> . | |
| 19. SYNGENESIA, anthers united in a tube. <i>Flowers compound, as in the Daisy</i> . | |
| 20. GYNANDRIA, stamens and pistils united in a column, <i>as in Orchis</i> . | |

B. Flowers imperfect.

21. MONŒCIA, flowers unisexual, on the same plant, *as in Carex*.
22. DIECIA, flowers unisexual, on different plants, *as in the Willow*.
23. POLYGAMIA, flowers unisexual, or perfect, on the same or on different plants, *as in Atriplex*.
24. CRYPTOGAMIA, organs of reproduction concealed, *as in Ferns*.

ORDERS.

The orders in the first 13 classes are determined by the number of styles in each flower.

MONOGYNIA—1 style.

DIGYNIA—2 styles.

TRIGYNIA—3 styles.

TETRAGYNIA—4 styles.

PENTAGYNIA—5 styles.

HEXAGYNIA—6 styles.

HEPTAGYNIA—7 styles.

OCTOGYNIA—8 styles.

DECAGYNIA—10 styles.

DODECAGYNIA—12 styles.

POLYGNIA—many styles.

The orders in DIDYNAMIA are—

1. GYMNOSPERMIA, with 4 apparently naked seeds.

2. ANGIOSPERMIA, with several seeds enclosed in a capsule.

The orders in TETRADYNAMIA are—

1. SILICULOSA, seeds in a short pod or pouch.

2. SILIQUOSA, seeds in a long pod.

The orders of the 16th, 17th, and 18th classes are distinguished by the number of stamens, as TRIANDRIA, TETRANDRIA, &c.

The orders in SYNGENESIA are—

1. ÆQUALIS, florets ligulate and perfect.

2. SUPERFLUA, florets of the disk perfect and tubular, of the ray with pistils only, which are mostly ligulate.

3. FRUSTRANEA, florets of the disk perfect, of the ray neuter.

The orders in the 20th, 21st, 22nd, and 23rd classes, are distinguished by the number, union, and situation of the stamens.

In the 24th class the orders are the same as in the Natural system.

ABBREVIATIONS USED IN THE DESCRIPTIONS.

anth.,anther.
 ach.,achene.
 cap.,capsule.
 cal.,calyx.
 carp.,carpel.
 cor.,corolla.
 fil.,filament.
 fl.,flower.
 ft.,feet.
 gl.,glume.
 in.,inch.
 inv.,involucre.
 le.,leaf.
 ped.,peduncle.
 peri.,perianth.
 pet.,petals.
 rac.,raceme.

rec.,receptacle.
 sep.,sepals.
 st.,stamens.
 stip.,stipule.
 Var.,variety.
 A.,annual.
 B.,biennial.
 P.,perennial.
 Sh.,shrub.
 T.,Tree.
 *.....not native of Britain, or
 introduced.
 1,January.
 2,February.
 3,March, &c.,
 represent the months of
 flowering.

H. & A. refers to Hooker & Arnott's "*British Flora*."

The Letters in parenthesis represent the type of distribution. See Introduction.

SYNOPSIS OF THE GENERA,

ARRANGED ACCORDING TO THE LINNÆAN METHOD.

*The numbers prefixed refer to the page where the Orders, Genera,
and Species will be found.*

Class 1. MONANDRIA.

Page Order 1. MONOGYNIA.

65. HIPPURIS.—Perianth single, forming a slight rim to the
germen. Fl. axillary. *Le. verticillate.*
141. SALICORNIA.—Perianth swollen, undivided, enclosing the
seed. *Succulent plants.*
(See *Alchemilla.*)
-

Class 2. DIANDRIA.

Order 1. MONOGYNIA.

A. *Fl. inferior, monopetalous, regular. Perianth sometimes
wanting.*

84. OLEACEÆ.

B. *Fl. inferior. monopetalous, irregular. Perianth double.*

120. VERONICA.—Cor. 4-cleft. Capsule 2-celled.

131. PINGICULA.—Cor. ringent, spurred.

131. UTRICULARIA.—Cor. personate, spurred.

125. LYCOPUS.—Seed 4-lobed. Stems square. Fl. in whorls.

C. *Flowers superior. Perianth double.*

64. CIRCÆA.—Cal. of 2 sepals. Cor. of 2 petals. Fruit covered
with hooked bristles.

Class 3. TRIANDRIA.**Order 1. MONOGYNIA.**

Page **A.** *Flowers superior, with cal. and cor.*

80. VALERIANACEÆ.

B. *Perianth, single, 6-cleft, superior.*

157. IRIDACEÆ.

C. *Flowers inferior, glumaceous. Le. parallel-veined.*

(See CYPERACEÆ, GRAMINEÆ, and JUNCACEÆ.)

Order 2. DIGYNIA.

185. GRAMINEÆ.—Fl. glumaceous, sheaths split. *Grasses.*

Order 3. TRIGYNIA.

66. MONTIA.—Cal. of 2 sepals. Cor. irregular, monopetalous.
Capsule 3-valved, 3-seeded.

29. HOLOSTEUM.—Sepals 5. Pet. 5, jagged at the apex. Capsule
1-celled, opening by 6 teeth.

Class 4. TETRANDRIA.**Order 1. MONOGYNIA.**

* Perianth double.

A. *Cal. double. Cor. monopetalous, superior. Fl. capitate.*

80. DIPSACACEÆ.

B. *Fl. monopetalous, superior. Fruit 2-lobed.*

79. RUBIACEÆ.

C. *Fl. monopetalous, inferior. Fruit 2 or many-seeded.*

134. PLANTAGO.—Segments of cor. bent back. Filaments very
long. Fl. in spikes.

D. *Fl. polypetalous.*

13. EPIMEDIUM.—Sep. 4. Cor. inferior, with an inflated nectary.

43. EUONYMUS.—Cal. 4—5-cleft, with a flat disk lining the base
inside. Germen 3—4-celled.

** Perianth single.

148. PARIETALIA.—Perianth 4-cleft, companulate. St. curving
back with elasticity, opposite to the segments of the
perianth. Stipules small.

58. ALCHEMILLA.—Perianth inferior, 8-cleft, alternate segments
smaller. Fruit 1—2-seeded.

Page

Order 2. DIGYNIA.

114. GENTIANA.—Cal. 4-cleft. Cor. monopetalous, 4-cleft, hair in the throat.

Order 3. TETRAGYNIA.

26. SAGINA.—Sep. 4. Pet. 4, shorter than the sepals. Capsule 1-celled, opening by 4 valves.
112. ILEX.—Cal. 4—5-toothed. Cor. rotate, 4—5-cleft. Stigmas 4, sessile. Fruit a fleshy berry with 4 1-seeded hard nuts. *Le. spinescent.*
30. RADIOLA.—Cal. 4-cleft; each lobe 2—3-cleft. Pet. 4. Capsule with 8 cells and 8 valves.
171. POTAMOGETON.—Perianth single, of 4 scales. Anthers sessile, opposite to the segments of the perianth. Pistils 4. Achenes sessile.

(See *Cerastium.*)

Class 5. PENTANDRIA.

Order 1. MONOGYNIA.

- A. *Cor. monopetalous, inferior, bearing the stamens in the throat.*
Fruit 4-lobed.

85. BORAGINACEÆ.

- B. *Cor. monopetalous, inferior. Fruit 1-celled, st. opposite to the segments of the cor.*

88. PRIMULACEÆ.

- C. *Cor. monopetalous, inferior. St. alternate with the segments of the cor.*

84. GENTIANACEÆ.—Capsule 1 or imperfectly 2-celled, with parietal placentation. *Le. ribbed.*

86. SOLANACEÆ.—Fruit 2-celled, or half 4-celled, many-seeded. Fl. often out of the axil.

125. VERBASCUM.—Cor. rotate, somewhat irregular. St. unequal, 2 or more hairy at the base.

114. POLEMONIUM.—Cor. rotate. St. upon the valves which close the mouth of the cor. Fruit 3-celled.

85. CONVULVULACEÆ.—Cor. campanulate, plaited in the bud. Stigmas 2. Fruit 2—3-celled, few-seeded.

113. VINCA.—Cor. salver-shaped. Stigma capitate, contracted in the middle. Fruit of 2 follicles.

D. *Corolla monopetalous, superior.*

83. CAMPANULACEÆ.—St. distinct from the corolla. Style pubescent above the middle. Fruit a capsule.

Page

110. LOBELIA.—Cor. irregular, tube split on the upper side. Anthers cohering. Stigma with a ring of hairs below the apex. *Le. tubular*.
90. LONICERA.—Cor. tubular or funnel-shaped, unequally 5-cleft. Stigma capitate. Fruit a berry.

E. Corolla polypetalous, inferior.

36. IMPATIENS.—Fl. irregular. Lower pet. spurred. Capsule 5-celled, opening with 5 elastic valves.
22. VIOLA.—Fl. irregular. Sep. produced at the base. Lower petal with a short blunt spur. Capsule 1-celled, 3-valved.
66. PARONYCHIACEÆ.—Fl. regular. Sep. 5. Pet. 5, small, entire. Style 3—5. Capsules many-seeded.

F. Corolla polypetalous, superior.

68. RIBES.—Cal. bearing the pet. in the throat, nearly included. Style cloven. Berry many-seeded.
77. HEDERA.—Pet. broadest at the base. Style simple. Berry 5-celled, 3—5-seeded.

G. Perianth single, inferior.

132. GLAUX. (See *Primulaceæ*.)
136. CHENOPODIACEÆ.—Perianth deeply 5-cleft. St. opposite the segments. Fruit utricular. *Le. mostly fleshy*.

Order 2. DIGYNIA.

A. Perianth single, inferior.

148. ULMUS.—Perianth 4—6-cleft. Fruit with a broad membranous wing (a samara) cleft at the apex. *Large trees*.
137. POLYGONACEÆ.—Perianth coloured. Achene 1-seeded. Stipules sheathing.
139. CHENOPODIACEÆ.—Stamens inserted into the base of the perianth. Fruit utricular.
141. SCLERANTHUS.—Perianth covering the fruit, urceolate. St. upon its throat. *Le. opposite*.

B. Perianth double. Cor. monopetalous.

115. CUSCUTA.—Cor. campanulate, with internal scales. Capsule bursting transversely at the base, 2-celled, 4-seeded.

C. Perianth double, superior. Fruit 2-celled, seeds 2.

41. UMBELLIFERÆ.

Order 3. TRIGYNIA.

90. VIBURNUM.—Cor. superior, monopetalous. Berry 1-seeded. Fl. cymose. *Le. undivided*.

Page

89. *SAMBUCUS*.—Cor. superior, rotate. Berry 3-seeded. Fl. in cymes. Le. pinnate.
(See *Drosera* and *Caryophyllaceæ*.)

Order 4. TETRAGYNIA.

70. *PARNASSIA*.—Pet. 5, concave. Nectaries fringed with gland-bearing filaments. Capsule 1-celled, 4-valved.

Order 5. PENTAGYNIA.

29. *LINUM*.—Pet. 5, inferior. Capsule 10-celled, 10-valved, and 10-seeded. Le. opposite or alternate.
134. *ARMERIA*.—Cal. tubular, plaited inferior. Petals bearing the st. at the base. Ovary solitary, 1-celled. Fl. capitate.
(See *Cerastium* and *Spergula*.)

Order 6. HEXAGYNIA.

24. *DROSERA*.—Cal. 5-cleft. Pet. 5. Capsule 1-celled, many-seeded.

Class 6. HEXANDRIA.

Order 1. MONOGYNIA.

A. *Fl. with cal. and cor. inferior.*

13. *BERBERIS*.—Cal. of 6 concave sep. Pet. 6, each with 2 glands at the base. Berry 2—3-seeded. *A shrub*.
66. *PEPLIS*.—Cal. campanulate, with 6 large, and 6 smaller alternating teeth. Pet. 6 or none. Capsule 2-celled.

B. *Perianth single, superior, enclosed at first in a membranous bract or spathe, 6-partite.*157. *AMARYLLIDACEÆ*.C. *Perianth single, inferior, 6-partite.*

157. *LILIACEÆ*.—Perianth petaloid, regular or nearly so, bearing the stamens. Anthers introrse. Style 1. Ovary distinct, 3-celled.
158. *JUNCACEÆ*.—Flowers mostly glumaceous, 6-cleft or 6-partite. St. 3 or 6. Ovary free.
168. *NARTHECIUM*.—Filaments woolly. Perianth green outside. Seeds with an appendage at each end. Fl. yellow. Le. equitant.
170. *ACORUS*.—Fl. on a spadix, many-flowered. Spathe none. Stigma sessile. Scape leaf-like. Le. sword-shaped.

Page

Order 2. DIGYNIA.

137. POLYGONACEÆ.

Order 3. TRIGYNIA.

143. RUMEX.—Perianth of 6 segments, the 3 inner enlarged in fruit. Achene triquetrous. Styles feathery.
169. TRIGLOCHIN.—Perianth of 6 segments, 3 outer and 3 inner. Anthers sessile in the leaves of the perianth. Capsules 3—6.
165. TOFIELDIA.—Flowers in racemes, bracteoles 3 connate. Perianth 6-partite, st. seated at the base of the segments. Stigmas obtuse. *Fl. small, pale yellow.*
24. ELATINE.—Perianth double. Cal. of 3 sepals. Pet. 3, coloured. Capsule superior, 3-celled. (See *Paris.*)

Order 4. POLYGYNIA.

168. ALISMA.—Cal. of 3 sepals. Pet. 3, coloured. Achenes clustered.

Class 8. OCTANDRIA.

Order 1. MONOGYNIA.

A. *Perianth double, superior.*

39. ONAGRACEÆ.—Sep. and pet. 4 each. Capsule linear. Seeds downy.
110. VACCINIUM.—Cor. ovate or campanulate. Berry 4-celled.

B. *Perianth double, inferior.*

33. ACER.—Cal. 5-partite. Pet. 5. Fruit with 2 wings (a double samara).
84. ERICACEÆ.—Cal. and cor. 4—5-cleft. Anthers opening by pores. Le. opposite or whorled.

C. *Perianth single.*

145. DAPHNE.—Perianth 4-cleft. St. in the tube of the cor. Berry 1-seeded.

(See *Polygonum.*)

Order 2. DIGYNIA.

70. CHRYSOSPLENIUM.—Perianth single, spreading. Capsule with 2 spreading beaks, 1-celled, many-seeded.
- (See *Scleranthus* and *Polygonum.*)

Order 3. TRIGYNIA.

(See *Polygonum* and *Drosera.*)

Page Order 4. TETRA-PENTA-GYNIA.

77. ADOXA.—Cal. half superior. Terminal flower with the cal. 2-cleft; cor. 4-cleft; lateral ones with the cal. 3-cleft; cor. 5-cleft. Berry 4-celled.
163. PARIS.—Cal. of 4 sepals. Pet. 4. Anther cells on each side of a subulate filament. Berry 4-celled, superior.

Class 10. DECANDRIA.

Order 1. MONOGYNIA.

112. PYROLA.—Cal. and cor. 5-cleft. Anthers opening by pores at the base.
- (See *Ericaceæ* and *Vaccinaceæ*.)

Order 2. DIGYNIA.

69. SAXIFRAGA.—Cal. superior, half inferior or inferior, 5-toothed or partite. Pet. 5. Fruit with 2 beaks.
- (See *Caryophyllaceæ* and *Scleranthus*.)

Order 3. TRIGYNIA.

66. SPERGULARIA.—Perianth double. Sep. 5. Pet. 5, about as long as the cal. Ovary sessile. Le. opposite, with membranous stipules.
6. CARYOPHYLLACEÆ.—Perianth double. Cal. 5-cleft or of 5 sepals. Cor. of 5 petals. Capsule sessile or with a short stalk, opening by several teeth. Le. opposite, without stipules.

Order 4. PENTAGYNIA.

40. CRASSULACEÆ.—Flower alternating in all its parts. Stamens either of equal number or twice as many as the pet. Ovaries 1-celled, tapering into stigmas. Le. fleshy.
36. OXALIS.—Cal. 5-partite. Pet. 5, sometimes united by their claws. Capsule 5-celled. Le. ternate.
67. SPERGULA.—Sep. and pet. 5 each. Capsule 1-celled. Le. opposite, with membranous stipules.
- (See *Caryophyllaceæ* and *Adoxa*.)

Class 11. DODECANDRIA.

Order 1. MONOGYNIA.

65. LYTHRUM.—Cal. tubular, with 12 teeth, alternate ones small and subulate. Pet. 6, inserted in the mouth of the cal. tube between its lobes.

Page

Order 2. DIGYNIA.

58. AGRIMONIA.—Cal. covered with hooked bristles, inferior, 5-cleft. Pet. 5, seated upon the cal.

Order 3. TRIGYNIA.

22. RESEDA.—Cal. 4—6-partite. Pet. irregular, more or less divided. Capsule 1-celled, open at the top.

Order 4. DODECAGYNIA.

67. SEMPERVIVUM.—Pet. and styles 12 or more.

Class 12. ICOSANDRIA.

38. ROSACEÆ.—Fl. regular. Le. stipulate.

Class 13. POLYANDRIA.

Order 1. MONOGYNIA.

3. PAPAVERACEÆ.—Sep. 2. Pet. 4. Stigma sessile.
 22. HELIANTHEMUM.—Cal. of 5 pet., with 2 on the outside of the 3 inner.
 31. TILIA.—Fl. from a spatha. Cal. 5-partite, deciduous. Pet. 5. Fruit coriaceous. *Trees*.
 3. NYMPHÆACEÆ.—Pet. numerous. Capsule large, with a flat radiating stigma. Le. large. *Floating water plants*.

Order 2. DI-POLY-GYNIA.

2. RANUNCULACEÆ.—Ovaries several, distinct or united below. Pet. sometimes irregular. Le. alternate, often much cut.

Class 14. DIDYNAMIA.

Order 1. GYMNOSPERMIA.

Germen 4-lobed. Style 1, from between the lobes.

87. LABIATÆ. *Stem square. Le. opposite. Fruit lying in the bottom of the cal.*

Order 2. ANGIOSPERMIA.

Germen entire, or 2-lobed enclosing the seeds.

86. SCROPHULARIACEÆ.—Germen superior, 2-celled. *Leafy plants*.
 86. OROBANCHACEÆ.—Germen superior, 1-celled. *Leafless plants*.

Page **Class 15. TETRADYNAMIA.**

3. CRUCIFERÆ.

Class 16. MONADELPHIA.

Order 1. PENT-DEC-ANDRIA.

7. GERANIACEÆ.—Fruit with a long beak, capsules splitting off from the base, and curving up when ripe.
 37. LEGUMINOSÆ.—Fl. papilionaceous. Legume 1-celled.
 (See *Oxalis*, *Linum*, *Lysimachia*, and *Solanum*.)

Order 2. POLYANDRIA.

7. MALVACEÆ.—Cal. in 2 rows. Anthers 1-celled.
-

Class 17. DIADELPHIA.

3. FUMARIACEÆ.—Stamens 6.
 6. POLYGALACEÆ.—Stamens 8.
 37. LEGUMINOSÆ.—Stamens 10.
-

Class 18. POLYADELPHIA.

7. HYPERICACEÆ.—Stamens in 3 or more bundles.
-

Class 19. SYNGENESIA.

80. COMPOSITÆ.—Anthers combined. Fl. in a head.
-

Class 20. GYNANDRIA.

146. ORCHIDACEÆ.—Stamens seated upon the style.
-

Class 21. MONŒCIA.

Order 1. MONANDRIA.

146. EUPHORBIA.—Perianth none. Involucre surrounding a pistil and several male fl. with 1 stamen to each. Styles 3. Capsule 3-seeded. *Plants with milky juice.*

Page

147. *CALLITRICHE*.—Perianth none. Bracts 2 or none. Styles 2, simple.
173. *ZANNICHELLIA*.—Barren fl. without a perianth. Fertile solitary, of 1 leaf. Stigma peltate. Achenes 4, on short stalks.
170. *ARUM*.—Perianth none. Fertile fl. at the base; barren ones in the centre of a cylindrical spadix; surrounded by a sheathing spatha.
173. *ZOSTERA*.—Perianth none. Fl. in 2 rows on a flat spadix, enveloped by a sheath-like spatha. Style bifid. *Marine floating plants with long flat leaves.*

Order 2. DIANDRIA.

171. *LEMNA*.—Spatha membranous, enclosing 1 barren and 1 fertile fl. Style 1. Fl. from below the edge of a floating leaf or frond.

(See *Carex*.)

Order 3. TRIANDRIA.

174. *CYPERACEÆ*.—Fl. in spikes with imbricated scales or glumes. Achenes or nuts with 1 style and 2—3 stigmas. Le. grass like; sheaths not split; *stems solid*.
158. *TYPHACEÆ*.—Fl. in cylindrical spikes, or globular heads. Perianth 3-leaved or none. Style 1. Stigmas 2—3. Ovary surrounded by bristles or the 3-leaved perianth.

Order 4. TETRANDRIA.

135. *LITTORELLA*.—Barren fl. stalked. Cal. of 4-sepals. Cor. 4-cleft. St. very long. Fertile fl. sessile. Cal. none. Cor. 3—4-cleft. Style very long. Fruit 1-celled, 1-seeded.
147. *URTICA*.—Barren fl. with a 4-leaved perianth and 4 st opposite the segments. Perianth of the fertile fl. 2-leaved. Stigma sessile. Fruit an achene.
148. *PARIETARIA*.—Perianth 4-partite. Style simple. Stigma penicillate. Fl. in clusters. Fruit an achene.
149. *ALNUS*.—Fl. all in catkins. Scale of the catkin 3-lobed, with 3 fl. (*BETULACEÆ*.)
149. *MYRICA*.—Fl. all in catkins. Scale of the catkin entire, swollen. (*MYRICACEÆ*.)

Order 5. POLYANDRIA.

A. *Flowers not in Catkins.*

65. *MYRIOPHYLLUM*.—Fl. axillary or in lax spikes. Pet. of barren fl. 4, deciduous. St. 8. Germen inferior. Stigmas 4, sessile. *Le. pectinated.*

Page

169. *SAGITTARIA*.—Perianth of 6 segments, the 3 inner coloured. St. very numerous. Germens superior. Carpels very numerous, seated upon a globose receptacle, each with a single style.

B. Barren flowers in catkins or lax spikes.

138. *CUPULIFERÆ*.—Fruit solitary, or several collected together, surrounded by a prickly, leafy, or coriaceous involucre.
149. *BETULA*.—Barren and fertile fl. in catkins. St. 10—12, inserted on the scales of the catkin. Fertile fl. 3, within a 3-lobed scale. Styles 2. Fruit winged.

Order 6. MONADELPHIA.

154. *PINUS*.—Fruit in cones. Barren fl. in racemose catkins.

Class 22. D I Œ C I A.

Order 1. MONANDRIA.

149. *SALIX*.—Fl. in catkins.

Order 2. DIANDRIA.

149. *SALIX*.—Fl. in catkins.

Order 3. TRIANDRIA.

163. *RUSCUS*.—Fl. on the leaves. St. 3. Perianth 6-lobed. Style 1. Berry 3-celled.
146. *EMPETRUM*.—Perianth of many imbricated scales. St. 3—9. Filaments slender. Germen superior, globose. Style short. Stigma peltate. Fruit a berry.

(See *Valeriana* and *Salix*.)

Order 4. TETRANDRIA.

148. *HIPPOPHÆ*.—Barren fl. with a 2-lobed perianth. Fertile fl. with a tubular bifid perianth. Stigma long. *Scaly shrubs*.
147. *URTICA*.—Perianth single. Barren one 4-lobed. Fertile 2-leaved. Achene superior. Stigma 1, sessile.

(See *Myrica* and *Salix*.)

Order 5. PENTANDRIA.

148. *HUMULUS*.—Barren fl. Perianth single, 5-leaved. Anthers with 2 pores. Fertile fl. in a catkin with large scales. Perianth none. Germen 1-seeded. Styles 2.

(See *Ribes*.)

Page

Order 6. HEXANDRIA.

(See *Rumex*.)

Order 7. POLYANDRIA.

152. *POPULUS*.—Fl. in catkins. Anthers 8—30. Perianth oblique, entire. Fertile fl. Stigmas 4—8. Capsule superior, 1-celled and 2-valved. *Trees*.
67. *SEDUM*.—Cal. 4-cleft. Pet. 4. Glands 4, emarginate. Capsules 4, many-seeded.
146. *MERCURIALIS*.—Perianth single, 3-partite. St. 9—12. Cells of the anthers globose. Fertile fl. Germen superior. Styles 2. Capsule 2-celled, cells 1-seeded.

(See *Caryophyllaceæ*.)

Order 8. MONADELPHIA.

159. *ANACHARIS*.—"Cal. 3-parted, inferior, with a long tube. Filaments 3. Capsule 1-celled. Male with 9 stamens, filaments combined."
155. *JUNIPERUS*.—Barren fl. in catkins. St. 5. Fertile fl. Style and stigma none. Scales combining into a fleshy berry. *Shrubs*.
155. *TAXUS*.—Barren fl. in catkins. St. 5. Fertile fl., scaly at the base. Style and stigma none. Seed 1, nearly enclosed by a fleshy cup. *A tree*.

Class 23. POLYGAMIA.

Order 1. MONÆCIA.

140. *ATRIPLEX*.—Perianth single, of 2 valves in the pistillate flowers, in the others 5-partite. Fruit a utricle covered by the enlarged perianth.

(See *Parietaria*.)

Class 24. CRYPTOGRAMIA.

(See *Class 3*, page 202.)

DIVISIONS OF THE NATURAL SYSTEM, AS ADOPTED IN THE PRESENT WORK.

Division **A**.—**PHANEROGAMOUS** or flowering plants.

CLASS I.

DICOTYLEDONS OR EXOGENS.

Embryo furnished with two opposite cotyledons, rarely more, and then much divided or whorled. Stem increasing by external layers. Leaves with branching veins, the ultimate ones reticulated. Flowers arranged in 5 or 2 parts, or multiples of these numbers.

SUB-CLASS 1.—**THALAMIFLORÆ**, Page 1.

Petals several, distinct, and are, as well as the stamens, inserted into the receptacle (hypogenous) below the ovaries.

SUB-CLASS 2.—**CALYCIFLORÆ**, Page 36.

Petals several, distinct, and are, as well as the stamens, inserted into the calyx (perigynous).

SUB-CLASS 3.—**COROLLIFLORÆ**, Page 78.

Corolla with the petals united (monopetalous). Stamens mostly inserted upon the corolla (epipetalous).

SUB-CLASS 4.—**MONOCHLAMYDEÆ**, Page 136.

Perianth single or none.

SUB-CLASS 5.—**GYMNOSPERMÆ**, Page 154.

Ovaries open, destitute of style or stigma. Perianth none.

CLASS II.

MONOCOTYLEDONS OR ENDOGENS, Page 155.

Embryo furnished with one cotyledon, or, if more, alternate. Stem increasing and lengthening by new matter within; woody bundles confused. Leaves parallel-veined and withering on the stem. Flowers arranged in 3 parts or multiples of this number.

Page

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(See *Rumex*.)

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(See *Caryophyllaceæ*.)

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MONOCOTYLEDONS or **ENDOGENS**, Page 155.

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SUB-CLASS 1.—PETALOIDEÆ,	Page 155.
Floral envelopes verticillate, mostly petaloid. Perianth single, or sometimes none.	
SUB-CLASS 2.—GLUMACEÆ,	Page 174.
Perianth none. Floral envelopes imbricated, consisting of chaffy scales or glumes.	

Division B.—CRYPTOGAMOUS or flowerless plants.

CLASS III.

ACOTYLEDONS OR ACROGENS,	Page 202.
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Plants bearing no true flowers; the organs of reproduction are bodies resembling seeds called spores, having no embryo, consequently without any cotyledons. Increase of growth takes place at the apex of the stem when present, and the woody bundles are arranged in a zigzag manner. The venation of the leaf or frond by repeated forkings, often rather complicated.

THE CLYDESDALE FLORA.

Sub-Class 1.—THALAMIFLORÆ.

SYNOPSIS OF THE NATURAL ORDERS.

A. Stamens 12 or more, not easily counted.

† Ovaries numerous, distinct, or nearly so.

Ord. 1. RANUNCULACEÆ.—Carpels numerous, in several rows (achenes), or of 3 or more capsules opening on the inner margin (follicles).

†† Ovaries one-celled.

Ord. 4. PAPAVERACEÆ.—Sepals 2, caducous. Petals 4, crumpled in æstivation. Placentas 2 or more, often projecting to the centre. *With milky juice.*

Ord. 8. CISTACEÆ.—Sepals 3, twisted in æstivation, with 2 outer ones. Petals deciduous. Stigma capitate.

††† Ovaries several celled.

Ord. 3. NYMPHÆACEÆ.—Petals numerous, often passing gradually into stamens. Stigma peltate, rayed. *Water plants with floating leaves.*

Ord. 15. MALVACEÆ.—Stamens monadelphous. Anthers one-celled. Petals convolute in æstivation. *Hairy or pubescent plants.*

Ord. 17. HYPERICACEÆ.—Stamens polyadelphous. Petals mostly unequal-sided, often with black dots. *Fl. yellow.*

Ord. 16. TILIACEÆ.—Sepals deciduous. Stamens distinct or nearly so. Flowers springing from a lanceolate bract. *Trees.*

B. Stamens 10 or fewer, seldom more.

† Flowers irregular.

Ord. 5. FUMARIACEÆ.—Sepals 2, minute, deciduous. Petals adhering at the tips. Stamens diadelphous.

Ord. 9. VIOLACEÆ.—Sepals 5, extended at the base. Petals 5, lower one bluntly spurred. Placentation parietal. *Leaves with stipules.*

Ord. 11. POLYGALACEÆ.—Calyx with 2 wing-like sepals and 3 small outer ones. Filaments combined in 2 sets, united to the claws of the petals.

Ord. 7. RESEDACEÆ.—Sepals several, narrow. Petals laciniated. Stamens 10, sometimes more. Capsule when young opening at the top and showing the seeds.

Ord. 20. BALSAMINACEÆ.—Lowest sepal cucullate and spurred. Stamens 5; filaments united at the apex.

†† *Flowers regular or nearly so.*

a. *Ovary solitary, one-celled, or with a false dissepiment.*

Ord. 2. BERBERIDACEÆ.—Anthers valvate. Petals glandular at the base. Stamens opposite to the petals.

Ord. 6. CRUCIFERÆ.—Petals 4, distinct. Stamens tetradynamous. Pod with a false dissepiment. *Flowers generally corymbose.*

Ord. 10. DROSERACEÆ.—Leaves clothed with glandular hairs, circinate in veneration; ovary 1-celled. Capsule with 3—5 placentas, many-seeded.

Ord. 13. CARYOPHYLLACEÆ.—Leaves opposite. Stem swollen at the joints. Capsule with a free central placentation at the summit, sometimes axillary below.

b. *Ovaries 2 or more celled.*

Ord. 14. LINACEÆ.—Leaves entire. Petals convolute in aestivation. Fruit 6—10 celled.

Ord. 12. ELATINACEÆ.—Leaves opposite, entire, stipulate. Fruit 3-celled. Seeds striated.

Ord. 18. ACERACEÆ.—Leaves lobed. Fruit winged (a double samara). *Trees.*

Ord. 19. GERANIACEÆ.—Leaves deeply cut. Fruit with a long beak. Stamens monadelphous.

Ord. 21. OXALIDACEÆ.—Leaves ternate. Petals 5, twisted in aestivation. Stamens 10.

GENERA OF THALAMIFLORÆ.

ORD. 1.—RANUNCULACEÆ.

Tribe 1. CLEMATIDÆÆ.—Cal. valvate or induplicate in bud. Fruit ending in a feathery awn.

1. CLEMATIS.—Pet. none.

Tribe 2. ANEMONEÆ.—Cal. and Cor. imbricated in the bud. Pet. without a pore at the base.

2. THALICTRUM.—Cal. of 4—5 sepals. Cor. none. Involucre none.

3. ANEMONE.—Involucre of 3 cutle. distant from the fl. Pet. none.

4. ADONIS.—Cal. of 5 sepals. Cor. of 5—10 pet. without a pore at the base.

Tribe 3. RANUNCULÆ.—Cal. and Cor. imbricate in bud. Pet. with a pore at the base.

5. RANUNCULUS.—Sep. 3—5. Pet 5, rarely many. Achenes in several rows.

Tribe 4. HELLEBOREÆ.—Cal. and Cor. imbricate in bud. Fruit (follicles) many-seeded.

6. CALTHA.—Cal. of 5 coloured sep. Pet. none. Follicles 5—10.
 7. TROLLIUS.—Cal. of many-coloured sep. Pet. very small, linear, flat, resembling the stamens.
 8. HELLEBORUS.—Cal. of 5 sep. Cor. of 8—10 tubular pet. Follicles 3—10.
 9. AQUILEGIA.—Cal. of 5 coloured sep. Pet. 5, spurred.
 10. ACONITUM.—Upper sepal arching and helmet shaped, enclosing the 2 upper tubular petals.

ORD. 2.—BERBERIDACEÆ.

1. BERBERIS.—Sep. 6. Pet. 6, with 2 glands at the base of each, on the inside.
 2. EPIMEDIUM.—Sep. 4. Pet. and St. 4 each.

ORD. 3.—NYMPHÆACEÆ.

1. NYMPHÆA.—Sep. 4, greenish outside, white within. Pet. numerous. Receptacle nearly covering the germen.
 2. NUPHAR.—Sep. 5—6, yellow, larger than the pet. Receptacle confined to the base of the germen.

ORD. 4.—PAPAVERACEÆ.

A. Fruit globose or oblong.

1. PAPAVER.—Sep. 2. Pet. 4. Placentas folded in towards the centre. Stigma sessile rayed.

B. Fruit linear.

2. GLAUCIUM.—Sep. 2. Pod very long, 2-celled. Fl. large, yellow.
 3. CHELIDONIUM.—Sep. 2. Pod short, 1-celled. Fl. small, yellow.

ORD. 5.—FUMARIACEÆ.

1. FUMARIA.—Sep. 2, scale-like. Fruit small, roundish, one-seeded.
 2. CORYDALIS.—Fruit pod shaped, many-seeded.

ORD. 6.—CRUCIFERÆ.

Sub-Order 1. LOMENTOSÆ.—Pod with seeds placed end to end, no dissepiment, dividing by transverse joints, indehiscent.

1. *CAKILE*.—Pod angular, of 2 one-seeded joints, the upper ensiform, lower often abortive. Fl. Purplish.
2. *CRAMBE*.—Pod 2-jointed, lower joint barren and stalk-like, upper globose, with one pendant seed, on a long stalk. Fl. white.
3. *RAPHANUS*.—Pod moniliform, tapering upwards, separating by transverse partitions; lowermost cell barren. Fl. yellow.

Sub-Order 2. SILIQUOSÆ.—Pod linear (seldom swollen and short), 3—10, or more times longer than broad.

Tribe 1. *BRASSICÆ*.—Pod elongated with a linear dissepiment. Style short, stout. Cotyledons folded.

4. *BRASSICA*.—Cal. erect. Pod round or angular; valves sometimes keeled. Style short, blunt. Fl. yellow.
5. *SINAPIS*.—Cal. spreading. Pod round or angular. Style mostly pointed. Seeds pungent. Fl. yellow.

Tribe 2. *SISYMBRIÆ*.—Pod elongated, angular or nerved, sometimes keeled. Seeds compressed. Cotyledons incumbent.

6. *SISYMBRIUM*.—Cal. equal at the base. Pod sometimes 4-angular, or with 2 strong prominent ribs. Seeds not striated. Stigmas combined into a disk. Fl. white or yellow.
7. *ALLIARIA*.—Cal. loose. Pod with prominent nerves, 4-angled. Seeds striate. Fl. white.
- *8. *HESPERIS*.—Cal. bisaccate at the base. Pod many-nerved. Stigma of 2 converging lobes. Fl. pale lilac or white.

Tribe 3. *ARABIDEE*.—Pod elongated; valves flat, sometimes slightly keeled; dissepiment generally broader than the compressed seeds. Cotyledons accumbent.

9. *CHEIRANTHUS*.—Pod round or compressed. Cal. with 2 opposite sepals, saccate at the base. Stigma 2-lobed. Fl. yellow.
10. *CARDAMINE*.—Pod linear, compressed; valves flat, without nerves; usually opening with elasticity from below upwards. Seed stalk filiform. Fl. white or pale purple.
11. *ARABIS*.—Pod compressed, with a prominent nerve in the middle of each valve, or coarsely veined. Cal. erect. Fl. white.
12. *TURRITIS*.—Pod keeled, valves slightly convex. Seeds in a double row. Cal. nearly equal. Fl. yellowish white.
13. *BARBAREA*.—Pod 2-edged from the prominent ribs, or nearly tetragonal. Cal. erect, equal at the base. Fl. yellow.
14. *NASTURTIIUM*.—Pod cylindrical, sometimes very short and turgid; valves convex, without veins. Cal. patent. Fl. white or yellow.

Sub-Order 3. SILICULOSÆ.—Pouch compressed, not 3 times as long as broad.

A. Pouch dorsally compressed; dissepiment in its broadest diameter.

Tribe 4. *ALYSSINÆ.*—Valves flat or convex. Seeds compressed. Cotyledons accumbent.

15. *COCHLEARIA.*—Pouch globose or elliptical; valves very convex, with a prominent nerve. Seeds tuberculate. Cal. patent. Fl. white.

16. *ARMORACIA.*—Cal. patent. Pouch nearly globose, nerveless, valves swollen.

17. *DRABA.*—Valves flat or slightly convex; 1-nerved at the base. Petals deeply cleft. Seeds numerous. Fl. white.

Tribe 5. *CAMELINÆ.*—Valves concave, dissepiment oval or oblong. Cotyledons incumbent.

*18. *CAMELINA.*—Pouch subovate or pyriform, with swollen valves, and a prominent nerve at the base. Fl. yellow.

19. *SUBULARIA.*—Pouch oval-oblong; valves slightly swollen, nerved at the base. Stigma sessile. *A small submerged plant.* Fl. white.

B. Pouch laterally compressed; dissepiment in its narrowest diameter.

Tribe 6. *THLASPIDÆ.*—Valves with narrow dissepiments, keeled or winged. Cotyledons accumbent.

*20. *THLASPI.*—Pouch emarginate, valves winged, boat-shaped, with a bordered keel. Seeds more than 2 in each cell. Pet. equal, small, white.

*21. *IBERIS.*—Pet. unequal. Cells one-seeded, valves winged at the back. Fl. white.

22. *TEESDALIA.*—Pet. unequal. Pouch emarginate, roundish; valves keeled; cells two-seeded. Fl. very small, white.

Tribe 7. *LEPIDINÆ.*—Pouch with convex or keeled valves, sometimes ventricose. Cotyledons incumbent, or accumbent in *Lepidium*.

23. *CAPSELLA.*—Pouch triangular, notched, wedge-shaped at the base; valves keeled. Seeds numerous. Fl. white.

24. *LEPIDIUM.*—Pouch elliptical or ovate; valves keeled; cells one-seeded. Fl. white.

25. *SENEBIERA.*—Pouch broader than long, wrinkled on the back, cells one-seeded. Fl. very small, white.

ORD. 7.—RESEDACEÆ.

1. RESEDA.—Cal. persistent. Pet. more or less divided, variously cut. Capsule opening at the apex in three lobes, showing the seeds.

ORD. 8.—CISTACEÆ.

1. HELIANTHEMUM.—Cal. of 2 outer and 3 inner sep. Capsules opening by 3-valves.

ORD. 9.—VIOLACEÆ.

1. VIOLA.—Sep. produced at the base. Pet. 5, unequal, the lower one spurred, or saccate. Anth. on the inner face of the filaments, lower ones spurred.

ORD. 10.—DROSERACEÆ.

1. DROSERÆ.—Cal. deeply 5-cleft. Pet. 5, St. 5. Styles 3—5, filiform. *Le. clothed with glandular hairs.*

ORD. 11.—POLYGALACEÆ.

1. POLYGALA.—Cal. with 5 sep., the 2 inner wing-shaped. Pet. united with the st. in 2 bundles, each with 4 anthers, opening by pores at the summit.

ORD. 12.—ELATINACEÆ.

1. ELATINE.—Pet. 3—4. St. 3—4 or 6—8. Styles 3—4, capitate. Capsule 3—4-celled, many-seeded.

ORD. 13.—CARYOPHYLLACEÆ.

Sub-Order 1. SILENEÆ.—Sepals united into a cylindrical tube, 4—5-toothed. Capsule shortly stalked.

1. DIANTHUS.—Scales of the cal. usually 2. Styles 2. Capsule 1-celled, opening at the apex by 4 valves.
2. SILENE.—Cal. 10-nerved. Styles 3. Capsule 3-celled at the base, opening at the apex by 6 valves.
3. LYCHNIS.—Cal. tubular, 5-toothed, 10-nerved. Styles 5. Capsule opening by 5 or 10 teeth.
4. AGROSTEMMA.—Segments of the cal. longer than the tube. Pet. without scales in the throat. Styles 5.

Sub-Order 2. ALSINEÆ.—Sepals 4—5, distinct. Pet. narrow at the base. Capsule sessile.

A. Valves of the capsule and styles equal in number.

5. SAGINA.—Pet. small, entire, or none. Styles and valves of capsule 4—5, alternating with each other.

6. *HONCKENYA*.—Sep. 5. Pet 5, large, entire. St. 10, alternating with glands. Styles and valves of capsule 3. Seeds few, large, fleshy.

B. Valves of the capsule twice as many as the styles.

7. *ARENARIA*.—Sep. 5. Pet. 5, entire. St. 5—10. Styles 3. Seeds numerous.
8. *STELLARIA*.—Sep. 5. Pet. 5, deeply cleft. St. 10, sometimes fewer. Styles 3. Seeds numerous.
9. *CERASTIUM*.—Sep. 5. Pet. 5, bifid (sometimes 4 sep. and pet.) Styles 5 or 4. Capsule tubular, slightly curved at the top.
10. *HOLOSTEUM*.—Sep. 5. Pet. 5, jagged at the point. St. 3—5, Style 3. Capsule subcylindrical.

ORD. 14.—LINACEÆ.

1. *LINUM*.—Sep. 5, entire. Pet., St., and Styles, 5 each.
2. *RADIOLA*.—Sep. 4, deeply trifid. Pet., St., and Styles, 4 each.

ORD. 15.—MALVACEÆ.

1. *LAVATERA*.—Involucre 3-lobed, combined at the base. Carpels arranged in a ring round an axis.
2. *MAIVA*.—Involucre 3-leaved, distinct at the base. Carpels as in 1.
3. *ALTHEA*.—Involucre 6—9-leaved, combined at the base. Carpels as in 1.

ORD. 16.—TILIACEÆ.

1. *TILIA*.—Sep. 5, deciduous. Pet. 5, with or without a scale at the base. St. numerous, free or polyadelphous. Fruit globose. *Trees*.

ORD. 17.—HYPERICACEÆ.

1. *HYPERICUM*.—Cal. 5 partite, or of 5 sep. Pet. 5, mostly unequal-sided. St. in 3—5 bundles. Capsule many-seeded. Fl. yellow.

ORD. 18.—ACERACEÆ.

1. *ACER*.—Fl. often imperfect. Cal. 5 partite. St. 8, long in the male flowers. Fruit winged.

ORD. 19.—GERANIACEÆ.

1. *GERANIUM*.—Sep. and pet. 5. St. 10, united below (monadelphous). Beak of the fruit long. Carpels curling up when ripe.

2. *ERODIUM*.—Sep. and pet. 5. St. (monadelphous) united below; 5 sterile, and 5 fertile, with glands at their base. Carpels curling and twisting up on the long beak when ripe. Awn of the carpel bearded inside.

ORD. 20.—BALSAMINACEÆ.

1. *IMPATIENS*.—Fl. irregular. Lower sep. spurred. Lateral pet. in pairs. Capsule suddenly opening, with 5 valves.

ORD. 21.—OXALIDACEÆ.

1. *OXALIS*.—Sep. 5, united below. St. 10, monadelphous at the base. Capsule 5-celled. Seeds with an elastic coat.

SPECIES OF THALAMIFLORÆ.

1.—RANUNCULACEÆ.

1. *CLÉMATIS*. *Clematis*.

**C. VITÁLBA*, L.—*Traveller's Joy*, *Old Man's Beard*, *Virgin's Bower*. Stem climbing by means of the twisted petioles. Le. opposite, pinnate; Leaflets stalked, ovate, acuminate, coarsely serrate, inciso-lobate, cordate at the base. Fl. in loose panicles; greenish white, fragrant. Fr. with long feathery awns.

Very rare. Trailing in hedges at Stonelaw, beyond Rutherglen; rarely flowering. (E) Sh. 6.

2. *THALÍCTRUM*. *Meadow-Rue*.

1. *T. ALPÍNUM*, L.—*Alpine Meadow-Rue*. Stem simple, 4—6 in. high. Le. *mostly radical*, upon long stalks, bi-ternate, leaflets small, roundish, crenate or lobed, dark green. Raceme terminal, of few drooping flowers. St. 10—20. Ach. with a hooked point.

On the highest mountains in Arran. (H) P. 6—7.

2. *T. MÍNUS*, L.—*Lesser Meadow-Rue*. Stem flexuose, 12—18 in. high, smooth. Stipules with reflexed auricles. Le. 3—4 times pinnate, leaflets numerous, broadly wedge-shaped, 3-cleft and toothed, glaucous below. Fl. loosely paniced, drooping, pale greenish yellow. Ach. compressed, strongly ribbed.

Dry pastures, rare. Arran. (S) P. 6—7.

3. *T. FLÁVUM*, L.—*Yellow Meadow-Rue*. Stem erect, 2—3 ft. high, deeply furrowed, branched. Le. ternately bi-pinnate; leaflets ovate or oblong, wedge-shaped or rounded at the base,

3-lobed. Pan. compact. Fl. with short pedicels. Sep. cream-coloured. Anth. yellow, with long filaments. Ach. small, dark olive when ripe.

Rare. Banks of Clyde at the Iron-works, and above the Railway Bridge, amongst willows; near Dunoon. (E) P. 6—7.

3. ANEMÓNE. *Anemone*.

A. NEMORÓSA, L.—*Wood Anemone, Wind-Flower*. Rhizome creeping, brownish black. Le. appearing after the flower, bi-ternate, leaflets deeply cut, toothed or lobed. Fl. white, tinged externally with purple or pink, solitary, distant from the 3-leaved involucre, which resembles in form the radical leaves. Ach. compressed, downy.

Frequent in woods. Carmyle and Kenmuir banks; Cambuslang Glen; Cathkin hills; common in all the woods bordering the Firth. (B) P. 3—6.

4. ADÓNIS. *Pheasant's Eye*.

***A. AUTUMNÁLIS**, L.—Stem erect, branched, 6—18 in. high. Le. alternate, upper ones sessile, 2—3 times pinnatifid, lobes linear, acute. Cal. smooth. Cor. with concave petals, bright scarlet, with a dark spot at the base. Ach. reticulated.

Very rare. Corn field near Tollcross. (G) A. 5—7.

5. RANÚNCULUS. *Crowfoot, Buttercup*.

1. FLOWERS WHITE.

1. R. FLÚITANS, Lam.—*River Crowfoot*. Stem long. Le. all submerged, divided into very long, multifid segments. Stip. broad. Pet. obovate, much larger than the calyx. Ach. mostly abortive, inner edge straight, style lateral.

In canals and running streams. (E) P. 6—8. Frequent in Clyde, from Dal-marnock upwards, seldom flowering near Glasgow; often so in the still water; above Hamilton Bridge; Black Cart at Inchinnan, &c.

2. R. AQUÁTILIS, L.—*Water Crowfoot*. Stem submerged. Lower le. divided into many diverging capillary segments; upper le. floating, orbicular or reniform, cut and broadly lobed. Ped. shorter or not much exceeding the leaves. Ach. packed in a globular or ovoid head. (B) P. 5—8.

Var. *peltatus* Fries.—Floating le. numerous, with long stalks, subpeltate, mostly 5-lobed, submerged ones with divaricate many cut segments. Ped. longer than the le. tapering. Stigma clavate. Ach. obtuse.

Frequent in ponds and ditches. St. Germans, Dougalston, and Bardowie Lochs; Frankfield, Kelvin, &c.

Var. *confusus*, Godr.—Floating le. with long stalks 3-lobed, submerged ones with rigid, cut segments. Ped. scarcely longer

than the le. Stigma tongue-shaped. Ach. compressed, narrowed upwards.

"Rare, in ponds and ditches, Renfrew," *Mr. Walter Galt*.

Var. *Baudotii*, Godr.—Floating le. tripartite, submerged ones with close, rigid, cut segments. Ped. thick, longer than the leaves. Ach. closely packed into a conical head, very numerous, 40—60. Stigma *tongue-shaped*, recurved.

Rare. Banks of the Clyde, near Dumbarton Castle. Gourock? P. 6—8.

Var. *heterophyllus*, Fries.—Floating le. tripartite, submerged ones divided into long multifid segments, collapsing into pencil-like masses. Ped. slender, about as long or shorter than the le. Stigma hooked.

Rare. Island of Bute.

Var. *tricophyllus*, Chaix.—Floating le. rare, upper ones sessile, submerged ones with short rigid segments. Ped. scarcely longer than the le. Pet. small caducous. Stigma oblong. Ach. laterally apiculate, compressed above.

Frequent. Cumbræ, Bute, and Arran.

3. *R. HEDERACEUS*, L.—*Ivy-leaved Crowfoot*. Stem-branched, creeping over the surface of mud, or erect when in water. Le. all broadly reniform, none capillary, lateral lobes spreading, basal curve shallow; often marked with a dark spot. Pet. *small* and *narrow*, seldom *exceeding the cal.* Ach. obtuse. Style lateral.

Frequent in ditches, on mud, and in water. (B) P. 6—9. Paisley Canal Bank; Cathcart; Possil; Cumbræ, &c.

4. *R. LENORMANDI*, Schultz.—*Mud Crowfoot*. Requires to be carefully examined, as it is very like the preceding. Le. sub-orbicular, basal curve deep, lobes 3—5, notches one-third the depth of leaf. Pet. nearly *twice as large* as the cal. Style nearly central.

Frequent on mud or in shallow pools. (B?) P. 6—8. Possil marsh; near Shettleston; Gourock; Cumbræ, &c.

2. FLOWERS YELLOW, Le. undivided.

5. *R. LINGUA*, L.—*Greater Spearwort*. Stem erect, 2—3 feet high, rooting at the lower joints, branches hollow. Le. lanceolate distantly dentate, or nearly entire. Fl. *very large*. Ach. minutely pitted, compressed, margined, *beak recurved*.

Not common. Possil marsh, plentiful. (E) P. 7—9.

6. *R. FLÁMMULA*, L.—*Lesser Spearwort*. Stem decumbent at the base, rooting, 12—18 in. high. Le. petiolate, varying from ovate to linear-lanceolate, nearly entire. Fl. *rather small*. Ach. not compressed, beak small, subulate, not recurved.

Common in ditches and marshes, generally distributed. (B) P. 6—8.

7. **R. FICÁRIA**, L.—*Pilewort or Lesser Celandine*. Rhizome producing fasciculated tubercles. Stem 4—8 in. high. Le. *broadly reniform*, on long petioles, crenate or bluntly toothed, lobes spreading, sheaths of lower le. narrow, 2—3 on the one-flowered stem. Fl. a glossy yellow.

Very common. Found in most of the woods and bushy places around Glasgow Kelvin woods, Carmyle, &c. (B) P. 3—5.

Var. *incumbens*.—Sheaths of lower le. broad. Lobes overlapping.

Frequent. Bute very common.

3. FLOWERS YELLOW, Le. divided.

A. Calyx spreading.

8. **R. AURÍCOMUS**, L.—*Wood Crowfoot, Goldilocks*. Stem ascending, 8—12 inches high. Radical le. on long stalks, varying in form, *rounded or reniform*, 3-partite and cut. Stem. le sessile, divided into linear segments. Cal. pubescent. Pet. with no scales. Ach. downy.

Frequent in woods around Glasgow. (B) P. 4—5. Kelvin woods; Carmyle and Kenmuir banks; Maryhill, &c.

9. **R. ÁCRIS**, L.—*Upright Meadow Crowfoot, Buttercup, or Kingcup*. Stem erect, 1—3 ft. high. Le. tripartite, or 3-cleft, segments deeply cut or toothed; uppermost sessile, with narrower segments. Ped. hairy, *round not furrowed*. Cal. pubescent, Ach. compressed, beak curved. Rec. smooth.

Common everywhere in meadows and pastures. (B) P. 6—7.

10. **R. RÉPENS**, L.—*Creeping Crowfoot*. Stem throwing out runners, forming new plants at each joint. Le. with 3 shortly stalked segments, 3-lobed and cut, upper ones sessile, hairs long. Ped. *furrowed*. Recep. hairy.

Common by all roadsides, in meadows, and cultivated ground. (B) P. 5—8.

11. **R. ARVÉNSIS**, L.—*Corn Crowfoot*. Root fibrous. Stem annual, erect, slightly branched. Le. 3-cleft, with 3-cleft or 3-partite segments. Ped. not *furrowed*. Fl. small, pale lemon yellow. Ach. large, covered with *conical tubercles or hooked spines*.

Very rare. Corn fields, "Bogle's hole," *Hopk.*; near Tollcross. (E) A. 5—7.

B. Calyx reflexed.

12. **R. HIRSÚTUS**, L.—*Hairy Crowfoot*. Root fibrous, annual. Stem erect or ascending. Lower le. ternate, segments 3-cleft, lateral ones sessile. Ped. *hairy, furrowed*. Cal. hairy. Ach. tuberculated near the margin; beak very short.

Rare. Occasionally on the banks of the Forth and Clyde Canal from Port-Dundas to Bowling. (E) A. 6—10.

13. **R. SCELERÁTUS**, L.—*Celery-leaved Crowfoot*. Stem erect, very thick, branched, hollow, furrowed, 1—2 ft. high. Radical le. petiolate, 3-cleft and cut, quite glabrous, shining, upper le. divided to the base, segments dentate. Fl. very small, pale yellow. Pet. with no scales. Ach. small, very numerous, wrinkled in the middle, collected into an oblong head.

Not common. Banks of the Forth and Clyde Canal from Port-Dundas to Bowling; banks of the Clyde from Renfrew to Dumbarton. (B) P. 5—9.

14. **R. BULBÓSUS**, L.—*Bulbous Crowfoot*. Stem bulb-like at the base, 1 ft. high. Le. of 3-petiolate leaflets, with 3-cleft segments, cut or serrate, upper one sessile, with few linear lobes, Ped. hairy, furrowed. Cal. hairy. Ach. with a broad hooked beak. Rec. hairy.

Frequent in meadows and pastures. (B) P. 5—6. Glasgow Green, King's Park; Banks of Clyde; Gourrock, &c.

6. CÁLTHA. *Marsh Marygold*.

C. PALÚSTRIS, L.—Stem ascending, rooting at the base. Radical le. roundish, deeply cordate at the base, crenate, lobes approximate. Fl. large, deep yellow. Follicles when ripe spreading, showing the loose seeds.

Common. Banks of rivers and marshy places. (B) P. 4—6. Banks of Clyde; Kelvin; Cart, &c.

7. TRÓLLIUS. *Globe Flower, Lucken Gowan*.

T. EUROPAÉUS, L.—Stem erect, 1—2 feet high. Le. on long stalks, cut into 5 segments, which are again cut into 3, and inciso-serrate. Fl. large. Cal. concealing the stamens. Pet. inconspicuous, strap-shaped, mingled with the stamens.

Frequent. Moist places. (S) P. 6—8. Banks of Clyde at Kenmuir, extending upwards on both sides; Bothwell; Falls of Clyde; Gourrock, &c.

8. HELLÉBORUS, L. *Hellebore*.

***H. FÉTIDUS**, L.—*Stinking Hellebore*. Flowering stem, 1—2 ft. high. Le. mostly on the lower portion of the stem, pedate, stalked, evergreen, becoming gradually contracted into bracts. Fl. panicked, drooping, globose. Cal. converging, often tinged with purple.

Rare, and certainly introduced. "Blantyre Priory; old walls, Barncluith," Hopk. (E) P. 2—4.

9. AQUILÉGIA. *Columbine*.

***A. VULGÁRIS**, L.—*Common Columbine*. Stem 1½—2 ft. high. Le. bi-ternate, segments broad, 3-lobed and crenate, glaucous, nearly glabrous. Pet. with incurved spurs. Fl. drooping, blue or dull purple.

Rare. A doubtful native. "Blantyre Priory; in the wood above Castlemilk," Hopk. "Banks of the Mouse, near Jerviswood." A. Dunlop.

10. ACONITUM. *Wolf's-Bane.*

***A. NAPÉLLUS**, L.—*Monk's-Hood*. Stem erect, leafy, 2—3 feet high. Le. palmately divided into 5—7 linear pointed segments. Fl. in racemes, dark blue. Upper sep. large, arching, concealing the two curious upper petals. Very poisonous.

Rare. (A) P. 5—7. Still more doubtful than the former. "Plantation below Hamilton Bridge; wild banks of the Avon, near Barncluith," *Patr.* "Wood at Balmaha, Loch Lomond," *Mr. Walter Galt.*

2.—BERBERIDACEÆ.

1. BÉRBERIS. *Barberry.*

B. VULGARIS, L.—A spiny shrub, 6—8 feet high. Le. clustered, ovate, sharply toothed or ciliate. Fl. in pendulous racemes, yellow, smell disagreeable. St. highly irritable, striking against the stigma upon being touched at the base by a pin. Berries acid, small, red, tipped with the black stigma.

Not common. Hedges and woods. (E) Sh. 5—6. Hedge at Lambhill. "About Lanark," *Hopk.* "Clyde below Hamilton Bridge; Barmichael Wood, near Bothwell Bridge, is entirely covered with it," *Patr.* Inverkip and Cumbræ.

2. EPIMÉDIUM. *Alpine Barrenwort.*

***E. ALPÍNUM**, L.—Stem erect, simple, 6—10 in. high. Le. bi-ternate, with cordate leaflets, ciliated on the margin, hairy beneath, lateral ones unequal. Pan. shorter than the leaf. Fl. red, nectaries yellow.

Very rare. "About the ruins of the Old Castle of Mugdock, abundantly," *Hopk.* P. 5.

3.—NYMPHÆACEÆ.

1. NYMPHÆA. *White Water-Lily.*

N. ALBA, L.—A beautiful water plant, with the leaves and flowers lying on the surface of the water. Le. deeply cordate, smooth, entire. Fl. white, 4—6 in. in diameter.

Frequent. St. Germans, Dougalston, and Bardowie Lochs; Hogganfield and Frankfield Lochs; Rivers Kelvin and Cart; Loch Lomond; Bute, &c. (B) P. 7.

2. NÚPHAR. *Yellow Water-Lily.*

1. **N. LÚTEA**, Sm.—Of the same habit as the preceding. Le. nearly as in the former, lobes more approximate. Fl. rising slightly above the surface of the water, yellow; said to smell like brandy, hence named "Brandy-bottle." Stig. with 10—20 rays, expanded, entire, anthers linear.

In nearly the same stations as the former; also in the Forth and Clyde Canal. (E) P. 7.

2. **N. PÚMILA**, D.C.—*Least Yellow Water-Lily*. Scarcely distinct from the former, but smaller. Anth. oblong, or subquadrate.

Stigma green, lobed with 8—10 rays, forming acute teeth on the margin. Cap. furrowed upwards.

First found in the district by the late Mr. George Gardner, in Mugdock Loch, St. Germans and Bardowie Lochs. See *Hook. and Arnott*, p. 16. (S) P. 7—8.

4.—PAPAVERACEÆ.

1. PAPÁVER. *Poppy.*

1. **P. ARGEMÓNE**, L.—*Long Prickly-headed Poppy*. Stem erect, weak, 8—12 in. high. Le. bi-pinnatifid, segments narrow. Fl. small, pale red. Pet. black at the base. Fil. *dilated upwards*. Stigmatic rays 4—6. Cap. club-shaped, *with erect bristles*.

Not common. Corn fields near Tollcross and Carmyle. (B) A. 5—7.

2. **P. DÚBIUM**, L.—*Long Smooth-headed Poppy*. Stem erect, hairy, 1—2 ft. high. Le. once or twice pinnatifid. Ped. with *adpressed bristles*. Fl. large, light scarlet. Fil. subulate. Stigmatic rays 6—12. Cap. *oblong*, narrowing from the top to the base, *smooth*.

Common in corn fields. Cathcart, Tollcross, Carmyle, Partick, &c. (B) A. 6—7.

3. **P. RHÆ'AS**, L.—*Common Red Poppy, or Corn-Rose*. Very like the preceding. Cap. nearly globose. Ped. with spreading bristles. Pet. often with a dark spot at the base. Stigmatic rays 8—12.

Rare. Corn fields near Carmyle, Uddingston, &c. (B) P. 6—7.

2. GLAÚCIUM. *Horned-Poppy.*

G. LÚTEUM, Scop.—*Yellow-horned Poppy, Sea-Poppy*. Stem stout, branched, spreading, 1—2 ft. high. Le. thick, stalked, sinuate, lobed and cut, rough. St. le. amplexicaul, sinuate, glaucous. Fl. very large, golden yellow. Pods 6—12 inches long.

Sea shores frequent. Lesser Cumbræ, south side; Bute and Arran. (E) B. 7—10.

3. CHELIDÓNIUM. *Common Celandine.*

C. MÁJUS, L.—Stem erect, branching 1—2 ft. high, full of an orange juice. L. very thin, glaucous beneath, deeply pinnatifid, segments round, coarsely toothed, or crenate; petioles with a decurrent portion of the leaf. Fl. small, yellow, umbellate. Pod $1\frac{1}{2}$ to 2 in. long.

Rare. On rubbish. "Hedge roots between Hamilton and Barncluith, and between Hamilton and Covant Burn. Root of a hedge at Avon Mill. About Craignethan," *Patr.* (E) P. 5—8.

5.—FUMARIACEÆ.

1. FUMÁRIA. *Fumitory.*

1. **F. CAPREOLÁTA**, L.—*Rampant Fumitory*. Stem mostly climbing, 1—3 feet high. Le. bi-pinnate; leaflets flat, deeply cut

or lobed, terminal one largest, segments elliptical or oval. Sep. broadly ovate, toothed at the base, more than half the length of the tube of the cor. and about as broad. Cor. pale purplish pink, dark purple at the apex. Lower petal *linear* or *gradually widening* to the apex. Pedicels spreading, dilated at the top. Fr. subglobose, or rather broader than long, subtruncate at the apex.

Frequent in cultivated ground, gardens, and roadsides. (B) A. 6—9. Rutherglen; Cambuslang; Cathcart, &c.

2. *F. OFFICINÁLIS*, L.—*Common Fumitory, Earth-Smoke*. Stem diffuse, or erect, 1—2 ft. high. Le. bi- or tri-pinnate, terminal leaflet wedge-shaped, deeply cut, segments often grooved. Sep. ovato-lanceolate, toothed, acute, not so broad as the tube of the cor., and only one-third its length. Fl. rose-coloured, tipped with dark purple. Lower petal narrow, then *abruptly enlarged at the apex*. Fr. globose, slightly compressed, obcordate or retuse at the apex, whole plant glaucous.

Another variety is frequent, with flat leaves, of larger growth, not glaucous; requires to be carefully distinguished from *F. capreolata*.

A very common weed in cultivated ground, may be found everywhere. (B) A. 5—9.

2. CORÝDALIS. *Corydalis*.

C. CLAVICULÁTA, D.C.—*White Climbing Corydalis*. Stem weak, long, much branched, trailing or climbing. Le. pinnate, stalked ternate; segments entire, elliptic, footstalks ending in tendrils. Fl. small, pale yellow, with a short spur.

Frequent in bushy places, or on the roofs of cottages. (B) P. 6—7. Banks of Loch Lomond, at Luss; Coillintráive; Tigh-na-Bruich; Bute and Arran.

—CRUCIFERÆ.

1. CAKÍLE. *Purple Sea-Rocket*.

C. MARÍTIMA, Scop.—Stem branched from the base, 6—18 in. long. Le. fleshy, long, pinnatifid, somewhat toothed. Fl. corymbose, purplish or white. Pod an inch long, 2-edged, the uppermost joint with 2 teeth at the base. Plant slightly glaucous.

On sandy sea shores frequent. (B) A. 6—7. Largs; Bute; Cumbræ and Arran.

2. CRÁMBE. *Sea-Kale*.

C. MARÍTIMA, Linn.—Rhizome thick and fleshy, branched. Le. roundish-oval, sinuated, wavy at the edge, coarsely toothed. Fl. corymbose, white. Plant fleshy, glabrous, and very glaucous.

"Island of Arran at Imacher Port," *Land*. (E) P. 6.

3. RAPHÁNUS. *Wild-Radish.*

1. **R. RAPHANÍSTRUM**, L. — *Jointed-Charlock*, *Wild-Radish*. Root slender. Stem branched, 12—18 in. high. Lower leaves lyrate, segments distant, rough. Fl. large, pale yellow, with strongly marked veins. Sep. erect, not spreading. Pods jointed. Style or beak about 3 times longer than the last joint, *indistinctly constricted* between each seed, faintly ribbed. Origin of the garden radish.

In corn fields frequent. (B) A. 5—9. Common in Cumbræ, Bute, and Arran.

2. **R. MARÍTIMUS**, Sm. — *Sea-Radish*, or *Sea-Charlock*. Stem branched, 3—4 feet high. Radical leaves interruptedly pinnate with close segments, or lyrate. Fl. yellow. Pod *distinctly constricted* between each seed; beak mostly longer than the last joint, strongly ribbed when dry.

On the shingly beach at Wemyss Bay; Innellan; Bute; Cumbræ and Arran. (E) B. 6—8.

4. BRÁSSICA. *Cabbage, Turnip.*

1. **B. OLERÁCEA**, L. — *Sea-Colewort* or *Cabbage*, *Wild Cabbage*. Radical le. stalked, obovate sublyrate, waved and lobed, glabrous, glaucous, thick and fleshy; upper ones semi-amplexicaul or sessile. Fl. large, pale lemon yellow. Beak of the pod shortly conical.

Very rare. "Sea shore in Arran," *Land*. (A) B. 5—8.

2. **B. CAMPÉSTRIS**, L. — *Wild-Navew*, *Swedish Turnip*. Root le. *hispid*, lyrate, dentate, somewhat fleshy, upper stem leaves smooth amplexicaul, acuminate. "Petals remaining till the corymb lengthens." Fl. large, pale orange. Pods ascending, *obscurely 4-angled*, beak subulate. Whole plant glaucous.

Frequent. Corn fields and sides of ditches. (E) A. B. 6—9.

Var. **NÁPUS**, L. — *Rape* or *Cole-Seed*. Root slender in the annual, and fusiform in the biennial state. Le. *glabrous*. Petals falling before the corymb lengthens. Fl. rather small. Pod *torulose*. Plant glaucous, radical le. with a few hairs on the veins beneath.

Var. **RÁPA**, L. — *Common Turnip*. Root subglobose, fleshy. Radical le. lyrate, *hispid*, green, not glaucous. Stem leaves glaucous and glabrous, lyrate-pinnatifid, uppermost ones amplexicaul, acuminate. Fl. small, bright yellow, pet. deciduous.

These three plants are frequently found in cultivated fields and by the banks of rivers; Cart, Kelvin, and Clyde. Doubtful natives.

3. **B. MONÉNSIS**, Br. — *Isle-of-Man Cabbage*. Rhizome long, woody. Stems prostrate. Le. stalked, all *deeply pinnatifid*, lobes oblong, coarsely toothed. Fl. large, pale yellow, veined. Pods 2 to 2½ in. long. Seeds finely punctured.

Common on sandy sea shores, in Bute, Cumbræ, and Arran. (A) P. 5—8.

5. SINÁPIS. *Mustard.*

* 1. *S. NÍGRA*, L.—*Common Black-Mustard*. Stem branched in the upper part, 1—3 feet high. Lower le. large, lyrate rough; upper ones lanceolate, entire, all stalked. Fl. yellow. *Pods adpressed*, somewhat 4-angled, 1-nerved.

Rare. Only found on rubbish or near where cultivated. Banks of Clyde near Carmyle. (E) A. 6—9.

2. *S. ARVÉNSIS*, L.—*Wild Mustard, Charlock*. Stem erect or ascending, furrowed, 1—2 ft. high. Lower leaves sublyrate, upper ones sinuated and toothed. *Sepals very much spread*. Fl. large bright yellow. Pods glabrous, sometimes with reflexed hairs; valves with 3—5 prominent ribs. Beaks frequently containing a single seed. Whole plant rough.

Very common. In corn fields, &c. (B) A. 5—9.

* 3. *S. ÁLBA*, L.—*White-Mustard*. Stem erect, furrowed, 1—2 ft. high. Le. pinnatifid, stalked, variously cut and toothed. Fl. bright yellow. Pods swollen, hispid, valves with 5 ribs; beak broad, 2-edged, flattened, often with a single seed at the base.

Rare. An escape from cultivation, or on rubbish. Banks of Clyde below Govan. (E) A. 6—7.

6. SISÝMBRIUM.

1. *S. OFFICINÁLE*, Scop.—*Hedge-Mustard*. Stem erect, 1—3 ft. high. Le. pinnatifid, sublyrate, segments oblong, hairy. Fl. very small, pale yellow. Pods subulate, straight, *adpressed* to the stem, downy.

Very common by road sides and waste places. (B) A. 6—7.

2. *S. THALIÁNUM*, Hook.—*Thale-Cress*. Stem erect, slender, 4—10 in. high. L. oblong-lanceolate, attenuate at the base, slightly toothed, downy. Stem le. distant, sessile, elliptical, entire or dentate. Fl. small, white. Pods *spreading*, 1-nerved, angular.

Frequent. On wall tops and dry banks. (B) A. 4—5 and 9—10 Cathcart; Tollcross; Woodside Road; Cambuslang; Gourrock, &c.

7. ALLIÁRIA. *Garlick-Mustard.*

A. OFFICINÁLIS, D.C.—*Garlic-Mustard, Jack-by-the-Hedge, or Sauce-alone*. Stem 2—4 ft. high. Le. rounded or triangular, cordate at the base, crenate or toothed. Fl. white. Pods smooth, 1—2 inches long, erect or spreading, slightly knotted with swollen seeds. Le. smelling like garlic when bruised.

Frequent. Hedge banks and open places in woods. (B) B. 5—6. Near Govan; hedge near Dalmarnock Bridge; Carmyle and Kenmuir; Cambuslang; Gourrock, &c.

8. HÉSPERIS. *Dame's-Violet.*

* **H. MATRONÁLIS**, L.—*Queen's-Gilliflower*. Stem erect, 1—3 ft. high. Le. ovato-lanceolate, acuminate, toothed. Pet. obovate. Fl. pale lilac or white. Pods smooth, erect, distantly beaded, pedicels round, spreading.

Occasionally found, but only as an escape from cultivation. Cambuslang glen, lower portion; Cadder; "In the fields near Holytown," *Hopk.* B. 5—6.

9. CHEIRÁNTHUS. *Wall-Flower.*

C. CHEÍRI, L.—Stem woody at the base. Le. lanceolate, entire, acute, arranged in tufts on the top of the branches, hairs adpressed, bi-partite. Fl. bright orange yellow. Pods suddenly contracted at the apex into a conical style.

Not common. On old walls. "Ruins of Mains," *Ure.* "Bothwell Castle," *Hopk.* Dumbarton Rock, &c. P. 4—5.

10. CARDAMÍNE. *Bitter-Cress.*

1. **C. AMÁRA**, L.—*Large-flowered Bitter-Cress*. Rhizome creeping. Stem curving upwards, then erect, 1—2 ft. high. Le. pinnate, leaflets 5—9, roundish ovate, angulate in the lower leaves; upper ones oblong, bluntly toothed. Fl. large, white. *Anth. purple.*

In wet places, woods, and on the banks of rivers, frequent. (B) P. 4—6. Cart near Pollokshaws; Gairbraid glen on the Kelvin; Kenmuir bank; Cambuslang; Gourrock, &c.

2. **C. PRATÉNSIS**, L.—*Cuckoo-Flower, Lady's-Smock*. Rhizome densely clothed with small fibres. Stem slightly zigzag, 1—2 ft. high. Le. pinnate, subrotund, toothed; stem leaves narrow or linear, entire, seldom toothed. Fl. large, pale purple, sometimes white. *Anth. yellow.* Pods not often fertile; small bulbs occur in wet seasons at the base of the stem. In *Possil marsh* double flowers are frequently obtained.

Common. In moist pastures. (B) P. 4—7.

3. **C. IMPÁTIENS**, L.—*Impationed-podded Lady's-Smock*. Stem erect, 12—18 in. high. Le. pinnate; leaflets lanceolate, often cut or lobed. Stem leaves with narrow, acute, *ciliated auricles* at their base. Pet. small, narrow, or none. Pod linear.

On moist rocks rare. "On rocks on the banks of the river above the Falls of Clyde," *Hopk.* (L) A. 5—8.

4. **C. HIRSÚTA**, L.—*Hairy Bitter-Cress*. Stem branching from the base, 4—10 in. high. Le. pinnate, leaflets petiolate, roundish, angularly toothed. Stem leaflets narrow, nearly entire. Fl. white. St. often 4, sometimes 6. Style short and thick. Pedicels erect. Whole plant more or less covered with short hairs.

Var. **SYLVÁTICA**.—A larger plant growing in woods. St. 6.

Radical leaflets smaller than the stem leaves. Pedicels *patent*; not so hairy as the normal form.

Common. The first form occurs on wall tops and sandy soil, the second in moist shady places and woods. (B) A. 3—8.

11. *ÁRABIS*. *Hairy Rock-Cress*.

A. *HIRSÚTA*, Br.—Stem erect, stiff, 8—15 in. high. Root le. oblong, tapering to the base. Stem le. semi-amplexicaul, cordate or sagittate. Fl. small, white. Pods erect, linear, with a prominent nerve.

Rare. Banks and rocks. (B) B. 6—8. Frequent in Cumbræ; Bute; Arran; and glens in the Campsie hills.

12. *TURRÍTIS*. *Smooth Tower-Mustard*.

* T. *GLÁBRA*, L.—Stem erect, 1—2 ft. high. Root le. attenuated at the base, toothed, hairy. Le. pressed to the stem, amplexicaul, entire, smooth. Fl. yellowish white. Pods 2—2½ in. long, erect. Whole plant glaucous.

Very rare. Old quarry at Partick, and Bowling bay. (G) A. B. 5—7.

13. *BARBARÉA*. *Yellow-Rocket, Bitter Winter-Cress*.

B. *VULGÁRIS*, Br.—Stem erect, 1—2 ft. high, stout, furrowed, branched. Radical le. lyrate. Stem le. oval, deeply and irregularly toothed, all dark shining green. Fl. crowded, small, yellow. Pods nearly an inch long, bluntly angled.

Frequent. Pastures and sides of streams. (B) B. 5—8. Banks of Kelvin, Cart, and Clyde.

14. *NASTÚRTIUM*. *Water-Cress*.

1. N. *OFFICINÁLE*, Br.—*Common Water-Cress*. Stem decumbent and ascending 1—1½ ft. high. Le. *pinnate*, leaflets ovate or roundish; terminal one subcordate, sinuate-dentate. Pet. white, longer than the calyx. Pod linear, curved upwards, slightly exceeding the pedicels. Seeds in 2 rows.

Frequent. Rivulets amongst stones, in ditches and streams. (B) P. 5—10. Paisley Canal bank; Forth and Clyde Canal; rivulets from Cathkin hills, &c.

2. N. *TERRÉSTRE*, Br.—*Marsh Yellow-Rocket*. Root fibrous. Stem erect, 6—12 in. high. Le. *lyrate pinnatifid*, irregularly toothed. Pet. same length as the sep., yellow. Pods ovoid or oblong; seeds crowded, in 2 rows, in each cell of the pod.

Frequent. Muddy river banks, and watery places. (E) A. B. 6—10. Below Govan on the stone embankment; rivers Cart and Kelvin; Clyde upwards from Dalmarnock; Gourock, &c.

15. *COCHLEÁRIA*. *Scurvy-Grass*.

1. C. *OFFICINÁLIS*, L.—Radical le. roundish or reniform, sinuate or entire, petioles long, stem le. nearly all sessile, pouch globose or ovoid. Fl. white.

Var. DANÍCA, L.—Radical le. reniform, somewhat lobed, stem le. mostly petiolate, triangular or 5-lobed. Seeds small.
Common. On the shores of the Clyde. (B) A. P. 5—8.

2. C. A'NGLICA, L.—*English Scurvy-Grass*. Radical le. large, oval or oblong, entire, stem le. mostly sessile, with a few large teeth. Pouch elliptical, much larger than in the last, veined. Seeds large. *Fleshy Plants*.

Frequent. Bowling, Dumbarton, &c. (E) A. B. 5—8.

16. ARMORÁCIA. *Horse-Radish*.

1. A. AMPHÍBIA, Koch.—Leaves oblong pinnatifid or serrate. Root fibrous. Petals yellow, twice as long as the calyx. Pouch 2—3 times shorter than the pedicel. Stigma capitate.

Banks of rivers and lochs. "Banks of Clyde, frequent. In the marsh beyond Possil. In Bardowie Loch, near the house," *Hopk*. I have never been enabled to find this plant in any of these stations, nor in the district.

* 2. A. RUSTICÁNA, Baumg.—*Horse-Radish*. Radical le. on long stalks 6 in. to a foot long, sinuate and toothed at the edges. Roots long, cylindrical, very pungent. *An outcast of gardens*.

17. DRÁBA. *Common Whitlow-Grass*.

D. VÉRNA, L.—Stems numerous, 1—6 in. high. Le. all radical, lanceolate, slightly toothed, hairy. Fl. white. Petals deeply cloven. Pouch compressed, about twice as long as broad.

Common. Tops of walls, dry banks and rocks. (B) A. 3—6. Banks of the Forth and Clyde Canal at Possil marsh; Tollcross; Cathkin hills, &c.

D. *muralis* has become plentiful in many gardens. Botanic Garden as a weed; Cumbræ, &c.

18. CAMELÍNA. *Gold-of-Pleasure*.

* C. SATÍVA, Cr.—Stem erect, 1—3 ft. high. Le. sagittate, lanceolate. Stem le. auricled, nearly entire, acute. Fl. small, yellow. Pouch large, on long stalks, valves reticulated. Seeds rough, pale yellowish brown.

Introduced amongst flax and corn. In a field of flax near Kirkintilloch; near Chryston; Lambhill, &c. A. 6—7.

19. SUBULÁRIA. *Awl-wort*.

S. AQUÁTICA, L.—*Water Awl-wort*. Scape 1—4 in. high. Le. nearly cylindrical, slender. Fl. few, small, white; valves with a dorsal nerve. Seeds, 2—6 in each cell. Plant dull green, smooth, somewhat fleshy.

Shallow margins of Alpine lakes. (S) P. 7. Loch Lomond.

20. THLÁSPI. *Penny-Cress*.

* T. ARVÉNSE, L.—*Field Penny-Cress*. *Mithridate Mustard*.

Stem erect, branched above, 9—12 in. high. Le. sagittate, toothed, smooth. Pouch very large, with a broad wing, nearly flat. Fl. white, small. Whole plant glabrous and glaucous.

Very rare. In cultivated fields. "Field on the banks of the Clyde between Dalbeth and Westhorn," *Hopk.*; beyond Tradeston on rubbish. (B) A. 5—7.

21. IBÉRIS. *Candy-Tuft.*

* **I. AMÁRA, L.**—*Bitter Candy-Tuft.* An outcast from gardens; being an annual, it is seldom found in the same place for two years.

Banks of Clyde; easily known by the unequal petals and bitter leaves. (G) A. 7.

22. TEESDÁLIA. *Shepherd-Cress.*

T. NUDICAÚLIS, Br.—Stem erect, 2—6 in. high, with no leaves, or 1—2 on the lateral stems, entire or cut. Radical le. lyratopinnatifid. Fl. white. Petals unequal. Pouch obcordate.

Very rare. Sandy and gravelly places. (E) A. 4—6. Sand hills, Tollcross; Finglen, *R. H. Paterson*; near Dumbarton, Botanical Society.

23. CAPSÉLLA. *Shepherd's-Purse.*

C. BURSA-PASTÓRIS, D.C.—Stem erect 3 in.—2 ft. high. Radical le. varying from nearly plane to deeply pinnatifid. St. le. sessile, amplexicaul. Fl. small, white. Pouch nearly flat, wedge-shaped at the base, obcordate at the apex.

Road sides and waste places everywhere. (B) A. 3—11.

24. LEPÍDIUM. *Pepper-wort.*

1. **L. CAMPÉSTRE, Br.**—*Common Mithridate Pepper-wort.* Stem erect, simple, branched above, 10—15 in. high. Radical le. stalked, oblong, entire, toothed, or pinnatifid. Stem le. sessile, amplexicaul, sagittate, entire or denticulate. Fl. white. Pouch ovate, covered with vesicles, scaly when dry, nearly surrounded by the wing. Style short, *not much exceeding* the notch. Plant covered by a greyish pubescence.

Rare. On dry banks and in cultivated fields. (B) A. B. 5—8. "Langside," *Dr. Brown*; "near Drumpellier," *Hopk.*; near Baldernock.

2. **L. SMÍTHII, Hook.**—*Smooth Field Pepper-wort.* Stems ascending, branched from the base, 6—18 in. high. Radical le. tapering into a footstalk, elliptical. Stem le. amplexicaul, sagittate, toothed. Pouch ovate, *smooth*, sometimes with a few inconspicuous scales. Style *twice as long as the notch*. Plant green and hairy.

Rare. In cultivated fields and on hedge banks. (B) P. 4—8. Old Quarry at Possil; Baldernock; "near Blantyre Priory," *Dr. Brown*; hedges near Largs, and in Arran.

25. SENEBIÉRA. *Wart-Cress.*

S. CORÓNOPUS, Poir.—*Swine's-Cress.* Stem branched, prostrate,

spreading, 6—10 in. long. Le. deeply pinnatifid, nearly pinnate, segments of the upper leaves narrow. Fl. small, white. Pouch covered with curious wrinkles, forming tubercles on the edge.

Very rare. Waste ground. Largs; Cumbræ. (E) A. 6—9.

7.—RESEDACEÆ.

1. RESÉDA. *Dyer's Rocket, Wild-Mignonette.*

1. **R. LUTÉOLA**, L.—*Wild Dyer's-Weed or Weld*. Stem erect, simple or slightly branched. 2—3 ft. high. Le. long, lanceolate, entire, wavy on the edge. Cal. 4-partite, unequal. Stig. 3. Rac. long, often branched. Fl. numerous, yellowish green. Cap. subglobular, depressed.

Frequent in waste places. (B) A. B. 5—8. Clyde Iron-works and below Carmyle; Cathcart; Cambuslang; Gourrock, &c.

* 2. **R. LÚTEA**, L.—*Wild-Mignonette*. Stem erect, much branched, 15—30 in. high. Le. 3-cleft, often pinnatifid, wavy on the margin. Cal. 6-partite. Pet. 6, very unequal. Fl. yellow. Cap. oblong, papillose.

Very rare. Near Govan; beyond Tollcross. (E) A. B. 6—8.

8.—CISTACEÆ.

1. HELIÁNTHUM. *Rock-Rose.*

H. VULGÁRE, Gaert.—*Common Rock-Rose*. Stem shrubby, procumbent. Le. opposite, oval or oblong, green above, white beneath with stellate pubescence; stipulate. Rac. loose, pedicels deflexed after flowering. Fl. yellow. Pet. large and broad.

In dry pastures. Not common. (B) P. 7—9. "On the banks of the Mouse at Cartlane Crags; pastures about Airdrie," *Hopk.*; "Island of Arran," *Lands*; Bonnington Linn.

9.—VIOLACEÆ.

1. VÍOLA. *Violet.*

A. Stems creeping.

1. **V. PALÚSTRIS**, L.—*Marsh-Violet*. Rhizome creeping, scaly, producing in summer a procumbent stem. Le. reniform or heart-shaped, slightly crenate. Sep. blunt; spur short. Fl. drooping. Pet. pale lilac, veined with purple. Cap. smooth.

Common. Marshy places and boggy ground. (B) P. 4—6. Possil marsh; Cathkin hills; Paisley Canal bank; Gourrock; Cumbræ and Arran.

2. **V. ODORÁTA**, L.—*Sweet-Violet*. Stem emitting runners. Le. cordate, crenate, pubescent, *petioles with deflexed hairs*. Sep. obtuse. Fl. nodding, deep purple, violet, or rarely white, fragrant.

Spur very short; lateral pet. mostly with a line of hairs. Cap. globose, downy.

Very rare. Cambuslang glen, and banks in the vicinity. Near Partick. The white variety occurs in Cumbræ; too near gardens to be considered native. (E) P. 3—4.

B. Stems short, leafy.

3. *V. CANÍNA*, Sm. = *SYLVÁTICA*, Fr.; Var. *Riviniana*, *Reich-Gerard's Dog-Violet*. Primary stem short, bearing no flowers, lateral ones with a well-developed stem 2—8 in. long, ascending. Le. broadly cordate. Stip. small, ciliato-dentate. Fl. nodding, scentless, pale blue, or purplish, spur broad, furrowed. Stigma not capitate. Cap. pointed with 3 flat sides. Plant bearing late in the season, fl. with small petals, or often apetalous, hence this state is called dimorphic.

Very common. Hedge banks and woods. (B) P. 4—8.

4. *V. FLAVÍCORNIS*, Sm. = *PÚMILA*, Hook. and Arn. — *Dillenius' Violet*. Primary and lateral stems, 2—6 in. long, bearing flowers. Le. cordate, narrow, with lengthened rounded points. Stip. toothed. Fl. pale blue, spur yellowish, obtuse.

Frequent. On dry heathy or sandy places; Cathkin and Campsie hills; Gourock, Cumbræ, Arran, &c. (B) P. 5—8.

C. Stems long-branched.

5. *V. TRÍCOLOR*, L. — *Three-Coloured Violet*, *Heart's-ease*, *Love in Idleness*, *Pansy-Violet*. Stem angular, 6—12 in. high. Le. oblong, deeply crenate, lower ones somewhat cordate. Stip. large, le.-like, lyrato-pinnatifid, terminal lobe crenate. Pet. longer than the sepals. Fl. varying in colour from yellow to purple. Stig. large, obliquely truncate.

Common. In cultivated ground. (B) A. B. 5—9. Sand hills at Tollcross; Cambuslang; Cathcart; Gourock; Cumbræ and Arran.

Var. *ARVÉNSIS*.—Very frequent in corn fields, with petals shorter than the calyx.

6. *V. LÚTEA*, Huds. — *Mountain-Pansy*. Rhizome or underground stems filiform, truly perennial. Stem branched and slender at the base. Le. ovate, cordate; upper ones narrow elliptical, crenate. Stip. of the lowest le. digitato-pinnatifid; of the upper palmato-pinnatifid, terminal lobe entire. Fl. large. Pet. much longer than the cal., varies in colour from yellow to purple.

Frequent. On all our high hills. (S) P. 5—9. Cathkin and Campsie hills.

Var. *CURTISII*, Forst.—Rhizome large, branched. Stem rough with short hairs. Fl. smaller than the species. Pet. slightly longer than the sep. Varying in colour from purple to yellow.

On sandy sea beaches amongst the grass; Cumbræ; Bute at Kilchattan bay; Arran at Brodick bay, *J. G. Baker*.

10.—DROSERACEÆ.

1. DRÓSERÁ. *Sun-Dew, Red-Rot.*

1. **D. ROTUNDIFÓLIA**, L.—*Round-leaved Sun-Dew.* Leaves all radical, nearly orbicular, covered with short erect hairs, tipped with red viscid glands; petioles with a few hairs on the upper surface. Fl. white, small, in secund racemes. Whole plant tinged with red.

Frequent. In bogs and moist heaths. (B) P. 7—8. Cathkin hills; Possil marsh; plentiful in all boggy places on both sides of the Firth.

2. **D. A'NGLICA**, Huds.—*English Sun-Dew.* Le. all radical, linear-spathulate, petioles glabrous. Seeds fusiform, with a *loose reticulated chaffy-coat* or testa.

Rare. In bogs. (S) P. 7—8. Island of Arran at the foot of Goatfell; also at Corriegills; "Crutherland," *Dr. Balfour.*

3. **D. INTERMÉDIA**, Hayne.—*Long-leaved Sun-Dew.* Smaller than last. Leaves spathulate; base of the fl. stalks curved when springing from amongst the le. Seeds with a *close rough coat.*

Rare. In bogs, near Inverarnan, Loch Lomond. (E) P. 7—8.

11.—POLYGALACEÆ.

1. POLÝGALA. *Milk-wort.*

P. VULGÁRIS, L.—Stems branched from the base, 4—8 in. long. Le. lanceolate alternate. Racemes terminal. Central bract as long as the pedicel, deciduous. Cal. winged, veined and coloured, green when in fruit. Cor. crested. Fl. bluish purple, pink, or white.

Very common. Dry banks and heathy pastures. (B) P. 5—9. Cambuslang; Possil marsh; Paisley Canal bank; Cumbræ, Bute, and Arran.

Var. **DEPRÉSSA**.—Lower le. mostly opposite, spathulate. Stem branched from near the middle in an umbellate manner. Racemes few-flowered, central bract shorter than the pedicel.

Common. Campsie hills; Cathkin; Bute. Arran, *J. G. Baker.*

12.—ELATINACEÆ.

1. ELÁTINE. *Water-wort.*

E. HEXÁNDRA, D. C.—Stems matted, 2—3 in. long. Le. opposite, spathulate. Fl. on short stalks, alternate, axillary, solitary. Pet. 3, obovate, rose-coloured. Caps. concave at the summit, 3-celled. Seeds cylindric, striated and pitted.

Margin of ponds. Very rare. Loch Ascog and "Loch Fadd, Isle of Bute," *H. & A.* (E) A. 7—9.

13.—CARYOPHYLLACEÆ.

*1. *Saponária officinális.* Occasionally found in the district, but always got with double flowers, showing its garden origin.

1. DÍANTHUS. *Maiden-Pink.*

D. DELTOÍDES, L.—Stems branched, slender, 6—10 in. high. Le. narrow, slightly rough and downy, lower obtuse. Cal. scales usually 2, sometimes 4, teeth of cal. with minute ciliæ. Fl. solitary, rose colour or white. Pet. smooth, edge dentate.

Very rare. Banks and hedges. (B) P. 6—9. Banks of Clyde, near Thankerton, *Mr. Dunlop.*

2. SILÉNE. *Campion, Catchfly.*

1. **S. ACAÚLIS**, L.—*Moss Campion.* Stems tufted, 2—3 in. high. Le. linear, acute, ciliated at the base. Fl. solitary, erect, purple, sometimes white. Pet. crowned. Cap. usually longer than the cal.

Rocky places on Ben Lomond. (H) P. 6—8.

2. **S. INFLÁTA**, Sm.—*Bladder-Campion.* Stem elongated, decumbent at the base, 1—2 ft. high. Le. ovato-lanceolate, acuminate; uppermost bracts membranous. Fl. in a dichotomous cyme. Cal. inflated, reticulated, whitish green. Pet. pure white, deeply cloven, lobes narrow, scales not distinct. Whole plant glaucous and smooth.

Not common. Pastures and road sides. (B) P. 6—8. Paisley Canal bank; Cambuslang; banks of the Caledonian Railway, near the Townhead; around Hamilton, &c.

Var. *puberula*.—Stem and le. closely covered with short hairs. Cal. smooth.

Banks of Clyde opposite Daldowie. Very rare.

3. **S. MARÍTIMA**, With.—*Sea Bladder Campion.* Stems much branched, decumbent, spreading. Le. lanceolate or spatulate, nearly fleshy. Bracts mostly herbaceous. Cyme of few flowers, very similar to the last species. Pet. *crowned with a cloven acute scale.*

Common. On all our shores, from Gourock and Helensburgh to Arran. (B) P. 6—8.

3. LÝCHNIS. *Campion, Lychnis.*

1. **L. FLOS-CÚCULI**, L.—*Ragged-Robin, Meadow-Lychnis, Rose of Heaven, Wild-Williams.* Flowering stems erect, 1—2 ft. high. Le. lanceolate. Fl. loosely cymose. Ped. long and slender. Cal. 10-veined, tinged with red. Pet. rose coloured, *cleft into 4 segments, with 2 bifid scales at the base of the limb.*

Very common. In moist pastures. (B) P. 5—7. Paisley Canal bank; Possil marsh, &c.

2. **L. VESPERTÍNA**, Sibth.—*White-Campion.* Flowering stems erect, 1—2 ft. high, with a few spreading hairs, slightly viscid. Le. ovato-lanceolate, attenuated into footstalks. Fl. few, in a dichotomous cyme; diœcious. Pet. pure white, or very pale rose

colour; opening in the evening, then fragrant. Cap. large, as long as the *teeth* of the *cal.*, often bursting the tube, very hard, *teeth erect*.

Not common. (B) P. 6—7. Borders of a field beyond Tollcross; fields on the London road; also at the sand pits, Tollcross; hedges between Motherwell and Wishaw; near Torrance, &c.

3. **L. DIÚRNA**, Sibth.—*Red-Campion*. Closely allied to the last species. Le. ovate, softly pubescent, slightly viscid. Fl. in a dichotomous cyme; diœcious. Pet. red, seldom nearly white. Cal. of the mal. fl. narrow, of the fertile fl. short and broad. Cap. nearly globose, *teeth reflexed*.

Common. In woods, and damp hedge banks. (B) P. 6—7. Carmyle and Kenmuir banks; Cambuslang glen; Calderwood glen; Blantyre Priory, &c.

4. AGROSTÉMMA. *Corn-Cockle*.

A. GITHÁGO, L.—Stem erect, 1—4 ft. high, with a few ascending branches. Le. linear-lanceolate, acute, 2—4 inches long. Fl. solitary. Ped. long. Cal. ribbed, extending considerably beyond the Cor. Pet. pale purple, scarcely emarginate. Plant covered with adpressed white hairs.

Wheat fields. Not common. (B) A. 6—8. Wheat field opposite Dalbeth, south side of Clyde; Cathcart; fields on the Paisley road; plentiful in Bute; Cumbræ and Arran.

5. SAGÍNA. *Pearl-wort*.

A. Sepals, petals, stamens, styles, and teeth of cap. 4.

1. **S. PROCÚMBENS**, L.—*Procumbent Pearl-wort*. Stems numerous, mostly prostrate; central one leafy, short, erect, *bearing no flowers*. Le. linear, slightly fleshy, nearly flat, obtuse at the apex, suddenly contracted into a short mucro. Sep. longer than the petals, spreading when the cap. is ripe. Cap. nodding, erect when mature.

Very common. On walls and dry pastures. (B) P. 5—9.

2. **S. MARÍTIMA**, Don.—*Sea Pearl-wort*. Stems numerous, slender, erect or ascending; central stem *bearing fl.* Le. linear, fleshy, flat above, rounded on the back, mostly obtuse, sometimes with a very short point. Sep. slightly spreading. Pet. none. Cap. erect. Plant more fleshy than the last, with a purplish tinge, quite glabrous.

Frequent. On the coast; Wemyss Bay; Cumbræ and Arran. (B) A. 5—9.

B. Sep., pet., and styles 5. St. usually 10.

3. **S. SUBULÁTA**, Wimm.—*Awl-shaped Pearl-wort*. Stems decumbent, the central one bearing no flowers; lateral ones short. Lower le. crowded, subulate, tipped with a long point, ciliated. Ped. very long, slightly reflexed at the apex after flowering, then erect. Cal. *glandular*, closing on the cap. when mature.

Not common, Tops of walls. (S) P. 6—8. Shettleston; near Tollcross; Crossbasket; Kilmun; Gourrock; Bute and Arran.

4. **S. NODÓSA**, E. Meyer.—*Knotted Pearl-wort*. Stems few, central one short, producing no fl., lateral ones ascending. Le. subulate, smooth, connate, *bearing tufts* of young le. in their axils, all somewhat fleshy, tipped with a mucro. Fl. large, white. Pet. exceeding the cal. in length. Cap. a little longer than the sep.

Frequent. In damp sandy places. (B) P. 7—8. Possil marsh; banks of Clyde on the embankment near Renfrew; "Bowling bay," *Hopk.*; Gourrock; Kilmun; Cumbræ; Bute and Arran.

The *S. apetalá* described in the district, by *Hopk.* and *Patr.* is *S. subulata*.

6. HONCKÉNYA. *Sea-Purslane*.

H. PEPLOÍDES, Ehr.—Rhizome creeping, long, slender. Le. ovate, connate, decussate, fleshy. Fl. white. Pet. shorter than the cor. Cap. exceeding the sep., large, subglobose, fleshy.

Common. On shingly sea beaches all round the Firth. (B) P. 5—8.

7. ARENÁRIA. *Sand-wort*.

1. **A. SERPYLLIFÓLIA**, L.—*Thyme-leaved Sand-wort*. Stems ascending or procumbent. Le. sessile, ovate, acuminate, rough and ciliated on the margin. Pet. not longer than the hairy cal. Fl. numerous, in dichotomous cymes, white, bracts leafy, sometimes 6—7 nerved.

Frequent. Dry sandy places and walls. (B) A. 6—8. Sand hills, Tollcross; foot of the walls at Carmyle bleachfield; below the Battery, Greenock; Cumbræ, Bute, and Arran.

2. **A. TRINÉRVIS**, L.—*Three-nerved Sand-wort*. Stems 12—18 in. high, diffuse, weak, ascending, pubescent. Le. ovate, acute, 3, rarely 5-nerved, ciliated. Fl. in dichotomous cymes. Ped. long, curved downwards after flowering. Pet. oblong, *entire*, white. Valves of the cap. reflexed.

Common. Moist shady woods. (B) A. 5—6. Carmyle and Kenmuir woods; Cambuslang glen; Gourrock, &c.

8. STELLÁRIA. *Stitch-wort*.

A. Lower leaves stalked.

1. **S. NÉMORUM**, L.—*Wood Stitch-wort*. Stems brittle, 1—2 ft. high. L. large ovate, slightly cordate at the base; upper le. ovate, sessile, rough above. Fl. in dichotomous cymes. Sep. with a narrow membranous margin. Pet. white, deeply bifid, nearly twice the length of the cal. Plant pale green, with soft articulated hairs.

Not common. Woods and shady places. (S) P. 5—6. Carmyle and Kenmuir woods; Cambuslang glen; Castlemilk, &c.

2. **S. MÉDIA**, With.—*Chickweed*. Stems decumbent or ascending, weak, 3 in.—2 ft. high, with an alternate line of hairs springing from between each pair of le. Lower le. ovate, with

fringed petioles; upper ones sessile. Fl. small, white, in terminal dichotomous cymes. Pet. bifid. Fruit stalks reflexed.

Everywhere. Flowering at all seasons. (B) A.

B. Leaves sessile.

3. *S. HOLÓSTEA*, L.—*Greater Stitch-wort*. Stem erect, square, very brittle, rough, with stiff reflexed hairs, 1—1½ ft. high. Le. linear-lanceolate, very acute, *ciliate*. Pet. much longer than the sep. broad, ½-bifid. Fl. large, white, in dichotomous cymes.

Common. Woods and hedge banks. (B) P. 4—6. Carmyle and Kenmuir woods; Kelvin woods, &c.

4. *S. GLAÚCA*, With.—*Glaucous Marsh Stitch-wort*. Stem weak, 4-angled, quite smooth, 12—18 in. high. L. linear-lanceolate. Sep. 3-nerved. Fl. white, not so large as the former; solitary and axillary, with scarioso bracts. Plant *smooth and glaucous*.

Not common. Marshy places. (E) P. 5—7. Possil marsh plentiful; near Dalbeth, &c.

5. *S. GRAMÍNEA*.—*Lesser Stitch-wort*. Stem diffuse, decumbent or ascending, brittle, 1—2 ft. high. Le. linear-lanceolate, ciliated at the base, quite smooth. Fl. numerous in an irregular dichotomous cyme. Pet. white, bi-partite, narrow, about the length of the 3-nerved sep. Cap. nodding.

Common. Bushy places and dry pastures. (B) P. 6—9. Paisley Canal bank; Kelvin woods; banks of the Forth and Clyde Canal, &c.

6. *S. ULIGINÓSA*, Murr.—*Bog Stitch-wort*. Stems decumbent, much-branched, 4-angled. Le. ovato-lanceolate, *with a small hardened point*. Fl. few, in small dichotomous cymes. Pet. shorter than the sep., deeply bi-partite. Plant glaucous and glabrous.

Common. Wet ditches and rivulets. (B) P. 5—6. Possil marsh; Paisley Canal bank; Kelvin, &c.

9. CERÁSTIUM. *Mouse-ear Chickweed*.

A. Petals scarcely exceeding the calyx.

1. *C. VULGÁTUM*, L.—*Broad-leaved Mouse-ear Chickweed*. Stems erect or ascending, branched from the base, 6—10 in. high. Le. ovate. Bracts *herbaceous*. Sep. acute, with narrow membranous margins. Fl. white, subcapitate. Pet. scarcely longer than sep. Cap. curved upwards, twice as long as the calyx. Plant pale, covered with white longish hairs, a few glandular.

Not common around Glasgow; road side beyond Bishopbriggs; near Carmunnock; common about Largs, Cumbræ, Bute, and Arran. (B) A. 4—9.

2. *C. VISCÓSUM*, L.—*Narrow-leaved Mouse-ear Chickweed*. Stems branched, decumbent, then erect, 4—15 in. high. Le. ovate or oblong-lanceolate. Lower bracts *herbaceous*, upper ones with *narrow membranous margins*. Fl. white, in close dichotomous cymes, lax when in fruit. Sep. obtuse, with membranous

margins. Fruit stalks longer than the calyx. Cap. curved upwards about twice as long as the sep. Whole plant covered with white hairs; of lax growth.

Common everywhere. (B) A. B. 4—10.

3. **C. SEMIDECÁNDRUM**, L.—*Little Mouse-ear Chickweed*. Stems much branched from the base, erect or ascending. Le. broadly ovate. Bracts and sep. membranous on the margins. Pet. shorter than the sep. St. mostly 5. Cal. not shorter than the pedicels. Cap. not twice as long as the sep. Plant light green, with viscid pubescence, sometimes glabrous.

Frequent. On sandy soil and wall tops. (B) A. 3—6. Below Partick; Toll-cross sand hills; Provanmill; Gourrock, &c.

4. **C. TETRÁNDRUM**, Curt.—*Four-cleft Mouse-ear Chickweed*. Stems diffusely branched, decumbent or ascending. Le. oval or oblong. Lower bracts the same size as the upper le., herbaceous; a few of the upper, as also the cal., with a narrow membranous margin. Pet. about equalling the sep. Cap. about as long as the sep., nearly straight. Whole plant deep dull green, covered with viscous hairs, parts of the flower mostly in fours.

Frequent. On house tops, walls, and sandy places. (B) A. 5—7. Campsie; Lanark; Cambuslang on thatched roofs; sandy sea shores, Cumbræ, and Arran.

B. Petals longer than the calyx.

5. **C. ARVÉNSE**, L.—*Field-Chickweed*. Stem 6—10 in. high, prostrate below, ascending. Le. linear-lanceolate. Bracts and sep. membranous on the margins, acute. Pet. much longer than the cal. Fl. white, in dichotomous cymes. Cap. a little longer than the cal. Plant softly pubescent.

Very rare. Sandy fields and waste places. (G) P. 4—8. Lanark, Mr. Dunlop.

6. **C. LATIFÓLIUM**, Sm.—*Broad-leaved Alpine-Chickweed*. Stems prostrate, loosely tufted; flowering ones ascending. Le. elliptical-ovate, bracts herbaceous. Sep. blunt, with membranous margins. Fl. solitary, rarely 2. Cap. nearly straight, $\frac{1}{2}$ longer than the sep. Plant with yellowish pubescence.

Ben Lomond. (H) P. 5—8.

10. **HOLÓSTEUM**. *Umbelliferous Jagged-Chickweed*.

H. UMBELLÁTUM, L.—Stem 2—8 in. high. Radical le. elliptic, attenuate at the base. Stem leaves in pairs. Fl. 2—6 umbellate. Pet. longer than the sep., white, seldom tinged with red; pedicels reflexed after flowering. Plant pale green, glaucous, with short glandular hairs on the upper part of the stem.

Very rare. Hills at Bowling. (G) A. 4.

14.—LINACEÆ.

1. **LÍNUM**. *Flax*.

* 1. **L. USITATÍSSIMUM**, L.—*Common Flax*. Stem 12—18 in.

high. Le. alternate, lanceolate, acute at the apex. Sep. with membranous margins, ciliate, strongly 3-nerved. Fl. large, dull purplish blue. Cap. large, mucronate.

Amongst corn, or where it has been cultivated. Banks of Clyde, near Govan, &c. A. 7.

2. **L. CATHÁRTICUM**, L.—*Purging Flax, Mill-Mountain*. Stem slender, wiry, erect, 2—10 in. high. Le. opposite, elliptical. Fl. in terminal dichotomous cymes, small, white, drooping before expansion. Cap. globular, mucronate. Plant smooth, glaucous, green.

Frequent. Banks and pastures. (B) A 6—9. Paisley Canal Bank; near Cambuslang: banks of the Forth and Clyde Canal; Gourrock, &c.

2. **RADÍOLA**. *Thyme-leaved Flax-Seed. All-Seed.*

R. MILLEGRÁNA, Sm.—St. 1—2 in. high, repeatedly forked. Le. ovate, acute, sessile. Fl. numerous, very minute, axillary and terminal. Plant slightly glaucous, smooth, tinged with purple.

Frequent. Damp heaths and moist gravelly places. (B) A. 7—8. Possil marsh in a cutting; on Gourrock hills; Cumbræ; Bute and Arran.

15.—MALVACEÆ.

1. **LAVATÉRA**. *Tree-Mallow.*

L. ARBÓREA, L.—Stem woody, 3—5 ft. high. Le. 5—7-lobed, subrotund, plaited, pubescent, with stellate hairs. Ped. several together, axillary, shorter than the leaves. Fl. pale purple, with dark veins.

On insulated maritime rocks. (A) B. 7—9. Considered native on Ailsa Craig. Occurring as an outcast of gardens in Cumbræ, Bute, and Arran.

2. **MÁLVA**. *Mallow.*

1. **M. SYLVÉSTRIS**, L.—*Common Mallow*. Stem ascending or decumbent, 2—3 ft. high. Le. deeply cordate at the base, with 5—7 acute deep lobes, plaited. Fl. axillary, 3—4 together, pale purple, with darker veins. Carp. wrinkled on the back. Plant with few hairs, except on the ped. and petioles; often with a purplish blotch at the base of the leaves.

Frequent. In waste places (B) P. 6—9. "Crossbasket," Hopk. Dumbarton Rock; Bute; Cumbræ and Arran.

2. **M. MOSCHÁTA**, L.—*Musk-Mallow*. Stem erect, 1½—3 ft. high. Lower le. reniform, cleft in 5—7 broad lobes, segments toothed at the apex. Stem le. deeply pinnatifid, segments linear, Cal. hairy. Epicalyx of 3 linear le. Carp. densely hairy on the back. Fl. crowded towards the top of the stem, large, rose-coloured, rarely white.

Not common. Pastures and road sides. (B) P. 7—8. "Hamilton Haugh," Patr. "Rocks between Wellshot and Cambuslang," Hopk. Dumbarton Rock; below Innellan, &c.

3. **M. ROTUNDIFÓLIA**, L.—*Dwarf-Mallow*. Stems prostrate, central ones ascending, 8—12 in. long. Le. deeply cordate at the base, roundish, with 5—7 shallow, rounded, crenate lobes. Fl. axillary, several from the same node, small. Pet. whitish, tinged with lilac at the apex. Carp. slightly downy, the sides smooth. Pedicels of the fruit recurved.

Rare. "About Hamilton," *Hopk.* On rubbish, beyond Tradeston; banks of Clyde. (E) P. 6—9.

3. ALTHÆ'A. *Marsh-Mallow*.

A. OFFICINÁLIS, L.—Stem erect, simple or slightly branched, 2—3 ft. high. Lower le. roundish; upper ones ovate, all plaited, 3—5 lobed, with triangular teeth, soft, with starry pubescence. Ped. axillary, 1—3 fl. shorter than the le. Fl. large, pale rose-colour.

Very rare. Arran and Campsie. (E) P. 8—9.

16.—TILIACEÆ.

1. TÍLIA. *Lime-Tree*.

* 1. **T. PARVIFÓLIA**, Ehr. *Small-leaved Lime-Tree*. Le. rather thick, small, $1\frac{1}{2}$ to 2 in. across, when young covered with stellate hairs, glabrous, with tufts of hairs in the axils of the veins beneath, scarcely longer than their petioles; branches and petioles smooth. Fr. subglobose, acuminate, "with filiform ribs, chartaceous," *H. & A.*

Woods. Not common. (E) T. 7—8. Only got in plantations; these three not considered natives. Langside, Carmyle, &c.

* 2. **T. EUROPÆ'A**, L.—*Common Lime or Linden-Tree*. Leaves thin, twice the length of the footstalks, with a woolly tuft of hairs in the axils of the veins beneath; branches and petioles glabrous. Fr. woody, "with slightly prominent angles," *H. & A.*

Woods. Very common. Kelvin, &c. T. 7.

* 3. **T. GRANDIFÓLIA**, Ehr.—*Large-leaved Lime-Tree*. Le. large, $2\frac{1}{2}$ to 3 times longer than their petioles, 3 to 4 in. across, downy beneath, with woolly tufts in the axils of the veins beneath, young branches and petioles hairy. Fr. very hard, covered with felt or down, ribs strongly marked; when mature $\frac{3}{8}$ to $\frac{1}{2}$ in. long.

Woods. Not common. On the Kilbride road, &c. T. 6—7.

17.—HYPERICACEÆ.

1. HYPÉRICUM. *St. John's-wort*.

A. Styles 5.

* 1. **H. CALYCÍNUM**, L.—*Large-flowered St. John's-wort*. Stem shrubby, simple or slightly branched, 1 ft. high. Le. oblong,

sessile, branches 4-angled. Fl. solitary, on peduncles shorter than the longest sepals, 3 in. across, bright yellow. St. in 5 bundles. Cap. 5-celled.

Very rare. Woods above Largs. Sh. 7—9.

B. Styles 3. St. in 5 bundles.

2. *H. ANDROSÆ'MUM*, L.—*Tutsan, Park-Leaves*.—Stem shrubby at the base; branches compressed, 1—3 ft. high. Le. ovate, sessile, obtuse. Cymes few-flowered. Sep. unequal. Fl. bright yellow, styles shorter than the stamens. Fr. fleshy, globular, resembling a berry, black when ripe, imperfectly 3-celled.

Thickets and hedges. (E) Sh. 6—8. Not uncommon on the coast of Gourock; Ardentiny; Kilmun; Dunoon; Bute; Cumbræ and Arran.

* 3. *H. ELÁTUM*, Ait.—*Large-flowered Tutsan*. Stem shrubby, branched, 2-edged above. Le. ovate, sessile. Cymes few flowered. Sep. unequal, reflexed after flowering. Pet. *twice the length of the calyx*. “Styles nearly straight, about as long as the stamens and petals, and twice the length of the calyx,” *H. & A.*

Hills behind Greenock? (H. & A., p. 80). Sh. 8—9.

C. Styles 3. Stamens in 3 bundles.

4. *H. PERFORÁTUM*, L.—*Perforated St. John's-wort*. Stem erect, 2-edged, 1—2 ft. high. Le. sessile, oblong, marked with pellucid dots, principal veins pellucid, *ultimate ones opaque*. Sep. lanceolate, acute. Pet. oblique, generally with black dots. Fl. bright yellow, in compact cymes. Cap. with raised lines on the back.

Common. Bushy places and hedge banks. (B) P. 7—9. Banks of Clyde below Govan; Kenmuir bank; Cambuslang glen; Gourock; Cumbræ and Arran.

5. *H. DÚBIUM*, Leers.—*Imperforate St. John's-wort*. Stem erect, slightly quadrangular. Le. sessile, elliptic-ovate, mostly destitute of pellucid dots, or with a few on the upper le. *Veins and reticulations pellucid* when held up to the light. Sep. broader than in the last, obtuse, rarely pointed. Fl. yellow. Pet. generally furnished with black dots, very like the preceding.

Cumbræ, Bute, and Arran. Frequent. (E) P. 7—8.

6. *H. QUADRÁNGULUM*, L.—*Square-stalked St. John's-wort*. Stem stout, erect, 4-angled or winged, branched. Le. broadly ovate, with pellucid dots. Fl. numerous in corymbose cymes. Sep. erect, acuminate, with subulate points, entire. With smaller and paler flowers than the former two.

Frequent. Sides of ditches and wet places. (B) P. 7. Carmyle; Kenmuir; Cambuslang; Paisley Canal bank; Gourock; Cumbræ and Arran.

7. *H. HUMIFÚSUM*, L.—*Trailing St. John's-wort*. Stems slender, numerous, procumbent or prostrate, compressed, 3—10 in. long. Le. oblong, obtuse, sessile, glabrous, with black dots

beneath. Fl. few, subcymose, bright yellow. Sep. very unequal. Cap. half as long again as the sepals. Plant frequently tinged with red when mature.

Frequent. Heathy places and dry pastures. (B) P. 7—8. Banks of Kelvin and Clyde; Stonelaw; Cambuslang; Paisley Canal bank, &c.

8. **H. PÚLCHRUM**, L.—*Small Upright St. John's-wort*. Stem erect from a decumbent base, round, glabrous, 12—18 in. high. Le. cordate, amplexicaul, shining, glabrous. Sep. blunt, broadly ovate, bordered with dark glands. Fl. bright yellow, tinged on the outside with red. Panicle cymose, long and narrow. Anth. red.

Frequent. Dry banks, woods and heaths. (B) P. 6—7. Paisley Canal bank; Cambuslang glen; Kelvinside wood; Cathkin hills; Gourrock, &c.

9. **H. HIRSÚTUM**, L.—*Hairy St. John's-wort*. Stem erect from a decumbent base, round, hairy, 1½—2 ft. high. Le. elliptical or oval, sessile, or slightly stalked, downy. Fl. few, in irregular dichotomous cymes, pale yellow. Sep. lanceolate, acute, fringed with dark stalked glands. Pet. with a few dark dots at the apex.

Frequent. Woods and bushy places. (B) P. 7—8. Carmyle and Kenmuir banks; Kelvin; Cambuslang; Hamilton on the banks of Clyde, Gourrock, &c.

10. **H. ELÓDES**, L.—*Marsh St. John's-wort*. Stem creeping and ascending, branched, round, hairy. Le. roundish, sessile, semi-amplexicaul, clothed with woolly hairs. Fl. few, in a lax cyme, pale yellow. Sep. obtuse, fringed with red stalk glands. Pet. *equal-sided*.

Rare. Bute, near Loch Fadd. Lesser Cumbræ; "King's Cove and Loch Ranza, Arran," *Lands*. (E) P. 7—8.

18.—ACERACEÆ.

1. A'CER. *Maple*.

* 1. **A. PSEÚDO-PLÁTANUS**, L.—*Sycamore Great Maple*. Leaves very large, 6—8 in. wide, palmately 5-lobed, lobes acute, unequally dentate or coarsely serrate. Rac. pendulous. Fl. numerous. Fr. a double samara, with slightly diverging wings. A large handsome tree.

In woods. Doubtfully native. T. 5—6.

* 2. **A. CAMPÉSTRE**, L.—*Common Maple*. Leaves small, 2—3 inches wide, palmately 5-lobed, inciso-crenate. Rac. upright. Fr. as in the former, but the lobes diverge so that they are on the same plane. A small tree, of slow growth, with bark full of fissures, wood often elegantly curled with knots, a doubtful native.

In woods. Not common. (E) T. 5—6. In an old garden on the Great Western Road; St. Germans Loch; Cumbræ, &c.

19.—GERANIACEÆ.

1. GERANIUM. *Crane's-bill.*

A. Peduncles 1-flowered.

1. *G. SANGUÍNEUM*, L.—*Bloody Crane's-bill.* Stem erect or ascending, 12—18 in. high. Le. roundish, 5—7-partite, lobes wedge-shaped, 3-cleft. Sep. hairy, awned. Pet. much longer than the sep., deep crimson. Carp. with bristly hairs at the summit. Seeds with minute pits or dots.

Not common. Dry woods and pastures. (B) P. 7. Greater and Lesser Cumbraes; Port-Crawford; Garroch-head, Bute; and Arran.

B. Peduncles 2-flowered, roots perennial.

2. *G. PHÆ'UM*, L.—*Dusky Crane's-bill.* Stem erect, 2 ft. high, nearly simple or dichotomously branched. Radical le. on long stalks, reniform, 5 to 7-cleft, lobes broad, acute, cut and serrated. Stem le. becoming smaller, lobes narrower and more acute. Ped. opposite the leaves. Fl. dark dull purple. Carp. hairy, transversely wrinkled at the top.

Rare. Ruins of Blantyre Priory; "Banks of the Cart above the Mill near Glasgow," *Hopk.* P. 5—6.

3. *G. SYLVÁTICUM*, L.—*Wood Crane's-bill.* Stem erect, dichotomously branched above, 1—3 ft. high. Le. sub-palmate, 5—7-lobed, acute, cut and serrated. Ped. somewhat corymbose. Fl. larger than in the preceding, purple. Pet. hairy at the claws. Fil. ciliated to the middle. Carp. hairy. Seeds minutely reticulated.

Frequent. Woods, thickets, and sides of rivers. (S) P. 6—7. Kenmuir woods; Blantyre Priory, Calderwood; Campsie, &c.

4. *G. PRATÉNSE*, L.—*Meadow Crane's-bill.* Stem round, erect, downy, 1—2 ft. high. Le. 5 to 7-cleft, lobes multipartite. linear, deeply serrated, acute. Fl. very large, $1\frac{1}{2}$ —2 inches across, purplish blue, with darker veins. Pet. entire or slightly notched, claws ciliate. Fil. smooth, dilated at the base. Carp. hairy. Seeds minutely pitted.

Frequent. In pastures and moist thickets. (B) P. 6—9. Banks of Kelvin; Cart and Clyde; Kenmuir bank; shingly banks all round the Clyde.

C. Annual Plants.

5. *G. LÚCIDUM*, L.—*Shining Crane's-bill.* Stems ascending or decumbent, quite smooth, brittle, shining, swollen at the joints. Le. *orbicular*, 5 to 7-cleft segments incised, apiculate, nearly smooth, shining. Cal. pyramidal, transversely wrinkled. Pet. with smooth claws, rose-coloured. Carp. rugose. Seeds smooth.

Not common. Rocks, walls, and gravelly places. (B) A. 5—8. "Blantyre Priory; Cartlane crags," *Hopk.* Bowling bay; Bute; Cumbrae and Arran.

6. *G. ROBERTIANUM*, L.—*Herb-Robert, Stinking Crane's-bill*. Stems spreading, brittle, hairy, dichotomously branched, 1—2 ft. high. Le. *never orbicular*, 3 to 5-cleft, with trifid, pinnatifid lobes. Cal. angular, with gland tipped hairs. Fl. small, rose-coloured. Carp. downy, reticulated, keeled. Seeds smoth.

Common. Woods, thickets, and waste ground. (B) A. 5—9. Carmyle and Kenmuir banks; Cambuslang glen, Gourrock, &c.

7. *G. MÓLLE*, L.—*Dove's-foot Crane's-bill*. Stems ascending or decumbent, 6—18 in. high, branched, spreading. Le. orbicular, divided into 7—9 lobes trifid at the apex. Sep. mucronate. Pet. deeply bifid, claws ciliate. Fl. small, pale purple, or purplish rose. Carp. *transversely wrinkled*. Seeds smooth. Plant covered with fine soft hairs, hoary green.

Common. Road sides and dry pastures. (B) A. 4—8.

8. *G. PUSÍLIUM*, L.—*Small-flowered Crane's-bill*. Stems decumbent, weak. Le. smaller, less hairy, and generally more divided than in the last. Fl. with 5 perfect anthers, small bluish purple. Pet. nearly equalling the sep., claws ciliate. Fil. ciliated at the base. Carp. *without transverse wrinkles*.

Rare. "Waste grounds about Cambuslang," *Hopk.* (B) A. 6—9.

9. *G. DISSÉCTUM*, L.—*Jagged-leaved Crane's bill*. Stems diffuse, much branched, downy. Le. cut in 5—7 deep segments, lobes linear, 3-cleft. Fl. with very short ped., appearing sessile among the le. small, bright purplish red. Pet. deeply notched, about the length of the awned cal. Carp. not wrinkled. Seeds dotted.

Common. Fields and hedge banks. (B) A. 5—8.

10. *G. COLUMBÍNUM*, L.—*Long-stalked Crane's-bill*. Very like *G. disséctum*, more slender, and fewer hairs, deflexed on the stem as in the last. "Ped. longer than the le., which are 5-partite, the lobes divided into many acute segments, petals entire." "Cap. even glabrous, seeds dotted," *H. & A.*

"Rocky places by the road side going from Glasgow to Dumbarton," *Lightf.* Have never been enabled to find this plant as recorded. (E) A. 6—7.

2. *ERÓDIUM. Stork's-bill.*

E. CICUTÁRIUM, L.—*Hemlock Stork's-bill*. Stems decumbent or prostrate. Le. pinnate; leaflets sessile, deeply pinnatifid. Ped. many-flowered. Pet. longer than the cal. Fl. in small umbels, purplish red. Beaks of fruit very long, hairy, or glabrous.

Frequent. Waste sandy ground. (B) A. 6—9. Sand hills, Tollcross; banks on the sea shore; Bute; Cumbræ; Arran, &c.

20.—BALSAMINACEÆ.

1. IMPÁTIENS. *Balsam.*

* **I. NOLI-ME-TÁNGERE**, L.—*Yellow Balsam, Touch-me-not.* Stems succulent, branched, swollen at the joints, fragile, quite smooth, 1—2 feet high. Le. ovate, petiolate, coarsely serrate. Fl. large, drooping, yellow, with orange spots. Cal. spurred. Ped. 1-flowered. Cap. bursting elastically, valves spirally twisted when empty.

Very rare. Can only be considered as an escape from gardens. Castlemilk glen; banks of the Rotten Calder above Torrance. (L) A. 7—9.

21.—OXALIDACEÆ.

1. O'XALIS. *Wood-sorrel.*

1. **O. ACETOSÉLLA**, L.—*Common Wood-sorrel.* Rhizome creeping, toothed. Le. ternate; leaflets obcordate, hairy. Ped. 1-flowered. Fl. white, veins purple. Pet. 3 or 4 times as long as the cal. Seeds expelled from the capsule with considerable force.

Common. Damp woods and shady places. Kelvin woods, &c. (B) P. 5.

* 2. **O. CORNICULÁTA**. — *Precumbent Yellow Wood-sorrel.* Stems diffusely branched, procumbent and rooting at the base. Le. all on the stem, ternate. Stipules adnate. Ped. axillary, mostly 2-flowered. Pet. oblong-lanceolate, bright yellow. Cap. downy.

Rare. "On an old wall between the Avon and Barncluith," *Hopk.* Not native. A. 6—9.

Sub-Class 2.—CALYCIFLORÆ.

A. *Stamens indefinite, 20 or more.*

Ord 24. **ROSACEÆ**.—Calyx mostly permanent. Flowers regular. Leaves with stipules, alternate. Fruit various, consisting of achenes, follicles, drupes, or pomes.

Stamens 1—4, in Alchemilla.

B. *Stamens definite, fewer than 20.*

† *Flowers irregular, or petals with incurved points.*

Ord. 23. **LEGUMINOSÆ**.—Flowers papilionaceous. Fruit a legume, 2-valved.

Ord. 33. **UMBELLIFERÆ**.—Flowers in simple or compound umbels. Stamens 5. Fruit 2-celled.

Ord. 28. PORTULACACEÆ.—Sepals 2. Ovary superior. Leaves simple, without stipules.

†† *Flowers regular.*

a. *Fruit inferior.*

Ord. 25. ONAGRACEÆ.—Parts of the flower in multiples of 2. Seed vessel very long, or when short covered with bristles.

Ord. 26. HALORAGACEÆ.—Leaves verticillate. Petals minute or wanting. Flowers monœcious. *Water plants.*

Ord. 31. GROSSULARIACEÆ.—Petals small, alternating with the stamens. Calyx and ovary combined. Fruit a berry, 1-celled.

Ord. 34. ARALIACEÆ.—Leaves alternate. Styles several. Ovary 2 or more celled. Fruit a berry.

b. *Fruit superior, or sometimes half-inferior.*

Ord. 22. CELASTRACEÆ.—Flowers with a large fleshy disk closely surrounding the ovary, and covering the bottom of the calyx. Stamens 4—5.

Ord. 29. PARONYCHIACEÆ.—Leaves with membranous stipules. Fruit with a free central placenta. Styles 3—5.

Ord. 30. CRASSULACEÆ.—Leaves fleshy. Petals and fruit in multiples of each other. Follicles many-seeded.

Ord. 32. SAXIFRAGACEÆ.—Calyx superior, half-inferior, or inferior. Petals 5. Stamens 5—10. Ovary 2-celled, with 2 diverging beaks, or 1-celled, with 3—4 stigmas.

Ord. 27. LYTHRACEÆ.—Stamens inserted in the tube of the monosepalous calyx. Style 1. Ovary superior, 2-celled.

GENERA OF CALYCIFLORÆ.

ORD. 22.—CELASTRACEÆ.

1. EÜONYMUS.—Cal. small, flat, 4—5-cleft. Pet. and st. alternating. Style 1.

ORD. 23.—LEGUMINOSÆ.

A. *Stamens all united. Monadelphous.*

† *Cal. of 2 sepals.*

1. ULEX.—Cal. nearly as long as the cor., coloured. Pod short, thick. *Le. simple.*

†† *Cal. 2-lipped.*

2. GENISTA.—Upper lip bifid, lower 3-toothed. *Le. simple.*

3. SAROTHAMNUS.—Teeth of the cal. very short. Style long, curved, thickened upwards. Legume long, flat. *Le. ternate or simple.*

††† *Cal. 5-cleft, segments narrow.*

4. ONONIS.—Style filiform. Pod inflated, with few seeds. *Le. simple or ternate.*
5. ANTHYLLIS.—Cal. inflated, covering the fruit. *Le pinnate.*

B. *Stamens diadelphous—9 united and 1 free.*

† *Leaves ternate.*

6. MEDICAGO.—Legume spirally twisted or falcate.
7. MELILOTUS.—Legume short, nearly straight, swollen, slightly exceeding the cal. Fl. in long racemes.
8. TRIFOLIUM.—Legume not exceeding the cal. Fl. in capitate heads, or short racemes.
9. LOTUS.—Legume linear, nearly straight, 10–12 times longer than the cal.

†† *Leaves pinnate. Legume divided transversely, apparently jointed.*

10. ORNITHOPUS.—Fl. capitate, very small. Legume curved, of many joints. Peduncle with a small pinnate leaf at its apex.

††† *Leaves pinnate, without a terminal odd leaflet. Legume 2-valved, several-seeded.*

11. VICIA.—Style filiform, pubescent all round, or with a tuft of hairs beneath the stigma.
12. LATHYRIS.—Style flattened upwards, downy on the upper side.

ORD. 24.—ROSACEÆ.

Sub-Order 1. AMYGDALÆÆ.—Cal. deciduous. Style 1. Carpel free, superior. Stipules free.

1. PRUNUS.—Drupe fleshy, nut smooth or wrinkled. *Trees or shrubs.*

Sub-Order 2. ROSEÆ.—Cal. persistent, inferior. Carpels distinct, or united in the dry or fleshy cal. tube. Stipules united to the petiole.

A. *Fruit of several distinct follicles, with 1–6 seeds.*

2. SPIRÆA.—Cal. 5-cleft. Pet. 5, roundish. Follicles opening when ripe.

B. *Fruit consisting of achenes with long awns.*

3. GEUM.—Cal. 10-cleft, outer or alternate segments minute. Awns jointed.

- C. *Fruit of several pulpy drupes. Nuts wrinkled. Receptacle conical, or hemispherical, spongy.*
4. RUBUS.—Cal. 5-cleft. Pet. 5. St. very numerous.
- D. *Fruit consisting of small achenes, seated on a large succulent receptacle.*
5. FRAGARIA.—Cal. 10-cleft, alternate segments smaller. Pet. 5. Style from near the base of the carpel.
- E. *Fruit consisting of small achenes, seated on a dry, spongy, persistent receptacle.*
6. COMARUM.—Cal. 10-cleft, segments alternately smaller. Style lateral from near the top of the achene. Fl. dingy purple.
7. POTENTILLA. Cal. 8 to 10-cleft, outer row small. Pet. 4—5. Style lateral or nearly terminal. Receptacle dry, flat.
- F. *Fruit consisting of 1—2 achenes, enclosed in the dry cal. tube.*
8. ALCHEMILLA.—Cal. 8-cleft, the outer segments small. Pet. none. St. 1—4. Style from near the base of the achene.
9. AGRIMONIA.—Cal. 5-cleft, tube covered above with hooked bristles. Fl. yellow.
- G. *Fruit consisting of a fleshy cal. tube, enclosing numerous hairy achenes.*
10. ROSA.—Cal. urn-shaped, orifice contracted, segments 5, long, simple or pinnate. Petals 5, large, white or red.
- Sub-Order 2. POMEÆ.*—Fruit consisting of the cal. tube, and carpels combined, forming a fleshy pome, 1—5 celled. Stipules free.
11. CRATÆGUS.—Cal. segments small, acute. Pet. 5, large. Nuts 1—3, bony, surrounded by the fleshy cal. tube.
12. PYRUS.—Cal. 5-toothed. Pet. 5. Styles 2—5. Fruit fleshy, with 5 cartilaginous 2-seeded cells (endocarp).

ORD. 25.—ONAGRACEÆ.

1. EPILOBIUM.—St. 8. Cal. 4-cleft nearly to the base, deciduous. Capsule very much elongated, 4-celled, many seeded. Seeds with a tuft of hairs at the apex.
2. CIRCEA.—Cal. 2-cleft, deciduous. Cor. of 2 petals. St. 2. Capsule covered with hairs.

ORD. 26.—HALORAGACEÆ.

1. HIPPURIS.—Cal. limb small. Cor. none. St. 1. Stigma 1, simple acute. Fruit 1-seeded. Le. plain.
2. MYRIOPHYLLUM.—Monœcious. Cal. 4-partite. Pet. 4. St. 4—8. Stigmas 4, sessile. Fruit composed of 4 hard carpels. Le. pectinate.

ORD. 27.—LYTHRACEÆ.

1. LYTHRUM.—Cal. tubular. Pet. 4—6, between the lobes of the cal. St. as many as, or twice as many as, the pet., inserted in the tube of the cal. Capsule 2-celled.
2. PEPLIS.—Cal. campanulate, with 6 large and 6 small alternating teeth. Pet. 6, minute, often wanting. St. 6. Style very short. Capsule 2-celled.

ORD. 28.—PORTULACACEÆ.

1. MONTIA.—Cor. 5-partite, irregular. St. 3, inserted in the throat, and opposite to the smaller segments of the corolla, Stigmas 3, almost sessile. Cap. 3-valved, 3-seeded.

ORD. 29.—PARONYCHIACEÆ.

1. SPERGULARIA.—Sep. 5. Pet. 5, entire, about as long as the calyx. St. 5—10. Styles 3—5. Valves of the capsule fewer than or alternate with the sep.
2. SPERGULA.—Sep. 5. Pet. 5, entire, as long as the cal. St. 5—10. Styles 5, alternate with the sepals. Valves of the cap. opposite to the sep.

ORD. 30.—CRASSULACEÆ.

1. COTYLEDON.—Sep. 5. Pet. united into a tubular corolla. St. 10, inserted upon the corolla. Follicles 5.
2. SEMPERVIVUM.—Sep. 6—20. Pet. nearly distinct. St. twice as many as the petals. Scales laciniate. Follicles equal in number to the pet.
3. SEDUM.—Sep. and pet. 5, rarely 4 or 6. St. 8—12. Follicles with scales at their base.

ORD. 31.—GROSSULARIACEÆ.

1. RIBES.—Cal. 5-cleft. Pet. small, scale-like. St. short, included in the calyx tube, or nearly so.

ORD. 32.—SAXIFRAGACEÆ.

1. SAXIFRAGA.—Cal. 5-cleft, or 5-partite, inferior, half-inferior, or superior. Pet. 5. St. 10, rarely 5. Styles 2. Capsule 2-celled, with 2 divergent beaks.
2. CHRYSOSPENIUM.—Cal. 4-cleft. Pet. none. St. 8—10. Cap. 1-celled, with 2 beaks.
3. PARNASSIA.—Cal. deeply 5-cleft. St. 5, with alternating fringed nectaries, resembling stamens. Stigmas 4, sessile.

ORD. 33.—UMBELLIFERÆ.

The plants composing this Order are difficult to determine, owing to the parts relied upon for the distinguishing of the Genera being very minute. The leaves are usually much cut. Flowers in umbels with bracts or involucre at the base. A simple umbel has the stalks from one point, bearing flowers; in a compound umbel these stalks again bear a second series, with bracts or partial involucre at their base; the general involucre being at the base of the first or primary umbel.

The fruit is composed of 2 carpels (mericarps) joined by their faces (commissure) suspended from a bi-partite axis (carpophore), readily seen when ripe; each carpel is marked on the back by 5 more or less prominent ribs, with ducts or receptacles (vittæ) of oily or resinous matter in stripes between, sometimes wanting. Albumen horny; being plain, furrowed, or involute on the inner face.

The key here given is purely artificial; numerous divisions, although natural, are apt to confuse a student. By referring to the excellent plates of the Genera in *Hook. & Ar. Brit. Fl.*, the subject may be rendered comparatively simple.

A. Fruit covered with bristly ribs or prickles.

* *Vittæ none. Umbels simple.*

2. SANICULA.—Cal. of 5, leaf-like teeth. Involucre none.
3. ERYNGIUM.—Umbels in dense heads. Involucral leaves, 3-lobed, very large. Le. prickly.

** *Vittæ single. Umbels compound.*

24. DAUCUS.—General involucre large, mostly pinnatifid. Fruit dorsally compressed, prickles long, flat, often hooked at the apex; interstices with bristles.
25. TORILIS.—General and partial involucre many-leaved, small. Outer petals longer than the inner. Fruit slightly laterally compressed.

B. Fruit very much compressed.

a. *Umbels simple.*

1. HYDROCOTYLE.—Fruit laterally compressed, orbicular. Le. simple, peltate.

b. *Umbels compound.*

15. ANGELICA.—General involucre of 2—3 leaves; partial ones narrow and short. Fruit with 2 wings on each side.
16. PEUCEDANUM.—Partial involucre many-leaved. Fruit with one wing on each side, and 3 dorsal ribs on each carpel.

17. **HERACLEUM**.—Fl. with the outer pet. large in each umbel. Fruit with one wing on each side, and 3 very fine dorsal ribs. Vittæ single, short, club-shaped.

C. Fruit as long as, or one and a half times longer than, its diameter. Umbels compound.

a. *Vittæ none.*

18. **CONIUM**.—General involucre of few leaves; partial of 3 short ones, on one side. Fruit broadly ovate. Carpels with 5 waved or crenated ribs.

b. *Vittæ single.*

4. **CICUTA**.—General involucre none; partial of many leaves. Fruit with 2 globose carpels, ribs broad and flattened. Cal. teeth leafy, prominent above the ovary.
5. **PETROSELINUM**.—General involucre of few; partial of many leaves. Fruit ovate. Carpels with 5 slender ribs. Fl. yellow.
6. **HELOSCIADIUM**.—Partial involucre of many leaves. Carpels with 5 prominent slender ribs. Fl. small, white. Cal. teeth minute.
12. **ÆTHUSA**.—Partial involucre of 3, very long pendant, unilateral leaves. Carpels with 5 broad, acutely keeled ribs. Styles reflexed.

c. *Vittæ 2 or more between the ribs, or interior.*

10. **PIMPINELLA**.—Partial and general involucre none. Styles slender, divaricate or re-curved. Fruit ovate. Cal. teeth obsolete. Fl. white.
19. **SMYRNIUM**.—Partial and general involucre none. Fruit of 2 nearly globose carpels, with 3 sharp dorsal ribs. Fl. yellowish green.

D. Fruit twice, or several times longer than its diameter. Umbels compound.

a. *Vittæ none.*

7. **ÆGOPODIUM**.—Involucre none. Cal. teeth obsolete. Carpels with 5 slender ribs.
21. **ANTHRISCUS**.—Partial involucre of several leaves. Carpels smooth, without ribs, narrowed below the beak.
23. **MYRRHIS**.—Partial involucre of several leaves. Carpels with 5 prominent acute ribs, which are hollow underneath.
20. **SCANDIX**.—Partial involucre of 5—7 leaves. Fruit linear, beak very long. Carpels with 5 obtuse ribs.

b. *Vittæ single.*

8. **CARUM**.—General and partial involucre small, sometimes none, or of one leaf. Cal. teeth obsolete. Carpels with 5 not prominent ribs.

11. *CENANTHE*.—Partial involucre of several small narrow leaves. Cal. teeth lanceolate. Carpels somewhat corky. Fl. of the circumference barren.
22. *CHÆROPHYLLUM*.—Partial involucre of many leaves. Carpels with 5 obtuse ribs. Cal. teeth obsolete.

c. *Vittæ 2 or more.*

9. *BUNIUM*.—Fruit oblong, shortly contracted at the top. Styles erect or slightly spreading. Carpels with 5 scarcely visible ribs.
13. *LIGUSTICUM*.—General involucre of about 2; partial of many leaves. Carpels with 5 sharp ribs, expanded into slight wings.
14. *MEUM*.—Partial involucre of many leaves. Cal. teeth obsolete. Carpels with 5 prominent acute ribs.

ORD. 34.—ARALIACEÆ.

1. *ADOXA*.—Cal. 3-cleft. Cor. superior, 4—5-cleft, rotate. St. 8—10, in pairs; anthers 1-celled. Berry 4—5-celled. Side fl. 5-cleft; terminal one 4-cleft.
2. *HEDERA*.—Cal. superior, with 5 teeth. Pet. 5—10. St. 5—10. Style simple, or 5—10 combined into one. Berry 5-celled and 5-seeded.

SPECIES OF CALYCIFLORÆ.

22.—CELASTRACEÆ.

1. *EUÓNYMUS*. *Spindle-Tree*.

* *E. EUROPE'US*. L. — *Prickwood, Pegwood, House-Berry*. Branches smooth, 4-sided. Le. ovato-lanceolate, acute, indistinctly serrate, opposite, glabrous. Ped. compressed, shorter than the le. axillary. Fl. few, greenish white. Cap. generally 4-lobed, pale crimson when ripe, with an orange-coloured arillode. Very rare, and not belonging to the district. "Cadzow Castle," *Patr.* Sh. 5—6.

23.—LEGUMINOSÆ.

1. *U'LEX*. *Furze, Gorse, Whin*.

U. EUROPE'US, L.—Stems much branched, spreading, striate, hairy; clothed with branching spines, with a few lanceolate le. or scales at their base; by some considered petioles. Trifoliate le. only appearing immediately after germination. Bracts ovate,

loosely applied to the downy cal. Cor. bright yellow, wings longer than the keel, curved over at the apex.

Very common. In stony places and on heaths. (B) Sh. 2—7.

* *U. NÁNUS*, var. *Gallii*, Plau. Bracts small. Cal. with short appressed pubescence.

In a whin hedge near Kingarth, Bute; evidently introduced. (E) Sh. 8—9.

2. GENÍSTA. *Petty-Whin, Needle-Gorse.*

G. A'NGLICA, L.—Stems shrubby, branched, ascending, glabrous, spinous; spines simple, absent on the younger and flowering branches. Le. ovato-lanceolate, smooth. Rac. few-flowered, lax. Cal. smooth. Cor. yellow, with the standard and wings shorter than the keel. Shrub seldom more than a foot high. Fl. turn green in drying.

Rare. “Cathkin hills on the moors,” *Hopk.* “Campsie hills,” *Mr. Murray.* (B) Sh. 5—6. East side of Lanark.

3. SAROTHÁMNUS. *Broom.*

S. SCOPÁRIUS, Wimm.—Shrub much branched, 1—6 ft. high. Branches long, straight, green, deeply furrowed. Le. ternate or simple; leaflets oblong or obovate. Fl. large bright yellow, axillary, solitary or in pairs, shortly pedicellate. Style rolled up. Pod hairy on the margin.

Very common. Banks of Clyde; Cart; Kelvin, &c. (B) Sh. 5—6.

4. ONÓNIS. *Rest-Harrow, Wild-Liquorice.*

O. ARVÉNSIS, L.—Stems procumbent, rooting at the base, then ascending; branches spreading, hairy, often spiny. Lower le. ternate, with footstalks; upper ones simple, oblong or obovate, denticulate at the apex. Fl. solitary and axillary, forming a leafy raceme; rose-coloured, seldom white. Cor. much longer than the cal. Plant covered with clammy hairs.

Frequent. Banks and pastures (B) P. 6—9. Banks of Clyde, opposite Dalbeth; near Hagg's Castle; banks of the Canal near Bowling; Gourrock, &c.

An erect variety, with long spines, and branches bearing a woolly strip of hairs on one side, is by some raised to the rank of a species.—*O. campestris*, Koch.

5. ANTHÝLLIS. *Kidney-Vetch, Lady's Fingers.*

A. VULNERÁRIA, L.—Stems herbaceous. Root le. simple oval. Stem le. pinnate, terminal leaflet much larger than the others. Heads of fl. usually in pairs, with digitate bracts surrounding each. Cal. inflated, mouth oblique, contracted, hairy. Cor. yellow.

Frequent. Dry banks and pastures. (B) P. 6—8. Banks of Clyde above Dalmarnock Bridge; Tollcross; road to Carmunnock; Gourrock, &c.

6. MEDICÁGO. *Medick.*

1. *M. LUPULÍNA*, L.—*Black-Medick, Non-such.* Stems procumbent or spreading, leaflets roundish obovate, cuneate at the base. Stipules broad, slightly denticulate acuminate. Fl. in heads $\frac{1}{4}$ of an inch across, clear bright yellow. Legume black when ripe, kidney-shaped, of 1 turn.

Very common. In cultivated and waste ground. (B) A. 5—8.

* 2. *M. SATÍVA*, L.—*Purple-Medick, Lucerne.* Stem hollow, erect, much branched. Le. stalked, leaflets elliptical or obovate, denticulate at the apex. Stipules lanceolate-subulate. Fl. in axillary racemose heads, bluish purple, rarely yellow. Legume spirally twisted of $2\frac{1}{2}$ turns, compressed, downy.

Not common. Banks of the railway at Cambuslang; below Govan. P. 6—7. Not indigenous.

7. MELILÓTUS. *Melilot.*

* *M. OFFICINÁLIS*, L.—*Common Yellow-Melilot.* Stem erect, branched, 2—3 ft. high. Leaflets of the lower le. obovate, of the upper elliptical, all serrate. Racemes axillary, on long stalks. Fl. deep yellow, more than twice the length of the cal. Legume not distinctly veined or slightly rugose, hairy; seeds 1 or 2. Fragrant when drying.

Rare. "Road side between Rutherglen and Farme," *Patr.* Banks of the Forth and Clyde Canal; beyond Tradeston on rubbish, apparently introduced. (E) B. P. 6—8.

8. TRIFÓLIUM. *Clover, Trefoil.*

A. Flowers purple or white.

1. *T. RÉPENS*, D.—*White Clover, Dutch Clover.* Stems creeping, 3—12 in. long. Leaflets obcordate, serrulate, rounded or slightly notched at the apex, often with a horse-shoe mark in the centre. Stipules ovate, abruptly cuspidate. Fl. heads on long axillary peduncles, longer than the leaves. Fl. white or tinged with pink. Cal. teeth unequal, with membranous edges, the 2 posterior ones nearly close. Pedicels reflexed after flowering.

Very common. In pastures and waste places. (B) P. 5—9.

* *T. HY'BRIDUM*, L.—*Alsike-clover.* Now frequently cultivated, and replacing the white clover. Stems ascending. Cal. teeth nearly equal, with scarcely any membrane on the edge, the 2 posterior ones wide apart. Fl. white or pinkish. Seeds dark green or brown.

2. *T. PRATÉNSE*, L.—*Common Purple-Clover.* Stems erect or somewhat decumbent, 1—2 ft. high. Leaflets oval or elliptical; lower ones emarginate, denticulate or nearly entire. Stipules

membranous, with numerous veins, acuminate with an elongated point. Flower-heads sessile. Cal. hairy, lowest segment longer than the other 4, *exceeding the cal. tube by one-half*. Fl. dull purplish pink.

Very common. In meadows and pastures. (B) P. 5—9.

3. **T. MÉDIUM**, P.—*Zigzag Trefoil, Cow-Clover*. Stems ascending or decumbent, flexuous, branched, 9 in.—3 feet high. Leaflets elliptical or lanceolate, apiculate, entire. Stipules herbaceous, lanceolate-acuminate. Flower-heads shortly stalked. Cal. nearly glabrous; teeth very slender, the lowest one exceeding the cal. *tube one-third*. Fl. purplish rose. Plant subglabrous, leaflets ciliated.

Common. Pastures and road sides. (B) P. 6—9. Paisley Canal bank, &c.

4. **T. ARVENSE**, L.—*Hare's-foot Trefoil*. Stems ascending, branched, 3—12 in. high. Leaflets lanceolate-obtuse. Stipules ovate or lanceolate-acuminate. Flower-heads terminal and axillary, subglobose or cylindrical, densely hairy. Cal. teeth slender, hairy, longer than the cor. Fl. small, white, turning flesh-coloured. Plant more or less hairy.

Not common. In corn fields and sandy pastures. (B) A. 7—9. "Chatelherault, near Hamilton," *Hopk.* Cumbræ; below Fairlie; Bute; and in Arran.

B. Flowers yellow.

5. **T. AGRÁRIUM**, L.—*Hop-Trefoil*. Stems numerous, 6—12 in. long, lateral branches procumbent or ascending, central one erect. Le. shortly stalked, leaflets obcordate, finely denticulate on the upper portion; central one shortly stalked. Fl.-heads globular, at length oblong, with from 20 to 30 yellow fls. *Standard not folded, deflexed, and furrowed*; when old turning pale brown.

Common. In pastures and on road sides. (B) A. 6—8. Paisley Canal bank; Tollcross; Gourock; Cumbræ and Arran.

6. **T. PROCUMBENS**, L.—*Lesser Yellow-Trefoil*. Stems numerous, slender, branched, procumbent or ascending. Le. shortly stalked; leaflets obcordate, finely denticulate on the upper portion, central one *distinctly stalked*. Fl.-heads smaller than in the last, with from 10—20 flowers. *Standard folded over the mature legume, scarcely furrowed*.

Very common. In pastures and waste places. (B) A. 6—8. Paisley Canal bank, &c.

9. LÓTUS. *Bird's-foot Trefoil*.

1. **L. CORNICULÁTUS**, L.—*Common Bird's-foot Trefoil*. Stems decumbent, simple or branched, 3—12 in. high. Leaflets obovate, glaucous, nearly glabrous. Ped. very long. Fl.-heads umbellate,

depressed, 3—6 flowered. Cal. with the 2 upper teeth *converging*. Standard obovate, claw *dilated and vaulted near the middle*. Fl. yellow. At the sea coast the leaves become fleshy.

Very common. In pastures and waste places. (B) P. 6—8.

2. **L. MÁJOR**, Scop.—*Narrow-leaved Bird's-foot Trefoil*. Stems decumbent or ascending, branched, 1—3 ft. high, more luxuriant than the former, glabrous or slightly hairy. Ped. very long. Fl.-heads umbellate, depressed, 6—12-flowered. *Standard with the claw not dilated*, linear. The 2 upper teeth of the calyx *diverging*. Fl. yellow.

Common. In meadows and by the sides of ditches. (B) P. 7—8. Paisley Canal bank; Possil marsh, &c.

10. ORNÍTHOPUS. *Bird's-foot*.

O. PERPUSÍLLUS, L.—Stems numerous, decumbent, spreading. Le. pinnate, pinnules 6—9 pairs, oval, hairy. Fl. small, white, with crimson veins; springing from a pinnate bract. Legumes curved upwards, beaded, resembling a bird's claw.

Not common. Dry gravelly and sandy soil. (B) A. 5—7. Sand-pits, Tollcross; Bowling, &c.

11. VÍCIA. *Vetch, tare*.

A. Peduncles short, few flowered.

1. **V. LATHYROIDES**, L.—*Spring Vetch*. Stems decumbent, spreading, 3—6 in. long. Le. compound, with 2—4 pairs of leaflets; lower ones obovate or oblong, retuse with a mucro. Stip. entire, not spotted, half sagittate. Cal. teeth subulate. Fl. small, pale purple. Standard smooth. Legume compressed, acuminate, $\frac{1}{2}$ to an inch long. Seeds with prominent points.

Not common. Dry pastures and sandy places. Cumbræ and Arran. (B) A. 5—6.

2. **V. SATÍVA**, L.—*Common Cultivated-Vetch*. Stem weak, climbing or ascending, 2—3 feet high. Leaflets in 5—7 pairs, obcordate; upper ones often linear, retuse and mucronate. Stipules toothed, often with a dark spot. Fl. axillary, in pairs, nearly an inch long; standard lilac; wings deep purple. Legume 2—3 in. long, pubescent, rarely smooth.

Sides of fields where the plant has been cultivated, or amongst corn. Much used as a fodder plant. (B) A. B. 5—6.

Var. angustifolia, Roth.—A very slender plant, with narrow le., and single axillary flowers, of a crimson or purple colour.

Frequent. In sandy pastures and by road sides. (B) A. B. 5—7. Possil quarry; Paisley Canal bank; Gourock; Cumbræ and Arran.

3. **V. SÉPIUM**, L.—*Bush-Vetch*. Stem weak, trailing or climbing, 1—2 ft. high. Le. with 4—8 pairs of ovate-obtuse mucronate

leaflets, becoming gradually smaller to where the petiole ends in a tendril. Cal. hairy, teeth unequal. Fl. 3—6 in a short, unilateral raceme. Standard smooth, twice as long as the cal., $\frac{1}{4}$ — $\frac{3}{4}$ of an inch long; pale or livid purple.

Common. In bushy places, borders of fields and woods. (B) P. 6—8. Banks of Clyde, Kelvin, and Cart.

B. Peduncles elongated, many-flowered.

4. **V. CRÁCCA**, L.—*Tufted-Vetch*. Stem weak, trailing or climbing, branched 2—4 ft. high. Le. with 8—12 pairs of lanceolate leaflets. Stip. half-arrow shaped. Ped. longer than the le., with 10—30 fl. in a unilateral raceme. Fl. imbricated, bright bluish purple.

Very common. In hedges and borders of fields. (B) P. 6—8. Paisley Canal bank; Cathcart, &c.

5. **V. O'ROBUS**, L.—*Wood Bitter-Vetch*. Stem erect, not climbing, 1—2 ft. high. Le. with 6—12 pairs of oblong or elliptical leaflets, mucronate, without tendrils; petiole ending in a subulate point. Stip. half-arrow shaped, frequently toothed at the base. Ped. at length exceeding the leaves, with 5—20 fl. in a short compact raceme. Fl. white, blotched with purple at the apex.

Rare. Cartlane crags on the Mouse; "Woods at the Falls of Clyde," *Hopk.* (L) P. 5—6.

6. **V. SYLVÁTICA**, L.—*Wood-Vetch*. Stem weak, trailing or climbing, 2—4 feet high. Le. with 6—10 pairs of broadly elliptic-oblong mucronate leaflets; tendrils simple or branched. Stip. $\frac{1}{2}$ lunate, laciniate at the base. Ped. exceeding the leaves, with 6—18 fl. in a lax unilateral raceme. Fl. large, white, with purple veins; very elegant.

Rare. "Cartlane crags," *Lightfoot*. Rocks between Corhouse and Bonnington on the Lesmahagow side of the Clyde; rocks by the Avon, Hamilton," *Patr.*; Island of Arran. (B) P. 6—8.

C. Peduncles elongated. Flowers few and very small.

7. **V. TETRASPÉRMA**, Moench.—*Slender-Tare*. Stem weak, branched or simple, 1—3 ft. high. Le. with 3—6 pairs of linear, obtuse and apiculate leaflets; petioles usually ending in branched tendrils. Ped. 1—2-flowered, equalling the leaves. Fl. small, pale blue. Legume usually smooth, with 3—5 globular seeds.

Rare. Corn fields and hedges. (E) A. 6—8. Near Cambuslang; banks of the Clyde at Dalziel Camp, and below Govan.

8. **V. HIRSÚTA**, Koch.—*Hairy-Tare*. Stem weak, simple or branched, climbing 1—2 ft. high. Le. with 6—10 pairs linear-oblong leaflets, truncate-emarginate, and apiculate at the apex; petiole ending in a branched tendril. Stip. of the lower leaves

laciniate; upper ones simple, or with a single tooth. Ped. with 1—6 very small pale blue fl. Legumes hairy, seeds 2, compressed.

Frequent. In hedges and amongst corn, also in waste gardens. (B) A. 6—8. Cathcart; Tollcross; Cambuslang; Dumbarton Castle; Gourrock; Cumbræ and Arran.

12. LÁTHYRIS. *Vetchling.*

1. **L. PRATÉNSIS**, L.—*Meadow-Vetchling*. Stems climbing or trailing, with narrow wings, 2—3 ft. high. Le. with 1 pair of lanceolate, 3-nerved, acute leaflets. Stip. large, sagittate. Ped. 3—12 fl., longer than the leaves. Fl. bright yellow. Legume obliquely veined, smooth, sessile.

Very common. Pastures and hedges. (B) P. 7—8.

2. **L. SYLVÉSTRIS**, L.—*Narrow-leaved Everlasting Pea*. Stems climbing or trailing, 3—6 ft. long, with very broad wings. Le. with 1 pair of linear-lanceolate, or lanceolate-acute leaflets; petiole ending in a branched tendril. Stip. lanceolate, with a narrow auricle. Ped. 3—10-flowered, longer than the leaves. Fl. greenish yellow, stained with purple, rose-coloured on the outside.

Very rare. "Island of Arran at Struey Rocks," *Lands*. Very questionable if wild. (E) P. 7—9.

3. **L. MACRORRHÍZUS**, Wimm.—*Tuberous Bitter-Vetchling*. Rhizome bearing small blackish tubers. Stem simple, erect or ascending, 8—12 in. high. Le. with 2 or more pairs of oblong-lanceolate mucronate leaflets; petiole terminating in a small point. Stip. half arrow-shaped, with a broad tooth near the base. Ped. 2—6 fl. equal to, or longer than, the leaves. Fl. drooping, pale purple or crimson, fading to a dull blue. Legume long, cylindrical, pendulous.

Frequent. Thickets and dry banks. (B) P. 5—7. Kelvin woods; Kenmuir bank; wood near Buttery-burn Loch; Gourrock; Cumbræ, &c.

24. —ROSACEÆ.

1. PRUNÚS. *Plum, Cherry.*

A. Young leaves convolute. Flowers solitary, or in pairs.

1. **P. COMMÚNIS**, Huds.—Le. ovate or oblong-obovate, stalked, bluntly serrated, when young downy beneath. Flowers appearing before or along with the le.

Var. spinósa, L.—*Blackthorn, Sloe*. A small rigid bush, 3—4 ft. high, or even larger, with crooked branches, very spinous, flowers generally appearing before the le. *Pedicels smooth*.

Common. Hedges and woods. (B) Sh. 4—5. Cathcart; Rutherglen and Cambuslang.

Var. insitítia, L.—*Bullace-Tree*. Similar to the sloe, but of larger growth, with nearly straight branches, and few spinous. Fl.

larger, expanding along with the le. Pet. broad. Fruit larger. *Pedicels and under side of the le. pubescent.*

Very rare. Hedges and woods. Sh. 5. "On the Farm of Chapel," *Patrick*. In the former editions this has been confused with large states of *spinosa*, grown in the shade of trees; the stations given are therefore incorrect. A very questionable native.

Var. doméstica, L.—*Wild Plum Tree*. A small tree, with no spines. Le. smooth beneath, except on the midrib. Pedicels smooth. Fl. large, nearly 1 inch in diameter. Fr. large, drooping.

Frequent. In hedges. Not considered native. T. 5.

B. Young leaves conduplicate. Fl. in umbels or racemes.

2. **P.** *A'VIUM*, L.—*Wild Cherry, Gean*. Le. drooping, oblong-ovate, suddenly cuspidate, crenate-serrate, hairy on the veins beneath. Fl. white, in sessile umbels, with scales at the base. Fruit globular, red or black. The origin of our cultivated garden cherry.

Frequent. Woods and hedges. (E) T. 5. Carmyle; Kenmuir; between Cathcart and Rutherglen; Cambuslang, &c.

3. **P.** *PÁDUS*, L.—*Bird-Cherry, Hag-berry*. A small tree or shrub. Le. ovate or obovate, serrate, glabrous, with 2 glands at the base. Fl. white, in pendulous racemes, 3—5 inches long. Fr. nearly erect when ripe, a small black drupe, stone wrinkled.

Frequent. Woods and thickets. (S) T. 5. Banks of the Kelvin; "Gillburnsynke, and the bank from that to Crossbasket," *Ure*. Falls of Clyde, common, and bearing fruit plentifully; above Carmyle; Gourrock; Cumbræ and Arran.

2. SPIRÆ'A. *Drop-wort, Meadow-Sweet.*

1. **S.** *ULMÁRIA*, L.—*Meadow-Sweet, Queen of the Meadow*. Stem erect, furrowed, 2—4 ft. high, branched. Le. interruptedly pinnate, with 5—9 pairs of ovate-acute, slightly lobed and serrate leaflets, terminal one large. Fl. yellowish white, in compound cymes, sweet scented. Fr. twisted.

Common. Meadows, banks, and ditches. (B) P. 6—8. Banks of the Kelvin; Cart; Clyde, &c.

2. **S.** *SALICIFÓLIA*, L.—*Willow-leaved Spiræa*. A bushy shrub, much branched. Le. elliptic-lanceolate, sharply and unequally serrate, no stipules. Fl. rose-coloured or pink, in dense terminal panicles. Fr. glabrous.

Not native. "Banks at Cartlane crags," *Hopk.* S. 7.

3. **S.** *FILIPÉNDULA*, L.—*Drop-wort*. Stem erect, 1—2 ft. high. Le. interruptedly pinnate, with deeply cut and serrate leaflets, intermediate smaller ones toothed. Fl. yellowish white, in compound cymes, when young tinged with pink. Fr. clothed with short bristly hairs.

An outcast of gardens. "Lover's leap at Chatelherault," *Hamilton, Patr.* (E) S. 6—7.

3. GÉUM. *Avens.*

1. *G. URBANUM*, L.—*Herb-Bennet*, *Wood-Avens*. Stems erect or ascending, 1—2 ft. high. Root le. on long footstalks, irregularly pinnate and lyrate. Stem le. ternate or 3-lobed. Stip. large, round, and cut. Fl. *erect*, small yellow. Cal. reflexed when in fruit. Awn of the achene with the *upper joint smooth*, $\frac{1}{2}$ the length of the lower.

Very common. Woods and hedge banks. (B) P. 6—8. Carmyle; Paisley Canal bank; Kelvin woods, &c.

2. *G. RIVÁLE*, L.—*Water-Avens*. Stem erect, 12—18 in. high. Radical le. stalked, lyrate-pinnate, terminal one 3-lobed. Stem le. ternate, or 3-lobed. Stip. small, ovate, toothed. Fl. *drooping*, dull brownish orange. Pet. obcordate, clawed. Awn with the *upper joint feathery*, scarcely so long as the lower one.

Very common. Sides of streams and moist places. Banks of the Kelvin, Clyde, and Cart. (B) P. 5—7.

Var. *intermedium*, Ehr.—Fl. drooping or erect. Pet. deep yellow. Cal. tinged with red, adpressed to the receptacle after flowering; upper joint of the awn hairy, $\frac{1}{2}$ the length of the lower. Now considered a hybrid.

Frequent. Kelvin banks, Gourrock, &c. P. 6—7.

4. RÚBUS. *Raspberry, Bramble.*

In the following arrangement of the brambles, the species given correspond to those in the “British Flora;” and the varieties are species of Professor Babington’s Manual.

By *stem* is meant the barren shoot of the year; the description which follows applies to it only: the same course is adopted in reference to the flowering branch. *Prickles* are said to be hooked when more or less curved, *patent* when straight and at right angles to the stem, *sub-patent* is when straight but pointing downwards or declining; *aciculi* are slender prickles or strong bristles; the term *setæ* is used in the present genus, and in the roses, to describe bristles or hairs terminated by a knob or gland.

A. Stems herbaceous.

1. Leaves simple, Flowers solitary.

1. *R. CHAMÆMÓRUS*, L.—*Cloudberry*, *Mountain-Raspberry*, *Knoutberry*. Rhizome creeping. Stem erect, 6—8 in. high, without prickles; lower stipules united as a small sheath. Le. plicate, orbicular, heart-shaped at the base, 5—9-lobed. Fl. *diceious*, large and white, terminal. Fruit large, red, when ripe pale orange.

Rare. On peaty moors. (H) P. 6—7. “In Cleghorn and Bonnington woods,” *Hopk.*; Campsie hills, near the reservoir.

2. Leaves ternate.

2. **R. SAXÁTILIS**, L.—*Stone-Bramble, Roe-buckberry*. Rhizome creeping. Barren stems, 2—3 feet long, prostrate, rooting at the joints; prickles few or none. Le. thin, green below, ovate, coarsely serrate. Flowering shoots erect, 6—12 in. high, with few le. Fl. very small, 2—3 in a corymb. Fruit of 1—4 large, bright red drupes.

Not common. Rocky places in the shade. (S) P. 6—8. In "Cleghorn and Bonnington woods," *Hopk.*; "Opposite Cadzow Castle," *Patr.* Calderwood glen; Gourrock; glens above the Holy Loch; Inverkip; Bute and Arran.

B. Stems shrubby, biennial.

* Leaves pinnate, seldom ternate.

3. **R. ID'ÆUS**, L.—*Common Raspberry, Hindberry*. Stems erect, 2—3 ft. high, round, smooth or downy, with small weak prickles. Le. pinnate, with 3—7 leaflets, *terminal one the largest*, ovate or oblong, pointed, coarsely serrate, green above, white beneath. Fl. on lateral branches from the last year's shoot, corymbose, drooping. Pet. narrow, white. Fruit red, often white in cultivation.

Common. In woods and waste places. (B) Sh. 6—7. Banks of the Kelvin, Cart, and Clyde, &c.

** Leaves quinate or ternate, seldom pinnate.

† *Stems quite smooth or slightly hairy, prickles equal or nearly so, setæ none.*

4. **R. SUBÉRECTUS**, And.—*Upright Bramble*. Stems erect, nearly round, slightly downy or smooth; prickles short, weak, from a narrow base. Le. quinate, seldom ternate, often pinnate with 7 leaflets, downy beneath, finely and acutely serrate, broadly ovate, cordate at the base, acuminate, *lateral ones sessile*, thin, flexible, and flat. Fl. in close corymbose panicles; rachis and pedicels pilose. Sep. reflexed. Fruit dark red.

Frequent. In damp woods. (S) Sh. 6—7. Woods around Cambuslang; Cadder Wilderness; near Balmore; Baldernock; Gourrock; Dunoon and Arran.

Var. *plicátus*, W. & N.—Stem nearly erect, angular, smooth; prickles confined to the angles of the stem, base long and compressed, declining or slightly hooked. Le. quinate, coriaceous, *plaited*, shortly and thinly pilose beneath, ovate, acuminate; basal ones almost sessile. Fl. in corymbose panicles; *lateral leaflets dilated at the base*. Sep. reflexed.

Frequent. Heaths and stony places. (E) Sh. 6—7. Cathkin; banks of the Forth and Clyde Canal; Baldernock; Kilmun; Cumbræ; Bute and Arran.

5. **R. RHAMNIFÓLIUS**, W. & N.—*Buckthorn-leaved Bramble*. Stem arcuate, angular, striate, bright red, seldom with hairs; prickles straight or declining, confined to the angles, tipped with yellow. Le. cordate, subcuspidate, hard, *quite flat*, a few hairs

above, greenish or white felted beneath. Pan. dense at the end, branches distant, racemose; rachis felted at the top, prickles strong, declining.

Frequent. In hedges and thickets. (E) Sh. 7—8. Innellan, Bute, Cumbræ, and Arran.

Var. *affinis*, W. & N. Stem suberect or arched, smooth, angular; prickles strong, hooked or declining. Le. quinate, subcoriaceous, wavy towards the end, green and opaque on both sides, with a few scattered hairs above, pubescent beneath, oval, cordate, acuminate; basal leaflets shortly stalked. Fl. in a corymbose compound panicle. *Leaflets narrowing to the base*. Sep. acuminate, felted, reflexed or spreading, with pale edges.

Frequent. Heaths and open woods. (E) Sh. 7—8. Busby; near Bardowie Loch; very common in Cumbræ; Bute and Arran.

Var. *Lindleianus*, Lees.—Stem erect arcuate, smooth, shining; prickles strong, declining from a broad base. Le. quinate, ovate often narrowed at the base, flat in the centre, wavy on the edge, *basal one directed backwards nearly in a line with the petiole*, shining above, pale green and pilose below. Pan. large, compound leafy; rachis hairy above, pedicels felted.

Frequent. In hedges and thickets. (E) Sh. 7—8. Paisley Canal bank and Maryhill, rare; Dunoon, Bute, Cumbræ, and Arran, plentiful.

Var. *incurvatus*, Bab.—Stem arcuate-prostrate, smooth, *deep purple*, striate; prickles straight or declining. Le. quinate, broadly cordate, soft and thick, shining and nearly smooth above, mostly soft white felted beneath, flat in the centre, *edges full* or wavy incurved, doubly dentate. Pan. compound, branches short; rachis felted, prickles slender, declining. Sep. ovate-acuminate.

Frequent. Heaths and thickets. (E) Sh. 7—8. Gourock; Dunoon; Cumbræ and Arran.

6. **R. CORYLIFOLIUS**, Sm.—*Hazel-leaved Bramble*. Stem arching prostrate, round or bluntly angular, *slightly glaucous*, nearly glabrous, prickles scattered, few, short, straight. Le. quinate, leaflets imbricate, downy beneath, slightly hairy above, rugose, roundish ovate, subcordate at the base, acuminate or cuspidate, doubly serrate lateral leaflets subsessile. Panicle lax, with subcorymbose branches, lower ones distant; rachis and pedicels finely pubescent, with a few short hairs and setæ. Sep. ovate, cuspidate, densely tomentose, *reflexed*. Fruit with few large drupes.

Very common. In hedges and thickets. (E) Sh. 6—8.

7. **R. CÆSIUS**, L.—*Dewberry*. Stem weak and prostrate, glaucous, round, with very few hairs, or glabrous; prickles small, unequal; aciculi and setæ few. Le. ternate, or with the lateral ones, 2-lobed, terminal one ovate or rhomboidal-ovate, unequally cut or coarsely serrate, green on both sides, pale and hairy, or

sometimes slightly felted beneath. Panicle nearly simple, often small, rachis and pedicels with short hairs, aciculi and setæ few. Sep. ovato-lanceolate, *erect and clasping the fruit*, which is composed of few drupes, covered with a glaucous bloom.

Very rare. Hedges and thickets. (E) Sh. 6—7. Cambuslang; near Milngavie.

†† *Stems pubescent or hairy, having few or no setæ.*

8. **R. DISCOLOR**, W. & N., **FRUTICOSUS**, L.—Stem strong, arched, rooting at the end, angular, furrowed; prickles strongly hooked, confined to the angles, pubescence of the stem *stellate*, sometimes absent, with neither aciculi nor setæ. Le. quinate, leaflets coriaceous, very convex, with the edge reflexed, *and densely white, felted beneath*. Panicle long, narrow; pickles strong, hooked. Cal. densely white felted.

Hedges and thickets. (E) Sh. 7—8. Frequent in the Island of Arran, Cumbræ, and Bute.

Var. *macrophyllus*, W. & N.—Stem arcuate or prostrate, angular, pilose with patent hairs; prickles short, conical. Le. quinate, sometimes ternate, leaflets thin, often very large, green on both sides, sparingly hairy on the veins beneath, broadly ovate or obovate, cordate at the base, acuminate or cuspidate. Panicle large, leafy, with axillary branches, nearly patent; prickles declining. Sep. mostly *leaf-pointed*.

Frequent. In woods and thickets. (E) Sh. 7—8. Near Cambuslang; Milngavie; Cumbræ, &c.

9. **CARPINIFOLIUS**, Blox.—*umbrosus*, Arrh., *Hornbeam-leaved Bramble*. Stem striate, with clustered hairs; prickles declining or hooked. Le. sometimes 7-nate, with a few scattered hairs above, greenish or gray felted beneath, finely toothed, obovate, oval or rounded, subcordate at the base, acuminate or cuspidate. Panicle narrow, branches short, nearly erect; rachis and pedicels densely pilose. Cal. felted and pilose. Sep. reflexed.

Frequent. Open places in hilly districts. (E) Sh. 7—8. Cathkin hills; Milngavie; "Island of Arran," *Lands*. Cumbræ, Bute and Arran very plentiful.

Var. *villicaulis*, W. & N.—Stem arching, angular, pilose, prickles strong, short patent, hairy at the base. Le. quinate, leaflets with a few scattered hairs above, pale green pubescent beneath, *with numerous stronger hairs on the midrib and veins beneath*, obovate, cordate at the base, subcuspidate. Panicle lax, rachis and pedicels densely hairy; prickles few, slender and declining. Cal. felted.

Rare. In hedges. Cambuslang; Cumbræ, Bute, and Arran. (E) Sh. 7—8.

Var. *mucronulatus*, Bor. —Stem arcuate, nearly round or bluntly angular, pilose; prickles small, unequal. Le. quinate, leaflets green on both sides, hairy and glistening on the veins beneath, obovate, *abruptly cuspidate*, finely and sharply serrate. Panicle

simple, branches distant; rachis and pedicels pilose, with gland-tipped setæ intermixed. Cal. densely pilose and felted. Sep. with a linear point.

Rare. In woods and on banks. (L) Sh. 7—8. Cadder Wilderness; Cumbræ and Arran.

††† *Stems with copious bristles and gland-tipped hairs.*

Var. *tuberculátus*, Bab.—Stem arching-prostrate, slightly angular; prickles very numerous, unequal, declining, “from an oblong tuberculiform base;” bristles and glandular hairs few. Le. ternate or quinate, when the latter, overlapping and imbricate, the ternate ones with the lateral leaflets large and lobed, terminal leaflet roundish-ovate, subcuspidate, green on both sides, with a few short hairs above, hairy on the veins beneath. Panicle narrow, leafy, the upper branches short; rachis felted with short hairs; aciculi and setæ few, prickles slender, declining. Sep. ovate-acuminate, setose, loosely adpressed to the fruit, which is composed of few drupes.

Frequent. In hedges. (E) Sh. 7—8. Old road west of Cambuslang; Hamilton Farm; Pollokshaws and Busby.

Var. *DIVERSIFOLIUS*, Lind.—Stem angular with few hairs. Prickles numerous with long compressed bases, slender, slightly declining; aciculi and setæ unequal. Le. dark green, edges undulate, slightly pilose above, pale green, hairy, and slightly felted beneath, terminal leaflet roundly cordate and obovate, cuspidate; basal sessile. Pan. long leafy to near the top. Le. ternate, upper simple; aciculi and setæ short, hairs plentiful. Sep. ovate, acute, setose and whitish felted, erect, patent, or sometimes clasping the fruit; drupes few.

Hedges and thickets. Island of Arran. *J. G. Baker.* (E) Sh. 7—8.

10. *R. GLANDULÓsus*, Bell.—*Glandular-Bramble.* Stem arcuate-prostrate, round; densely covered with aciculi, setæ, and hairs; prickles small, weak, declining. Le. ternate, rarely quinate, leaflets nearly equal, lateral ones *remarkably divaricate*, ovate or obovate, cuspidate, doubly and sharply dentato-serrate, hairy on the veins beneath. Panicle with erecto-patent branches; aciculi and setæ numerous, densely and stiffly hairy. Sep. ovate, attenuate, setose.

Frequent. Woods and thickets. (E) Sh. 7—8. Kilmun; Dunoon; Bute; Cumbræ and Arran.

Var. *rúdis*, Weihe.—Stem arcuate, angular; prickles unequal, stout, long and patent, or slightly declining; aciculi and setæ nearly equal, sparingly pilose. Le. quinate, leaflets doubly serrate, with sharp teeth, rough above, with small elevations, *greenish white* felted beneath, broadly ovate or obovate, acuminate. Panicle long, leafy, branches ascending; rachis and pedicels with

numerous long, straight or declining, slender prickles, aciculi, setæ, and hairs. Sep. acute, strongly reflexed.

Common. Hedges and thickets. (E) Sh. 7—8. Near Milngavie; Baldernock; banks of the Forth and Clyde Canal; Cumbræ, &c.

Var. *Rádula*, Weihe.—Stem arching, angular; prickles unequal, declining from a short base, aciculi and setæ numerous, *deciduous*, leaving the stem rough, pilose. Le. quinate, deep green above, greenish white felted beneath (green when in shade), with a few longer hairs on the veins, oval or obovate, acuminate or cuspidate, doubly dentato-serrate. Panicle long, leafy, with short spreading corymbose branches; rachis and pedicels with numerous aciculi and setæ, stiffly hairy; prickles declining, the upper ones slender. Sep. ovate, loosely reflexed.

Not common. In woods and hedges. (E) Sh. 7—8. Cambuslang glen; Cumbræ and Bute.

Var. *Koehl'eri*, Weihe.—Stem arching or prostrate, roundish or slightly angular, more or less hairy; prickles numerous, *very unequal, scattered*, slightly declining; aciculi and setæ unequal, thickened at the base. Le. quinate; leaflets roughly hairy below, sometimes green felted, hairy on the veins beneath, obovate, acuminate, doubly dentate. Panicle corymbose at the apex, with the terminal fl. very short, lateral branches short; prickles strong, declining or hooked; aciculi and setæ numerous, unequal, sparingly hairy. Sep. ovate, attenuate.

Common. In hedges and thickets. (E) Sh. 7—8. Paisley Canal bank; Cathcart; Gourrock; Cumbræ and Arran.

5. FRAGÁRIA. *Strawberry.*

1. **F. VÉSCA**, L.—*Wood-Strawberry*. Stem tufted, sending out long slender runners, rooting at the joints where young plants are produced. Le. mostly radical, ternate; leaflets ovate, toothed, unequal at the base, somewhat plicate, with silky hairs. Scape generally leafless, terminating with white cymose flowers; hairs of the peduncles widely spreading, of the pedicels adpressed.

Common. Hedge banks and woods. Paisley Canal banks; Kelvin woods; banks of Clyde, &c. (B) P. 5—7.

* 2. **F. ELÁTIOR**, Ehr.—*Hautboy-Strawberry*. Very like the former, but stouter and more hairy, with much larger flowers. Scapes and pedicels densely hairy, *with the hairs somewhat deflexed*.

Frequent near houses where it has been cultivated. Stonelaw, beyond Rutherglen; Cathcart; Cambuslang; Garscube, &c. P. 6—9.

6. CÓMARUM. *Marsh-Cinquefoil.*

C. PALÚSTRE, L.—Rhizome extensively creeping, with ascending flowering stems, 1—2 ft. high. Le. with 5—7 oblong or

lanceolate, deeply serrated leaflets. Fl. dingy purple, in a loose corymb. Stamens and styles purple. Carpels numerous, on a swollen spongy receptacle.

* Common. In marshes and bogs. (B) P. 6—7. Possil marsh; Cathkin hills; Frankfield Loch, &c.

7. POTENTÍLLA. *Cinquefoil.*

A. Flowers yellow. Leaves pinnate.

1. **P. ANSERÍNA**, L.—*Silver-Weed*.—Rhizome ending in a tuft of leaves, sending out lateral runners, rooting at the nodes, forming new plants. Le. interruptedly pinnate, leaflets sessile, deeply serrate, with shining *white silky hairs beneath*. Fl. solitary, on long peduncles.

Common. By roadsides everywhere. (B) P. 6—7.

B. Flowers yellow. Leaves quinate.

2. **P. RÉPTANS**, L.—*Creeping-Cinquefoil*. Rhizome slender, sending out stems or lateral runners, rooting at the nodes. Le. *on long stalks*, with 5 obovate-cuneiform leaflets, serrated above, sometimes nearly to the base. Fl. axillary, on long peduncles, large, with 5 petals. Carpels rough, with small points.

Not common. Banks and way-sides. (E) P. 6—9. “Banks of Clyde near Dalbeth,” *Hopk*. On the south side, now opposite Dalbeth; Bogle’s hole, near Hamilton, Wishaw, &c.

3. **P. TORMENTÍLLA**, Sibth.—*Tormentil*. Rhizome thickened, tough, woody. Stems numerous, lateral, decumbent at the base, sometimes sending out filiform runners. Radical le., stalked with 3 broadly wedge-shaped divisions, lateral ones deeply cleft, *stem* le. all *sessile*, leaflets narrow, acute, all deeply serrated on the upper half. Fl. on long peduncles, with 4, seldom 5, petals. Carpels wrinkled.

Very common. On heathy pastures and moors. (B) P. 6—8. Possil marsh; Paisley Canal bank, &c.

Var. *réptans*.—Has the stems prostrate, generally rooting at the nodes. Le. ternate or quinate, mostly stalked, flowers larger than in the common form; often with stems 12—18 in. long.

Frequent. On hedge banks. Possil road, near Lambhill bridge; near Cambuslang; Gourrock; Cumbræ, &c.

C. Flowers white. Leaves ternate.

4. **P. FRAGARIÁSTRUM**, Ehr.—*Barren-Strawberry*. Rhizome woody, branched, stems procumbent. Le. ternate, leaflets roundish-ovate, serrate, silky, especially beneath, resembling the strawberry. Fl. few, white. Pet. obcordate, as long as, or slightly longer than the cal. Carp. *downy at the base*.

Very common. Woods and hedge banks. (B) P. 2—5. Kelvin woods; banks of Clyde at Carmyle, &c.

8. *ALCHEMÍLLA*. *Lady's-Mantle*.

1. *A. VULGÁRIS*, L.—*Common Lady's-Mantle*. Rhizome dark, thick, producing numerous decumbent and ascending stems. Radical le. on long stalks, orbicular, plaited, 7—9 lobed, serrate. Stem le. with connate, toothed stipules. Fl. in many small cymes, greenish yellow, $\frac{1}{8}$ of an inch across.

Very common. Pastures and sides of streams. (B) P. 6—8. Banks of the Kelvin, Cart, and Clyde.

2. *A. ALPÍNA*, L.—*Alpine Lady's-Mantle*. Rhizome slender, elongated, somewhat woody. Stems several, decumbent at the base. Radical le. on long stalks, digitate in 5—7 segments, sometimes scarcely cleft to the base, serrate only at the apex, silky white and silvery beneath. Fl. in small dense cymose clusters, greenish yellow.

Common on Alpine rocks. (H) P. 6—8. Ben Lomond; hills above Rashfield and Loch Eck; Goatfell, Arran.

Var. *conjuncta*.—Le. cut only from $\frac{1}{3}$ to $\frac{1}{2}$ way down. Said to have been found in Glen Sannox, Arran. Known in gardens as *A. hybrida*. H. & A.

3. *A. ARVÉNSIS*, Sm.—*Field Lady's-Mantle*. *Parsley-Piert*. Radical le. none. Stems 3 to 6 in. long, often prostrate and much branched. Leaves on short stalks, tripartite, wedge-shaped below, hairy. Stip. large leafy, enclosing the clusters of very small, greenish, inconspicuous fl.

Common. Fields and waste places. (B) A. 5—8. In corn fields near Rutherglen; Langside; Cambuslang, &c.

9. *AGRIMÓNIA*. *Agrimony*.

A. EUPATÓRIUM, L.—*Common Agrimony*. Stem erect, 2—3 feet high. Le. interruptedly-pinnate; leaflets deeply serrate, intermediate ones 3—5-cleft, hairy beneath. Cal. deeply furrowed, Fl. yellow in elongated spikes. Fruit covered with hooked bristles, lower ones spreading.

Frequent. Borders of fields. (B) P. 6—7. "Crossbasket," *Ure*. Banks of the Calder above the Black-linn. "Bothwell Castle," *Patr*. Gourrock, Cumbræ, and Arran.

Var. *odoráta*, Mill.—Stem erect, nearly 3 feet high. Le. deeply serrate, glandular beneath. Cal. tube with no furrows; bristles on the lower portion reflexed; more branched than in the species.

Thickets and by roadsides. (E) P. 6—7. Waterfall below Lamlash, *Mr. Craig Christie*; on the road to Glen Rosa, *Dr. Syme*; Dippin rocks.

10. RÓSA. *Rose.*

A. *Spinosissimæ.*—Shoots setose; prickles crowded, subulate, straight or nearly so.

1. R. SPINOSÍSSIMA, L.—*Burnet-leaved Rose, Scotch-Rose.* A much branched, erect, prickly shrub; 4—18 in. high, *prickles unequal*, straight, intermixed with aciculi and setæ. Le. pinnate, leaflets glabrous, simply serrate, edge without glands. Fl. large, white or pink. Fruit globular, *glabrous*, dark purple or black.

Heaths and sandy sea coasts. (B) Sh. 5. Common on the shores of the Firth of Clyde; Bute; Cumbræ; Arran, &c.

2. R. SABÍNI, Woods.—*Sabine's Rose.* An erect shrub, 3—5 ft. high; prickles scattered, passing gradually into aciculi and setæ. Leaflets ovate, *doubly serrate*, slightly hairy above, densely so and glandular beneath, secondary serratures gland-tipped. Cal. segments slightly pinnate, *tube aciculate and setose*. Fl. white or pink.

Very rare. Daldowie woods, questionable if wild. (B) Sh. 6. "Lamlash," J. G. Baker.

Var. *Doniána*, Woods.—Cal. segments leaf-pointed, simple. Le. very hairy on both sides.

Rare. Cumbræ and Bute. Sh. 6.

Var. *involuta*, Sm.—Le. with simpler secondary serratures, nearly smooth above, hairy principally on the veins beneath, slightly glandular.

"Lamlash, Isle of Arran," *Lands. and G. Don.* Sh. 6.

B. *Villosæ.*—Shoots mostly without setæ, prickles slender, abruptly dilated at the base, slightly curved.

3. R. MOLLÍSSIMA, Willd.; Fries, (*villosa* of authors)—*Soft-leaved Rose.*—An erect shrub; prickles with needle-like points. Leaflets broadly ovate or elliptical, doubly serrate, serratures shallow and open, furnished with 2 or 3 gland-tipped teeth; upper surface covered with soft gray hairs, densely so beneath. Ped. short, with gland-tipped aciculi. Cal. tube nearly globose, mostly with gland-tipped aciculi; *segments simple*, outside covered with setæ. Fl. varying from white to red.

Frequent. Hedges and thickets. (B) 6—7. Banks of Clyde; Cathkin hills; Kittoch glen; Kilmun; Cumbræ; Bute and Arran. Corrieburn, with tube of calyx densely aciculate and setose.

Var. *cærúlea*.—Peduncles and cal. tube smooth. Le. with a few scattered glands below.

"Woods at Crossbasket," *Hooker.* Hills above Mugdock reservoir.

4. R. TOMENTÓSA, Sm.—*Downy-leaved Rose.* Of the same habit as the last, and by many considered a variety. Prickles

similar. Leaflets ovate or elliptical, doubly serrate, hairs above close, gray; paler, more hairy, and glandular beneath. Cal. segments nearly equalling the cor., leafy, *pinnatifid*, *sub-persistent*, with gland-tipped setæ. Not so downy as the preceding.

Common. In hedges and borders of woods. (B) Sh. 6—7. Kilbride road; around Cambuslang; Kittoch-side; Kilmun; Cumbræ, &c.

Var. *scabriuscula*, Winch.—Terminal leaflet with a long petiole, elliptical, rounded or tapering at the base, acute at the apex. Petioles with numerous prickles and setæ intermixed with hairs, principal serratures ending in a hardened point.

Paisley Canal bank; Flemington road, beyond Cambuslang.

C. *Rubiginosæ*.—Shoots intermixed with a few setæ, prickles various.

5. *R. RUBIGINÓSA*, L.—*True Sweetbriar*, *Eglantine*. Prickles curved, rather unequal, numerous, smaller ones slender, intermingled occasionally with a few gland-tipped setæ. Leaflets doubly serrate, rounded at the base, glandular beneath, Sep. *sub-persistent*, leaf-pointed, pinnate, with gland-tipped setæ on the back. Fruit obovate-globose, scarlet; foliage sweet-scented.

Not common. In hedges and bushy places. (E) Sh. 6—7. Near Hamilton; Uddingston; Calder glen; Cambuslang glen and Cumbræ.

D. Shoots without setæ; prickles hooked, with a long compressed base.

6. *R. CANÍNA*, L.—*Common Dog-Rose*. Large bushes, often growing to the height of 8—10 ft., with a stem of considerable diameter. Prickles uniform, curved. Leaflets smooth or downy, serratures simple or compound. Cal. segments mostly deciduous, leaf-pointed, pinnate or pinnatifid, generally smooth, *styles not united*.

Very common. In hedges and thickets. (B) Sh. 6—7.

A. *Leaves glabrous on both surfaces. Peduncles not bristly.*

Var. *lutetiána*, Leman.—Prickles curved. Le. ovate or elliptical, acute, firm, *smooth on both sides*, deeply and sharply serrated. Stipules naked, or imperfectly fringed with glands at the apex. Ped. and cal. tube naked. Cal. segments pinnate, reflexed on the fruit, nearly bare of glands. Fr. ovoid-urceolate. *Very common.*

Var. *dumális*, Bech.—*Leaves doubly serrate*, with from 1—3 gland-tipped teeth, smooth on both sides. Petioles with a few setæ. Stipules fringed with glands. Ped. and cal. tube naked. Sep. with leafy pinnæ, sometimes downy near the edge, fringed with glands. Fruit ovoid-urceolate or globose. *Very common.*

B. *Leaves glabrous above, hairy on the veins beneath.*

Var. *urbica*, Lem.—Prickles strongly hooked. Le. irregularly and sharply serrate, fringed with hairs, smooth above, *hairy on the veins beneath*. Petioles hairy. Stipules slightly hairy on the back, with a few glands on the edge. Ped. and cal. tube naked. Sep. hairy. Fr. ovoid or globose.

Very common. Paisley Canal bank; Cambuslang, &c.

Var. *dumetorum*, Woods.—Shrub dull gray green; prickles large, strongly hooked. Le. broadly ovate or elliptical, *coarsely serrate*, downy on both sides, soft in texture. Petioles densely pubescent. Stipules downy upon the back. Ped. and cal. tube naked. Sep. leaf-pointed, pinnatifid, very downy on the edge. Fl. large, rose-coloured. Fr. ovoid or urceolate.

Frequent. Banks of the Forth and Clyde Canal; Milngavie; Cambuslang; Paisley Canal bank, &c.

Var. *arvatica*, Puget.—Prickles strongly hooked. Le. elliptical, smooth above, *hairy on the veins and glandular beneath*, doubly serrate, serratures tipped with glands. Petioles downy and glandular. Stipules fringed with hairs and glands. Ped. naked. Sep. with long narrow leafy points, pinnatifid, downy, and glandular. Fruit subglobose.

Thickets, Cambuslang glen; banks of the Canal near Maryhill; Milngavie, &c.

C. *Peduncles more or less bristly and glandular.*

Var. *cæ'sia*, Sm.—Prickles hooked. Le. ovate or elliptical, sharply and irregularly serrate, thinly hairy above, downy below, principally on the veins. Petioles villose, slightly setose. Stipules hairy and gland ciliated. Ped. setose. Cal. tube naked. Sep. sparingly pinnatifid, glandular on the back, downy on the edge. Fruit urceolate.

Thickets. On Paisley Canal bank; roadside beyond Giffnock quarries; Milngavie, &c.

D. *Leaves without glands beneath. Sepals erect after the petals fall, not deciduous till after the fruit changes colour.*

Var. *Reüteri*, Godet.—Branches and stipules turning red. Prickles slender. Le. glaucous green, especially beneath, serratures large, simple; terminal leaflet narrowing to the base; petioles scarcely setose. Ped. short. Sep. leaf-pointed, pinnate, naked on the back.

Near Lamlash. J. G. Baker.

Var. *subcristata*, Baker.—Prickles curved. Le. ovate or elliptical, doubly serrate, mostly tipped with glands, smooth on both sides, glaucous. Petiole prickly, scarcely hairy, with numerous *gland-tipped aciculi and setæ*, a few on the midrib. Stipules smooth, closely fringed with glands. Ped. and cal. tube naked.

Sep. leaf-pointed, pinnatifid, thinly fringed with glands, patent or erect on the urceolate fruit.

Thicket near Eastwood Mains Toll; Busby; Paisley Canal bank; near Cambuslang.

Var. *Watsóni*, Baker.—Le. smooth on the upper surface, slightly hairy beneath, terminal leaflet ovate, doubly serrate, secondary serrations gland-tipped; petioles glandular and slightly pubescent. Bracts and stipules gland-ciliated. Sep. leaf-pointed and glandular on the back.

Near Brodick. J. G. Baker.

7. **R. SY'STYLA**, Woods.—*Close-styled Dog-Rose*. A large shrub, with arching shoots. Prickles, scattered, large, curved, uniform. Leaflets elliptical, acuminate, sharply and unequally serrate, without glands, slightly pubescent on the veins beneath. Sep. deciduous, sparingly pinnate. Flowers white or rose colour. Styles united in a column. Fruit ovoid.

Very rare. "Hills to the north of Milngavie," Hopk. (E) Sh. 6—7.

8. **R. ARVÉNSIS**, Huds.—*Trailing Dog-Rose*. Stem with long trailing shoots. Prickles small, uniform, hooked. Leaflets oval, simply serrate, dull green above, glaucous beneath, without glands. Sep. deciduous, short, slightly pinnate. Styles united in a column. Fruit subglobose, scarlet. Flowers white.

Very rare. In hedges near gardens. (E) Sh. 6—7. "About Bogle's hole," Hopk. In a hedge on the Kilbride road; near Gourrock, &c.

11. **CRATÆGUS**. *Hawthorn, White-Thorn, or May*.

C. OXYACÁNTHA, L.—*A well-known bush or small tree*. Branches with spines. Le. smooth, deeply cut in 3—5 lobes, which are irregularly toothed, wedge-shaped at the base, acute at the apex. Fl. in compact corymbs, white, sometimes rose colour or pink; delightfully fragrant.

Very common. In hedges, &c. (B) Sh. or T. 5—6.

This is divided by some botanists into two varieties, or even species. When the leaves are cut and serrated, with large fl., styles 2—3, and fruit with 2—3 stones, it is called *C. oxycanthoides*, Thuill., and is rare; our common form is *C. monogyna*, Jacq.

12. **PÝRUS**. *Pear, Apple*.

1. **P. MÁLUS**, L.—*Crab-Apple*. When grown out of hedges becomes a small tree, with spreading branches. Le. ovate, acute, serrate, generally downy beneath. Fl. in simple umbels, large, white, tinged with pink on the outside. Styles shortly united at the base. Fruit nearly globular, very sour; the origin of our Apple.

Not common. Woods and hedges. (E) T. 5. Near Crossbasket; Cadzow forest; Calderwood glen, &c.

* 2. *P. COMMÚNIS*, L.—*Wild Pear-Tree*. A larger tree than the last, with dense foliage. Le. on rather long petioles, ovate, serrate. Fl. corymbose, large, pure white. Styles long, distinct. Fruit turbinate.

Has no claim to rank as belonging to this country. "On the banks of the Avon below Chatelherault." *Patr.* (E) T. 4—5. Origin of the Pear.

3. *P. AUCUPÁRIA*, Gærtn.—*Mountain-Ash, Rowan-Tree, Roan-Tree*. An elegant tree of moderate size, with erect branches. Le. pinnate, leaflets oblong, serrate, smooth when old. Fl. corymbose, white, very numerous. Fruit small, globose, scarlet, generally 3-celled.

Common. In mountain woods. (B) T. 5—5. Cambuslang glen; Calderwood glen; Gourock; Kilmun; Bute; Cumbræ and Arran.

4. *P. A'RIA*, Sm.—Var. *pinnatifida*, *P. fennica*, Bab.—*Bastard Mountain-Ash*. A small tree; the young shoots, under side of the le. and inflorescence, covered with a white down. Le. oblong, pinnatifid below, finely serrate, doubly serrate at the apex, under side white and downy. Fl. white, corymbose. Fr. globose, scarlet.

Very rare. "Island of Arran, near Loch Ranza," *Mr. J. T. Mackay*. (E) T. 5—6. *Mr. J. F. Duthie* finds in Arran another variety, with some of the basal segments pinnate.

25.—ONAGRACEÆ.

1. EPILÓBIUM.

Willow-herb.

A. Flowers irregular in a long raceme.

* 1. *E. ANGUSTIFÓLIUM*, L.—*Rose-Bay Willow-herb, French-Willow*. Stem erect, round, branched, or simple, 3—6 ft. high. Le. crowded, lanceolate, or linear-lanceolate, entire, or with very small teeth, attenuated at each end. St. and styles declining. Fl. large purplish red. Stigma deeply 4-lobed. Cap. 1—1½ in. A common plant in gardens.

Not common, but where found, an escape from cultivation. P. 7. "Banks of the Avon, opposite Barncluith; by the fall at Corhouse," *Patr.* Stonelaw wood.

Var. *macrocarpum*.—Flowers about 1 inch in diameter. Cap. 2—3 in. long, erect.

Rev. D. Landsborough sent a scrap scarce fit for determination, gathered "near the top of the ridge above Glen-Cloy," Arran.

B. Flowers regular. Stigma deeply 4-lobed.

2. *E. HIRSÚTUM*, L.—*Great Hairy-Willow-herb, Codlins-and-Cream*. Stem erect, round, branched, 3—5 ft. high. Le. lanceolate, sessile, semi-amplexicaul, very shortly decurrent, serrate. Fl. large, deep purplish-red. Pods very long, quadrangular. Whole plant covered with soft hairs.

Frequent. Sides of lakes, ditches, and rivers. (E) P. 7—8. Banks of the Forth and Clyde Canal beyond Lambhill bridge; banks of Cart and Clyde.

3. **E. PARVIFLÓRUM**, Schreb.—*Small-flowered, Hairy-Willow-herb*. Stem erect, simple or branched, round with no raised lines, downy. Leaves at the base of the stem shortly stalked, upper ones sessile, oblong-lanceolate, rounded at the base, denticulate. Fl. numerous, small, pale purplish-rose, similar to the last, with much smaller flowers, $\frac{3}{8}$ of an inch in diameter.

Frequent. Sides of ditches, streams, and ponds. (B) P. 7—8. Banks of Clyde; Calderwood glen; banks of Cart, &c.

4. **E. MONTÁNUM**, L.—*Broad-leaved Willow-herb*. Stem erect, simple or slightly branched, 12—18 in. high, round with slightly raised lines. Le. shortly stalked, ovate-oblong or broadly lanceolate, toothed, glabrous. Fl. nodding in bud. Pet. pale lilac, deeply notched. Pod 2—3 inches long.

Common. Dry banks, walls, and house-tops. (B) P. 6—7. Possil road; Partick; Carmyle, &c.

C. Stigma entire.

5. **E. TETRAGÓNUM**, L.—*Square-stalked Willow-herb*. Stem branched with raised lines; 12—18 in. high. Le. sessile, lower ones opposite, lanceolate, denticulate, shining above. Fl. erect before expansion, numerous, small, pale lilac. Pods 2—4 in. slightly incurved. Plant glabrous.

Frequent. Damp ditches and watery places. (B) P. 7—8. Banks of the Kelvin; Cambuslang; banks of the Cart; Gourrock, &c.

Var. *obscurum*, Sch.—Le. ovato-lanceolate, rounded at the base, remotely denticulate, not shining above, basal shoots, with remote le. Pods 1—2 in. long.

Common "in the island of Arran," J. G. Baker; Bute, &c.

6. **E. PALÚSTRE**, L.—*Narrow-leaved Marsh Willow-herb*. Stem erect, round, 1—2 feet high. Le. mostly opposite, sessile, wedge-shaped at the base, narrow lanceolate, entire or denticulate, subglabrous. Buds drooping, obtuse. Fl. pale purple. Seeds longer and narrower than in any of the preceding.

Common. In bogs and wet places. (B) P. 7—8. Possil marsh; Forth and Clyde Canal; St. Germans Loch; Paisley Canal bank; Gourrock; Cumbræ, &c.

2. CIRCÆ'IA. *Enchanter's-Nightshade*.

1. **C. LUTETIÁNA**, L.—Stem erect or decumbent at the base, nodes swollen, pubescent, 1—2 ft. high. Le. opposite, petiolate, ovate, rounded or subcordate at the base, acuminate, repand-denticulate. Raceme mostly without bracts at the base of the pedicels. Fl. white, or tinged with pink. Ovary with bristly hooked hairs, 2-celled.

Frequent. (B) P. 6—8. Kelvin woods; Langside wood; Carmyle; Cambuslang glen; Gourrock, &c.

2. *C. ALPÍNA*, L.—*Alpine Enchanter's Nightshade*. Stem ascending, generally smooth, 6—10 in. high. Le. opposite, ovate, cordate at the base, petiolate, distantly denticulate, shining. Raceme generally with minute bracts at the base of the pedicels. Fl. smaller than in the former. *Ovary with nearly straight hairs*. 1-celled, 1-seeded.

Rare around Glasgow. Woods and stony places. (S) P. 7—8. "On the great burn, Hamilton wood, and at Mauchlan-hole, Kilbride," *Patr.* Banks of Loch Lomond and Arran.

26.—HALORAGACEÆ.

1. HIPPIURIS. *Mare's-Tail*.

H. VULGARIS, L.—An aquatic plant, with simple erect stems. Le. 8—12 in a whorl, linear, with a hardened point. Fl. very small, in the axils of the upper le. Anthers dark red, sometimes absent.

Not common. (B) P. 6—7. Possil marsh; Forth and Clyde Canal; Frankfield Loch; hills beyond Gourrock, &c.

2. MYRIOPHYLLUM. *Water-Milfoil*.

1. *M. SPICÁTUM*, L.—*Spiked-Water-Milfoil*. An aquatic plant, with submerged le. Stems slender, branched. Le. verticillate, pectinate, usually 4 in a whorl. Fl. verticillate, from the axils of bracts. *Spike erect*, rising above the surface of the water when in flower.

Common. In ponds and running streams. (B) P. 6—7. Clyde; Cart; Kelvin, Hogganfield Loch, &c.

2. *M. ALTERNIFLÓRUM*, DC.—*Alternate-flowered Water-Milfoil*. Stems slender, slightly branched, bare of le. at the base. Le. verticillate, 4, seldom 3 in a whorl, pectinate, very slender, not exceeding the internodes. Fl. with the lower bracts similar to the le., 3 in a whorl; upper fertile and sterile fl. alternate, the latter *hooked in the bud*. Anth. linear-oblong; more slender and delicate than in the preceding plant.

Rare? In ponds and ditches. (B) P. 5—8. Islands of Cumbræ and Bute.

27.—LYTHRACEÆ.

1. LÝTHRUM. *Purple-Loosestrife*.

L. SALICÁRIA, L.—Stem erect, herbaceous, 2—3 ft. high. Le. opposite or in threes, lanceolate, cordate at the base. Fl. in reddish purple or crimson spikes, very beautiful. Cal. striate. Petals oblong, undulated.

Frequent. Wet ditches and banks of rivers. (E) P. 7—9. Banks of Clyde, common from Renfrew to Dumbarton; banks of Cart; Gourrock, &c.

2. PÉPLIS. *Water-Purslane.*

P. PÓRTULA, L.—Stem creeping and rooting, on the surface of wet ditches, 2—4 in. long. Le. opposite, obovate. Fl. axillary, solitary. Cap. enclosed by the cal.

Not common. Marshy places. (B) A. 7—8. "Banks of Hogganfield and Frankfield lochs," *Hopk.* "Banks of the Brother Loch, Mearns," *Dr. Ross.* Cumbræ and Arran.

28.—PORTULACACEÆ.

1. MÓNTIA. *Water-Blinks.*

M. FONTÁNA, L.—Plant with a succulent, branching stem, forming dense tufts, 1—2 in. high. Le. opposite, spatulate. Fl. very small, white, axillary and terminal, drooping in the bud. Seeds with pointed dots; this is the *minor* variety. Marshy or damp places.

Var. *rivularis*. Stems 3—5 in. Ped. axillary. Seeds with flattened dots. Watery places.

Frequent. In watery places, and by cold springs. (B) A. 5—8. Possil marsh; banks of the Paisley Canal; Cathkin hills; Gourock; Cumbræ and Arran.

(*Claytonia perfoliata*, Don.—This plant occurred as a weed in the Old Botanic Garden, Glasgow, in 1837; since that time it has spread considerably, and is often found as a weed in several nurseries. *C. alsinoides*, Ph., is becoming naturalized in several places, as at Gourock, Rothesay, Helensburgh, and Lanark.)

29.—PARONYCHIACEÆ.

1. SPERGULÁRIA. *Sandwort-Spurrey.*

1. **S. RÚBRA**, A. St. Hill.—*Field-Sandwort-Spurrey.* Plant with numerous prostrate branching stems, slightly hairy, compressed upwards. Le. flattish, with a short bristle point. Stipules membranous, ovate, cloven. Sep. with a scariose margin, viscid. Fl. pink, axillary. Cap. about equalling the cal. Seeds compressed, not winged, roughish.

Frequent. Sandy and gravelly places. (B) A. 6—9. Sand hills, Tollcross; near Govan; Hamilton; below Greenock; Cumbræ, &c.

2. **S. MARÍNA**, Camb.—*neglecta*, Syme.—*Seaside-Sandwort-Spurrey.* Rhizomes thick, almost woody, Le. fleshy, nearly cylindrical, sometimes with a short point. Pet. pink or purple, with a white base. Cap. longer than the cal. Seeds compressed, papillose, very few having a wing.

Frequent. (B) B. or P. 6—8. Bowling; Dumbarton; Gourock, &c.

Var. *marginata* is not so frequent on the shores of the Clyde. Known by the very large cap., and the seeds having a conspicuous, broad, membranous wing.

2. SPÉRGULA. *Corn-Spurrey.*

S. ARVÉNSIS, L.—A slender, much branched annual, with ascending stems, 6—12 in. high. Le. linear, 1—2 in. long, furrowed beneath, appearing as if whorled, but in 2 bundles of 6—8 le. Pet. white, about the same length as the cal. Ped. reflexed after flowering.

Very abundant. In corn fields on light soil. (B) A. 6—8.

30.—CRASSULACEÆ.

1. COTYLÉDON.

C. UMBILÍCUS, Hud.—*Wall Pennywort, Navelwort.* Le. mostly radical, orbicular, peltate, concave, crenate. Fl. stem 6—12 in. high, bearing a raceme of pendulous, yellowish green fl., with a bract at the base of each. Cal. small. Cor. long, tubular. Plant succulent.

Common. On the islands at the mouth of the Firth, on rocks and walls. (A) P. 6—8.

2. SEMPERVÍVUM.

* 1. **S. TECTÓRUM**, L.—*Common House-leek.* Leaves forming globular tufts like large rosettes, fleshy, glabrous, ciliate. Flowering stems thick, 1 ft. high. Fl. pink, sessile. Pet. 12 or more, hairy on the margin.

Walls and roofs of houses in several of the villages around Glasgow. P. 7.

3. SÉDUM. *Stonecrop.*

A. Leaves broad, flat.

1. **S. RHODÍOLA**, DC.—*Rose-root.* Rhizome thick, fleshy, erect, 4—12 in. high, smell when drying is said to resemble roses. Le. alternate, oblong or obovate, toothed towards the apex, smooth, fleshy. Fl. dicecious, in dense corymbose cymes, yellow, sometimes tinged with red. St. 8. Carp. 4.

Wet Alpine rocks and cliffs by the sea. (H) P. 6—7. Hills above Loch Eck; Glen Sannox, Arran, &c.

2. **S. TELÉPHIUM**, L.—*Orpine, Livelong.* Stems hard at the base, erect, 12—18 in. high, spotted. Lower le. obovate or oblong, tapering to the base; uppermost le. sessile, rounded at the base, coarsely dentate, fleshy. Fl. purple, in dense, leafy, corymbose cymes. St. 10, shorter than the pet.

Frequent. Hedge banks and waste places. (E) P. 7—8. Cathcart; Partick; Dumbarton Castle; Cumbrae, &c.

B. Leaves nearly as thick as broad (subterete).

1. Flower white or reddish.

3. **S. A'NGLICUM**, Huds.—*English-Stonecrop.* Stems decumbent, much branched at the base. Le. ovate, fleshy, gibbous at

the base, with a small spur, crowded on the barren branches, scattered on the flowering ones. Cymes smooth, bifid. Fl. white, with red spots. Anthers red or purple.

Frequent on rocks. (A) A. 6—8. Very plentiful on most parts of the coast from Bowling and Dumbarton to Arran.

4. *S. VILLÓSUM*, L.—*Hairy-Stonecrop*. Stems erect, simple, 3—4 in. high. Le. scattered, linear, flat above, blunt, *not produced at the base*. Fl. pale rose, with a purplish tint, loosely cymose. Upper portion of the plant viscid, with glandular pubescence.

Frequent. In wet bare places, or amongst stones on mountains. (H) A. 6—7. Cathkin and Campsie hills; above Helensburgh; Gourrock; Cumbrae and Arran.

2. Flowers yellow.

5. *S. ÁCRE*, L.—*Wall-pepper*, *Biting-Stonecrop*. Stem decumbent, shoots erect, 2—4 in. high. Le. imbricated, ovate, or nearly globular, fleshy, produced at the base into a kind of spur. Sep. very short, *gibbous at the base*. Pet. acute. Cyme trifid. Plant glabrous, hot and biting when chewed.

Frequent. On rocks and the gravelly sea coast, from Bowling to Arran (B) P. 6—7.

* 6. *S. REFLÉXUM*, L.—*Crooked Yellow-Stonecrop*. Stems 6—8 in. high, decumbent, with erect branches. Le. round, subulate, spurred at the base, lower ones recurved. Sep. acute, *not gibbous*. Fl. numerous.

"On the top of a wall, Craignethan Castle," *Hopk.* (E) P. 7—8.

31.—GROSSULARIACEÆ.

1. RÍBES. *Currant*, *Gooseberry*.

A. Spines none.

1. *R. RÚBRUM*, L.—*Red-Currant*. A well-known cultivated shrub, found in woods and hedges. Le. bluntly 5-lobed. Fl. in pendulous racemes. Berries red or white.

"Avon banks, opposite Barncluith, perfectly wild?" *Patr.* Sides of streams and woods, Cambuslang. (I) Sh. 4—5.

It is doubtful if any of this genus are native, although frequently found in the district. Having been in cultivation for a long period, it is now difficult to determine the facts.

2. *R. NÍGRUM*, L.—*Black-Currant*. Readily known from the former by emitting a peculiar odour when the leaves are rubbed, arising from glandular dots on the under side of the leaf. Racemes pendulous, lax, few-flowered. Cal. downy, slightly glandular. Berries purplish black. The wild state is found in several places around, with more acute segments to the le. than in the cultivated one, such as at Kittochside.

In woods and hedges near villages. (I) Sh. 4—5.

3. *R. ALPÍNUM*, L.—*Tasteless Mountain-Currant*. Same habit as the two former. Le. cleft into 3—5 acute segments, incisoserrate, smooth and shining beneath when mature. Racemes erect, glandular. Fl. dioecious. Berries red, insipid. Plant when mature glabrous, except a few scattered hairs on the upper surface of the le.

Not common. (I) Sh. 4—5. Blantyre Priory, "Cadzow Castle," *Patr.* Calderwood glen; Stonelaw woods.

B. Shrub spinous.

4. *R. GROSSULÁRIA*, L.—*Gooseberry, Grosset*. Young branches with 1—3 spines at the base. Le. roundish, 3—5 lobed, segments rounded. Peduncles 1—3 fl. arising from the fascicle of young leaves. Cal. segments reflexed. Pet. small, erect.

Frequent. Woods and hedges, often by the sides of streams. (I) Sh. 4—5. Stonelaw woods; in a small wood on the banks of St. Germans Loch; Gourock, &c.

32.—SAXIFRAGACEÆ.

1. SAXÍFRAGA. *Saxifrage*.

A. Leaves not lobed.

* 1. *S. UMBRÓSA*, L.—*London Pride, St. Patrick's-Cabbage, None-so-pretty*. Le. all radical, roundish, tapering gradually into flat footstalks, with a cartilaginous, coarsely-toothed, or crenate border. Scape 6—12 in. high. Fl. small pink or white, with darker dots, panicked. Cal. reflexed. Cap. superior.

Certainly not native. "Bothwell wood, and by a rill above Dalziel Camp," *Patr.* Still existing in the latter locality. "Banks of the Cart at Cartside, introduced," *Hopk.* P. 6.

S. Geum, L.—In a wood below Partick, evidently introduced.

2. *S. STELLÁRIS*, L.—*Starry-Saxifrage*. Leaves tufted, spreading, oblong, tapering to the base, coarsely toothed. Flowering stems 3—6 in. high, with few white flowers, loosely panicked. Pet. ovate, clawed. Filaments subulate. Cap. superior.

Frequent. On damp rocks in mountainous districts. (H) P. 7—8. "On Campsie hills; on Dumbarton moors," *Hopk.* "Goatfell, Arran," *Mr. Murray*. Hills above Loch Eck.

3. *S. OPPOSITIFÓLIA*, L.—*Purple Mountain-Saxifrage*. Stems creeping, much branched, leafy, in straggling tufts, 3—6 in. long. Le. crowded, small, opposite, ovate, blunt, with a *small pore at the apex*, ciliate on the margin. Fl. large, elegant, *purple*, terminal, solitary. Cap. $\frac{1}{2}$ -inferior.

On moist Alpine rocks. (H) P. 4—5. Cora Linn, Falls of Clyde; Ben Lomond, hills above Lochgoilhead, and in Arran.

4. *S. AIZÓIDES*, L.—*Yellow Mountain-Saxifrage*. Stems decumbent below, branched, flowering stems ascending. Le. alternate, linear-lanceolate, ciliate, mucronate, fleshy. Fl. loosely

panicled, with downy glutinous stalks. Pet. *bright yellow*, with orange dots. Cap. $\frac{1}{2}$ -superior.

Wet places on mountains. (H) P. 6—9. Hills above Loch Eck; Gourock; Fairlie and Arran.

B. Leaves lobed.

5. **S. GRANULÁTA**, L.—*White Meadow-Saxifrage*. Rhizome bearing many small round tubers. Stems erect, 8—12 in. high. Radical le. *reniform, obtusely lobed*, or crenate. Stem le. nearly sessile, acutely lobed. Fl. white, in a close terminal cyme, footstalks with glandular pubescence. Cap. $\frac{1}{2}$ -superior.

Hedge banks and pastures, frequent. (B) P. 5—6. "On the banks of the Clyde about Bogle's hole, Carmyle, and Bothwell," *Hopk.* Cambuslang; Calderwood, Busby," *Dr. Ross.*

6. **S. HYPNOÍDES**, L.—*Mossy Saxifrage, Lady's Cushion*. Stems short, with numerous barren shoots. Le. 3-cleft or entire, those of the flowering stem 3—5-cleft, bristle-pointed, mostly fringed. Flowering stems 4—8 in high, with several rather large white fl. Cap. $\frac{1}{2}$ -superior.

Frequent. In moist rocky mountainous places. (S) P. 5—7. Campsie; Dumbarton rock; Gourock; Largs and Arran.

2. CHRYSOSPLÉNÍUM. *Golden-Saxifrage.*

1. **C. OPPOSITIFÓLIUM**, L.—*Common Golden-Saxifrage*. Stems much branched, spreading in leafy masses of considerable extent, 4—5 in. high. Le. *all opposite*, roundish-cordate, with a few hairs on the upper surface. Fl. in small compact cymes, surrounded by golden-coloured leaves.

Frequent. Damp shady places; in rills on the mountains. (B) P. 4—7. Woods on the banks of the Kelvin; Carmyle and Kenmuir banks; Cambuslang glen; Cathkin hills; Gourock, &c.

2. **C. ALTERNIFÓLIUM**, L.—*Alternate-leaved Golden-Saxifrage*. Of the same habit as the former. Le. *alternate*, lower ones on long stalks, sub-reniform, hairy, crenate. Fl. nearly sessile, deep yellow.

Not common. In boggy places among rocks, near springs and in woods. (B) P. 4—5. Kenmuir bank; Cambuslang glen; Calderwood; Cathkin hills, &c.

3. PARNÁSSIA. *Grass of Parnassus.*

3. **P. PALÚSTRIS**, L.—Stem angular, 6—10 in. high, with one amplexicaul leaf. Radical le. cordate, on long footstalks. Fl. solitary, white. Pet. broadly obovate, hairs of the nectary white, glands yellow.

Frequent. Wet pastures and bogs. (S) P. 8—10. Beyond Pollokshaws; Cathkin hills; Possil marsh; near Milngavie; Craigmaddie moor; common in all boggy places on the shores of the Firth from Gourock to Arran.

33.—UMBELLIFERÆ.

1. HYDROCÓTYLE.

White-rot.

H. VULGARIS, L.—*Marsh-Pennywort*. Stems creeping, slender. Le. upon long footstalks, orbicular, peltate, somewhat doubly crenate. Fl. springing from the joints along with the le. Ped. shorter than the footstalks. Umbel very small, of 5 nearly sessile fl.

Common. In bogs and marshes. Possil marsh (B) P. 5—8. Dr. Seeman considers this as belonging to *Araliaceæ*. See Journ. of Botany.

2. SANÍCULA.

Wood-Sanicle.

S. EUROPÆA, L.—Stem ascending 1—1½ ft. high, leafless or with a small trifid bract. Radical le. on long stalks palmate, deeply divided into 5 segments, lobes inciso-serrate, often ciliate. Umbels small, numerous, in little heads. Fl. white, fertile ones sessile.

Frequent. In woods and thickets. (B) P. 6—7. Kenmuir bank; Cambuslang Glen; Cathcart; Langside woods, &c.

3. ERÝNGIUM.

Eryngo.

E. MARÍTIMUM, L.—*Sea-Holly, Sea-Eryngo*. Stems branched, 10—12 in. high. Radical le. stalked, roundish, divided into wavy spinous lobes. Stem le. sessile, amplexicaul, palmate-lobed, wavy, and bordered with spinous teeth, elegantly veined. Involucral le. large, divided and spinous. Fl. in dense heads of a pale blue tint. Plant rigid and glaucous.

Not common. Sandy sea shores. (B) P. 7—8. Fintry bay, Cumbræ; Kilchattan bay, Bute, and Arran.

4. CÍCÚTA.

Water-Hemlock, Cowbane.

C. VIRÓSA, L.—Stems erect, 3—4 ft. high, hollow, arising from an erect chambered rhizome. Le. 2—3 times pinnate or ternate, segments narrow, acute, serrate or toothed. Umbels terminal and lateral, of many rays, accompanied by 1 or 2 ternate le.; deadly poisonous.

Not common. Frankfield and Hogganfield lochs; Bardowie and St. Germans lochs. (E) P. 6—8.

5. PETROSELÍNUM.

Common Parsley.

* **P. SATÍVUM**, Hoffm.—Stems erect, 1—2 ft. high. Le. tripinnate, leaflets stalked, ovato-cuneate, trifid, and toothed; upper ones ternate, narrow, entire. Umbel of 15—20 rays, stalked. Involucre of filiform segments. Fl. greenish yellow. Plant smooth and shining.

An escape from cultivation, not considered native. "Old walls, and rock at Bothwell Castle," *Patr.* (B) 6—8.

6. HELOSCIÁDIUM. *Marsh-wort.*

1. *H. NODIFLÓRUM*, Koch.—*Procumbent Marsh-wort.* Stem procumbent and rooting at the base, flowering branches becoming erect, 6 in.—2 ft. high. Le. *pinnate*, leaflets ovate or ovato-lanceolate, unequally toothed. Umbels on short peduncles, opposite to the leaves. General involucre usually absent; partial of several small lanceolate le.

Frequent. Ditches and sides of lakes. (E) P. 7—8. Bowling; Gourock; Kilmun; Cumbræ and Arran.

2. *H. INUNDÁTUM*, Koch.—*Least Marsh-wort.* Stems creeping and rooting. Le. divided into capillary segments; upper ones pin-natifid, leaflets wedge-shaped, trifid. Umbels on short peduncles, opposite to the leaves, 2-rayed, minute. General involucre none, partial of 2—3 small leaflets. Plant mostly submerged.

Frequent. Banks of lakes and ditches filled with water. (B) P. 6—7. Hoggan-field, Frankfield, Bardowie, and St. Germans lochs.

7. ÆGOPÓDIUM. *Gout-Weed, Bishop-Weed.*

Æ. PODAGRÁRIA, L.—*Herb-Gerarde, Ash-Weed.*—Stem erect, 12—18 in. high. Le. on long stalks, twice ternate, leaflets ovate, acuminate, unequal at the base, sharply toothed; upper ones ternate. Umbels large, 12—20-rayed, with numerous white flowers.

Very common. Garden hedge banks, and waste places. (B) P. 6—8.

8. CÁRUM. *Caraway, Carvi-Seed.*

* 1. *C. CÁRUI*, L.—Stems much branched, 1—2 ft. high. Le. bipinnate, leaflets long, narrow, crossing one another. Umbels dense, of 8—10 rays. General involucre sometimes of 1 le., partial none. Fruit highly aromatic.

Not native; got occasionally on rubbish heaps. "In the haugh, Dalbeth," *Hopk.* B. 6.

2. *C. VERTICILLÁTUM*, Koch.—*Whorled-Caraway.* Stem erect, slender, 1—18 in. high. Le. mostly radical, pinnate, with numerous capillary segments cut in such a manner as to appear whorled. Umbel terminal of 8—10 rays. General and partial involucre of several small linear leaflets.

Very abundant in low pastures, all round the shores of the Firth, Loch Lomond, Glen Messen, &c. (A) P. 7—8.

9. BÚNIUM. *Earth-nut. Pig-nut, Arnut.*

B. FLEXUÓSUM, With.—Rhizome, a single tuber. Stem erect, 1—2 ft. high, slender, smooth, with a few forked branches. Radical le. on long footstalks, triternate. Stem le. few, nearly sessile, with linear divisions. Umbels terminal, or one opposite,

the last leaf, 8—10-rayed; when young, drooping. General involucre of 1—3 le. Ribs of the fruit scarcely visible.

Common. In woods and pastures. (B) P. 5—6. Kelvin woods; Carmyle and Kenmuir banks.

10. PIMPINÉLLA. *Burnet-Saxifrage.*

P. SAXÍFRAGA, L.—Stem erect, 1—2 ft. high, with few le. Radical le. on long stalks, pinnate, lower leaflets on the common petiole sometimes bipinnatifid, upper ones pinnatifid, segments toothed or deeply serrate. Stem le. pinnate or bipinnate, with linear segments. Umbels terminal, of 10—15 slender rays. Fl. white.

Frequent. Mountain pastures. (B) P. 7—9. Cathkin hills; Kittoch glen; Gourrock; Inverkip; Cumbræ and Arran.

11. CENÁNTHE. *Water-Dropwort.*

1. CÆ. FISTULÓSA, L.—*Common Water-Dropwort.* Rhizome sending out creeping runners, roots of clustered fibres or thickened into oblong tubers. Stem fistulose, 2—3 ft. high. Radical le. bipinnate, segments wedge-shaped, 3-cleft. Stem le. pinnate, only divided at the apex into a few linear segments. Umbels lax, secondary ones globular. General involucre wanting; partial of few narrow leaflets. Fruit sessile, crowned by the narrow teeth of the cal.

Rare. "Bank of the Clyde at Bowling bay," *Hopk.* "Below Greenock," *S. Murray.* (E) P. 7—9.

2. CÆ. LACHENÁLII, Gmel.—*Parsley Water-Dropwort.* Root consisting of long subclavate knobs, or long swollen fleshy fibres. Stem erect, 1—2 ft. high. Lower le. bi-tripinnate, leaflets linear, obovate, wedge-shaped, bluntly 2—3-lobed, upper ones pinnate, acute. Umbels terminal and lateral, of 8—12 rays; partial umbels distinct, globular. General involucre of many le. sometimes wanting. Fruit crowned by the narrow inflexed teeth of the calyx.

Frequent. In marshy pastures, from Bowling and Dumbarton all round the shores of the Firth. (E) P. 7—9.

3. CÆ. CROCÁTA, L.—*Hemlock Water-Dropwort.* Root forming elongated, sessile, fleshy knobs. Stem erect, furrowed, branched, very stout, 2—5 ft. high. Radical le. twice, thrice, or even four times pinnate, leaflets large, ovate, wedge-shaped, deeply cut into rounded segments, toothed; stem le. narrower. Umbels large, dense, on long peduncles. Involucral leaves small, linear. Fruit longer than its pedicel.

Frequent. Marshy places by the sides of rivers. (B) P. 7. The Rouken glen beyond Thornliebank; banks of the Clyde from Cart all round the shores of the Firth to Arran. Considered a virulent poison in most localities, although not so dangerous, according to recent investigation in Scotland; better, however, to look upon it as poisonous.

12. *ÆTHÚSA.* *Fool's-Parsley.*

Æ. CYNÁPIUM, L.—Stem erect, branched, 1—2 ft. high, striate, very leafy. Le. bi-tripinnate, leaflets ovato-lanceolate, cut into bluntish-lobed segments, wedge-shaped and decurrent; upper le. with linear segments, deeply cut. Umbels on long peduncles, many-rayed. General involucre none, *partial* one of 3 *very long unilateral le. hanging down on one side.* Plant bright green, smooth; smelling nauseously, and highly poisonous.

Frequent. Borders of fields and gardens. (B) A. 7—8. Rutherglen; Cathcart; Cambuslang; Gourrock; Cumbræ, &c.

13. *LIGÚSTICUM.* *Lovage.*

L. SCÓTICUM, L.—*Scottish-Lovage.* Root descending deep into the soil, fusiform. Stem erect, 1—2 ft. high, with very few le., thick and slightly branched. Radical le. *bitermate*, leaflets large, ovate or subrhomboidal, dentato-serrate, slightly fleshy. General involucre of 2—3 linear leaves; partial ones of 5—7 a little longer than the rays.

Frequent. On the rocky sea coast. (S) P. 7. Bute, Cumbræ, and Arran.

14. *MÉUM.* *Spignel.*

M. ATHAMÁNTICUM, Jacq.—*Meu, Bald-money.* Root, fusiform, crowned with coarse fibres. Stem erect with very few le. striate, 1—2 ft. high. Radical le. multipartite, segments very fine, appearing as if whorled, or *in whorl-like clusters*, dark green. Partial involucre of several small le. Fl. numerous, whitish yellow. Highly aromatic.

Not common. Dry mountain pastures. (S) P. 6—7. “Cathkin hills,” *Hopk.* Banks of the Kittoch burn; hills beyond Greenock above the road to Inverkip; hills above the Cloch Lighthouse.

15. *ANGÉLICA.* *Angelica.*

A. SYLVÉSTRIS, L.—*Wild Angelica.* Stem very stout, branched, purplish, downy above, 2—4 ft. high. Lower le. large, bipinnate, leaflets ovate, sharply serrate, sometimes 3-lobed, lateral ones unequal at the base. Umbels very large, terminal, with 20—30 rays. General involucre of 2—3 linear le.; partial of several short ones. Fl. pinkish white.

Common. Moist woods and ditches, by the sides of streams, plentiful. (B) P. 7—8. Banks of Cart, Kelvin, and Clyde; Forth and Clyde Canal bank, &c.

16. *PEUCÉDANUM.* *Hog's-Fennel.*

1. P. PALÚSTRE, Moench.—*Hog's-Fennel, Milk-Parsley.* “Stem furrowed, 4—5 feet high. Le. ternately decompound, leaflets opposite, pinnatifid, segments linear-lanceolate with hard points, rays

of the umbel rough. Involucres of many persistent lanceolate le. Cal. 5-toothed. Fl. white. Fruit with a narrow margin. Abounding in a milky juice, which dries to a brown resin." H. & A.

This I have not seen. "In a ditch in Ardencaple wood," *Hopk.* (G) P. 7—8.

* 2. **P. OSTRÚTHIUM**, Koch.—*Masterwort, Broad-leaved Hog's-Fennel*. Stem erect, 2—3 ft. high. Le. large, biternate, leaflets broadly ovate, lobed, unequal at the base, cut, and sharply serrate, sheaths large. General involucre none; partial of a few slender le. Umbel with 40—50 unequal rays. Fl. white, cal. obsolete.

Rare. "In an old wall at Langland House, and waste ground near Jackton," *Ure*. Wood below Partick; in a plantation at Lambhill bridge; hedge at Cathcart. P. 6.

17. **HERÁCLEUM.** *Cow-Parsnip, Hog-Weed.*

H. SPHONDÝLIUM, L.—A coarse rank plant. Stem erect, 4—5 ft. high, angular, furrowed. Le. pinnate, leaflets cut into large segments, pinnatifid, again cut and sinuate, or coarsely serrate, rough with short stiff hairs. Umbels large. Fl. white or tinged with red, outer pet. much larger than the inner. Fruit *flat and orbicular*.

Common. Hedges, pastures, and thickets. (B) B. 7—8. Banks of the Kelvin, Cart, Clyde, &c.

18. **CONÍUM.** *Hemlock.*

C. MACULÁTUM, L.—Stem erect, much branched, 2—4 ft. high, hollow, striate, with purple spots. Le. tripinnate, leaflets ovato-lanceolate, segments pinnatifid, cut and serrate, acute. Umbel of 12—15 rays. General involucre short, variable; partial of 3 short le. turned to the outside. Plant quite smooth; when bruised giving forth a foetid smell resembling mice. Highly poisonous; yielding a useful and powerful medicine?

Frequent. Waste places about walls near villages. (B) B. 6—7. Cathcart; near Tollcross; Cambuslang; Crossbasket; Gourrock to Arran.

19. **SMÝRNIUM.** *Alexanders.*

S. OLUSÁTRUM, L.—Stem erect, 3—4 ft. high, stout, furrowed. Le. triternate, upper ones biternate, with large sheaths, leaflets broadly ovate, lobed, and bluntly toothed, yellowish green, shining. Umbels dense, terminal, of 8—10 rays, often with the central ones imperfect. Involucres none. Fl. yellowish green. Fr. large and black when ripe.

Rare. Waste places and amongst ruins near the sea; Dumbarton rock; "Arran," *Lands.* (E) B. 4—6.

20. **SCÁNDIX.** *Shepherd's-Needle.*

S. PÉCTEN, L.—*Venus'-Comb*. Stem erect, 6—12 in. high. Le. tripinnate, cut into numerous short linear segments, light-green.

Umbels of 8—10 rays. Fr. *nearly 2 in. long*, ciliated on the edge with bristles pointing upwards; beak flattened.

Rare. Corn fields and amongst flax. "On the farms of Allington and Merryton," *Patr.* Chryston; near Kirkintilloch. (B) A. 6—9.

21. ANTHRÍSCUS. *Beaked-Parsley.*

1. *A. SYLVÉSTRIS*, Koch.—*Wild Beaked-Parsley.* Stems branched, divaricate, 3—4 ft. high, slightly swelling below each joint. Le. tripinnate, leaflets ovato-lanceolate, segments deeply pinnatifid, acute. Umbels drooping at first, of 8—10 rays, General involucre none, partial of several ovato-lanceolate, ciliated le. Fl. white, very showy in spring, although small. Fr. linear-oblong, smooth.

Common everywhere. Borders of fields and hedges. (B) P. 4—6.

*2. *A. CEREFÓLIUM*, Koch.—*Garden Beaked-Parsley, Chervil.* Le. tripinnate, leaflets ovate, pinnatifid. Umbels lateral, sessile. Fruit linear, smooth, beak half as long.

"In hedges and about gardens frequent," *Hopk.* This plant appears to be extinct in the district. A. 5—7.

3. *A. VULGÁRIS*, Pers.—*Common-Beaked-Parsley, Burr-Chervil.* Le. tripinnate, leaflets deeply pinnatifid. Umbels opposite the le. on short stalks. Fr. muricated or with hooked bristles; beak smooth.

Very rare. "About Dalserf," *Patr.* Sometimes found on rubbish around Glasgow; banks of the Clyde below Govan. (B) A. 5—6.

22. CHÆROPHÝLLUM. *Rough-Chervil.*

C. TEMULÉNTUM, L.—Stem erect, branched, 2—3 ft. high, rough, with reflexed hairs, spotted, thickened below each joint. Le. bipinnate, leaflets ovate, pinnatifid and toothed, with a short mucro. Umbels when young, drooping, 8—10-rayed. Partial involucre, 5—6 reflexed. Outer pet. of the umbel larger than the inner.

Very common. Hedges and thickets. (B) B. 6—7.

23. MÝRRHIS. *Sweet-Cicely.*

M. ODORÁTA, Scop.—Stem erect, hairy, 2—3 ft. high. Le. large, tripinnate, leaflets ovato-lanceolate, deeply pinnatifid, segments pinnatifid and toothed, with whitish markings, hairy above, downy beneath. Umbels of 8—10 rays, few seeds ripening. Fl. numerous, white. Fruit large, nearly an inch long. Plant highly aromatic; formerly cultivated.

Frequent. Near villages. (I) P. 5—6. Cathcart; Cambuslang glen; Gourrock; Cumbræ and Arran.

24. DAÚCUS. *Carrot.*

D. CARÓTA, L.—*Wild-Carrot*. Stem erect, hairy, springing from a whitish, fusiform root. Le. tripinnate, leaflets pinnatifid, segments acute. Umbels large, inner branches short, outer ones long and *closing after flowering*, giving the umbel a round appearance, hollow or concave inside. Fruit covered with long bristles.

Frequent. Borders of fields and hedges. (B) P. 6—8. Govan; near Cambuslang; Clyde Iron-works, on the banks of the Clyde; Gourrock; Cumbræ; Bute and Arran.

25. TORÍLIS. *Hedge-Parsley.*

T. ANTHRÍSCUS, Gærtn.—*Upright Hedge-Parsley*. Stem erect, with slender wiry branches, 2—3 ft. high, rough with *appressed hairs*. Le. bipinnate, leaflets lanceolate, pinnatifid, segments toothed. Umbels on long stalks, terminal, 8—10-rayed. Involucres small, subulate. Pet. pink or white. Fr. covered with short incurved bristles; beak short, crowned by the bristly cal.

Very common. Waysides and hedges. (B) A. 7—9.

34.—ARALIACEÆ.

1. ADÓXA. *Moschatell.*

A. MOSCHATÉLLINA, L. — *Tuberous-Moschatell*. Rhizome covered with scales, emitting runners. Stem, solitary, erect, simple 3—5 in. high, bearing about the middle 2 opposite ternate le. Radical le. on long footstalks, triternate, leaflets 3-lobed and cut, segments blunt, with a small apiculus. Flowers arranged in a cube, terminal one with the cor. 4-cleft, lateral ones 5-cleft. St. united in pairs. Fl. smelling of musk.

Frequent. At the roots of hedges, woods and shady places. (B) P. 4—5. Kelvin woods; Carmyle and Kenmuir banks; Cambuslang glen.

2. HÉDERA. *Ivy.*

H. HÉLIX, L.—*Common Ivy*. Stems very long, climbing, forming a trunk of considerable diameter, branches throwing out clasping fibres, by means of which they climb and cling, even to nearly smooth walls. Le. 3—5-lobed, shining, those of the flowering branches entire (not lobed). Fl. umbellate, small, pale green. Cal. teeth minute. Pet. short, bent back, incurved at the apex. Berries black.

Common. Woods, on old trees, buildings, and rocks. May be found in flower at Cathcart Castle; Cambuslang; and on a road from Greenlees Toll, leading west to Carmunnoch. (B) Sh. 11.

Sub-Class 3.—COROLLIFLORÆ.

A. Ovary inferior.

1. Ovary 1-celled and 1-seeded, or if more the cells barren.

Ord. 37. VALERIANACEÆ.—Cal. limb curved inwards, unrolling into a feathery pappus, or toothed. Anthers not united.

Ord. 38. DIPSACACEÆ.—Cal. with an involucre or outer calyx. Anthers not united. Fl. in compact heads.

Ord. 39. COMPOSITÆ.—Cal. with a membranous or pappose limb. Anthers combined in a tube. Fl. in heads, surrounded by an involucre.

2. Ovary 2 or more celled, if 1-celled the fruit a berry.

Ord. 35. CAPRIFOLIACEÆ.—Fl. cymose. Ovary 1—3-celled; fruit a berry. Le. opposite.

Ord. 36. RUBIACEÆ.—Le. verticillate. Stem angular. Ovary 2-lobed.

Ord. 40. CAMPANULACEÆ.—St. equal in number to the lobes of the cal. and cor. Filaments broad at the base. Le. alternate. Fl. withering on the fruit.

Ord. 41. LOBELIACEÆ.—Corolla irregular. Anthers united. Style 1, fringed below the stigma.

Ord. 42. VACCINIACEÆ.—Anthers opening by pores. St. 8—10. Fruit a berry. Le. alternate. *Shrubs.*

B. Ovary superior.

a. Ovary 4-lobed.

Ord. 51. BORAGINACEÆ.—Cor. regular or nearly so. St. 5. Le. alternate.

Ord. 55. LABIATÆ.—Corolla irregular, mostly 2-lipped. Le. opposite. Stem square.

b. Ovaries combined, with 1 or several cells.

§ 1. Flowers irregular.

Ord. 54. SCROPHULARIACEÆ.—Cal. and cor. 4—5-lobed. St. 2—5. Style 1. Capsule 2-celled. Le. alternate.

Ord. 56. LENTIBULARIACEÆ.—Cor. 2-lipped. St. 2. Stigma 2-lipped. Ovary 1-celled.

Ord. 53. OROBANCHACEÆ.—St. 4, didynamous. Style 1. Ovary 1-celled. *Leafless Plants*, with scales; parasitical on the roots of others.

§ 2. Flowers regular, stamens not seated upon the corolla, free.

Ord. 43. ERICACEÆ.—Anthers opening by pores. St. 8—10. Ovary seated on a disk. *Le. mostly evergreen.*

Ord. 44. PYROLACEÆ.—Anthers inverted, opening by pores. St. 10, in pairs, opposite to the petals. Ovary without a disk.

§ 3. *Stamens seated upon the corolla, and alternating with its segments.*

Ord. 45. AQUIFOLIACEÆ.—Cal. imbricated. Stigmas nearly sessile. Ovary several-celled. Ovules solitary. *Le. hard, spiny.*

Ord. 46. OLEACEÆ.—Fl. diandrous. Cal. and cor. sometimes absent. Fruit dry and winged, or fleshy. *Le. opposite. Shrubs or Trees.*

Ord. 47. APOCYNACEÆ.—Cor. twisted. Stigma capitate, contracted in the middle. Follicles 2.

Ord. 49. POLEMONIACEÆ.—Cor. regular. Stigmas 3. Capsule 3-celled, 3-valved.

Ord. 50. CONVULVULACEÆ.—Cal. imbricated, often unequal. Cor. with the limb plaited. Ovary 2—4-celled. *Twining plants.*

Ord. 52. SOLANACEÆ.—Cal. 5-partite. Cor. with the limb 5-cleft. Anthers opening by pores or slits. Ovary 2 or spuriously 4-celled. Ovules numerous, placentation axillary. Inflorescence mostly out of the axil.

Ord. 48. GENTIANACEÆ.—Cor. twisted in æstivation. Ovary 1—2-celled, many-seeded; placentation parietal, with the edge of the valves turned inwards. *Le. ribbed.*

Ord. 59. PLANTAGINACEÆ.—Sep., pet., and st. 4 each. Cor. thin and membranous. Filaments very long. Stigma unilateral. Flowers sometimes monœcious.

§ 4. *Stamens seated upon the corolla, and opposite to its lobes.*

Ord. 57. PRIMULACEÆ.—Cal. 4—7-cleft. Cor. 4—7-lobed, sometimes wanting, and then the st. alternating with the cal. segments. Ovary with a free central placenta. Stigma capitate.

Ord. 58. PLUMBAGINACEÆ.—Cal. plaited, persistent. Cor. deeply-cleft into 5 segments, with 5 st. seated at the base. Styles 5. Ovary 1-celled, with 1 ovule. *Flowers capitate.*

GENERA OF COROLLIFLORÆ.

ORD. 35.—CAPRIFOLIACEÆ.

1. SAMBUCUS.—Cal. limb 5-cleft. Cor. rotate. St. 5. Stigmas 3, sessile. *Le. pinnate.*
2. VIBURNUM.—Cal. 5-cleft. Cor. campanulate, or funnel-shaped, 5-lobed. St. 5. Stigmas 3, sessile. *Le. simple.*
3. LONICERA.—Cal. 5-cleft. Cor. tubular, ringent, 5-cleft. St. 5. Stigma capitate. Berry 1—3-celled.

ORD. 36.—RUBIACEÆ.

1. GALIUM.—Cor. rotate, 4-cleft. St. 4. Fruit dry, 2-lobed.
2. SHERARDIA.—Cor. funnel-shaped. St. 4. Fruit dry, 2-lobed crowned with the limb of the calyx.

3. *ASPERULA*.—Cor. funnel-shaped. St. 4. Fruit dry, with no limb to the calyx.

ORD. 37.—VALERIANACEÆ.

1. *VALERIANA*.—Cor. 5-lobed, gibbous at the base. St. 3. Fruit 1-celled. Cal. unrolling as a pappus.
 2. *FEDIA*.—Cor. 5-lobed, gibbous at the base. St. 3. Fruit 3-celled, crowned with the toothed limb of the calyx.

ORD. 38.—DIPSACACEÆ.

1. *DIPSACUS*.—Receptacle with spinous scales. Involucel with a thickened margin. Cal. cup-shaped, without awns. Cor. 4-cleft. St. 4. *Plant rough with small prickles.*
 2. *SCABIOSA*.—Receptacle scaly. Involucel membranous or minute. Cal. of 4—5 bristles. Cor. of 4 nearly equal segments.
 3. *KNAUTIA*.—Receptacle hairy. Involucel terminating in four small teeth. Cal. cup-shaped, with spreading teeth.

ORD. 39.—COMPOSITÆ.

Sub-Order 1. CICHORACEÆ.—Florets all ligulate and perfect.

A. Pappus plumose, or on the exterior achenes scaly.
 Receptacle without scales.

1. *TRAGOPOGON*.—Involucre of one row, connected at the base. Achenes striate, beaked. Pappus in many rows.
 2. *APARGIA*.—Involucre unequally imbricated, exterior ones small. Achenes slightly beaked; pappus in two rows, inner feathery, outer setaceous.
 3. *THRINIA*.—Involucre oblong, imbricated. Achenes beaked; pappus of the outer ones forming a short scaly cup.

B. Pappus plumose. Receptacle scaly.

4. *HYPOCHÆRIS*.—Involucre imbricated. Achenes beaked, roughly striate. Pappus with the outer row bristly; inner feathery.

C. Pappus pilose, not feathery.

5. *SONCHUS*.—Involucre swollen at the base, with 2 or 3 rows of imbricated scales. Achenes compressed. Pappus soft. Plants with bitter milky juice, and tubular stems.
 6. *CREPIS*.—Involucre scaly at the base. Achenes nearly round, ribbed. Pappus soft, white, deciduous, sometimes brittle.
 7. *LEONTODON*.—Involucre imbricated with soft scales, mostly reflexed. Achenes muricated above, suddenly contracted into a beak. Pappus on a filiform stalk.
 8. *HIERACIUM*.—Involucre imbricated. Achenes truncate, with an entire or toothed margin. Pappus brittle, in one row, frequently brownish. Receptacle dotted.

D. Pappus none, or of sessile scales.

9. **LAPSANA**.—Involucre in one row, with a few very small ones at their base. Achenes compressed, striate. Pappus none.
10. **CICHORIUM**.—Involucre of 8—10 inner scales, with 5 smaller ones at the base. Achenes obovate, compressed, striate. Pappus sessile, scaly.

Sub-Order 2. CYNAROCEPHALÆ.—Florets all tubular. Style swollen below its branches. Involucre with prickly or hardened points.

A. Scales of the involucre ending in a stiff hooked point.

- 11.—**ARCTIUM**.—Involucre globular. Pappus short, stiff and hair-like.

B. Scales of the involucre sharp or prickly.

12. **SERRATULA**.—Involucre with imbricated somewhat mucronate scales. Achenes compressed, with an oblique base. Pappus pilose. Receptacle chaffy, scales split into linear bristles.
13. **CARDUUS**.—Involucre with spinous scales. Achenes compressed. Pappus pilose, sessile, united by a ring at the base. Receptacle with fimbriate scales.
14. **CNICUS**.—Involucre with spinous or mucronate scales. Achenes smooth. Pappus plumose, sessile, united by a ring at the base, deciduous. Receptacle bristly.
15. **ONOPORDUM**.—Involucre with spreading spinose scales. Achenes 4-ribbed. Pappus pilose, rough. Receptacle deeply pitted.
16. **CARLINA**.—Involucre with the outer scales lax, ribbed, edge spinose, inner ones leaf-like and coloured, spreading. Pappus in 1-row; feathery, branched and deciduous. Receptacle with irregular cleft scales.
17. **CENTAUREA**.—Involucre imbricated very hard, with pectinate margins. Achenes compressed, scar lateral or oblique. Pappus short, pilose or scaly. Receptacle chaffy.

Sub-Order 3. CORYMBIFERÆ.—Florets of the disk tubular and perfect, marginal ones mostly ligulate, and pistillate or neuter (rayed), or all the florets tubular (discoid).

A. Florets all tubular (discoidal).

18. **BIDENS**.—Involucre with 2 rows of scales, outer ones leafy. Achenes crowned with about 3 spines, armed with reflexed prickles. Receptacle chaffy. Sometimes with a ligulate floret. Fl. yellow.

19. **TANACETUM**.—Involucre imbricated. Achenes angular, terminating in a large disk, with a membranous margin. Receptacle naked. Sometimes with a short, trifid, ligulate floret. Fl. yellow.
20. **ARTEMISIA**.—Involucre ovate, imbricated, woolly. Achenes with a minute disk. Pappus none. Receptacle naked. Fl. brownish yellow.
21. **EUPATORIUM**.—Involucre imbricated, oblong. Achenes angular or striate. Pappus pilose. Receptacle naked. Heads of few purple florets.
22. **ANTENNARIA**.—Involucre imbricated, the inner scales coloured at the end. Pappus pilose and *clavate on the barren heads*. Fertile florets filiform. Receptacle convex, naked. Heads diœcious.
23. **GNAPHALIUM**.—Involucre hemispherical, imbricated, *scales membranous at the end*. Pappus pilose. Receptacle flat, naked. Heads with marginal pistillate florets.
24. **FILAGO**.—Involucre conical, imbricated, scales *acuminate, scariose*. Pappus pilose. Receptacle conical, scaly at the margin. Outer florets pistillate, mixed with the innermost involucreal scales.
25. **PETASITES**.—Involucre of several herbaceous scales. Pappus pilose. Receptacle naked. Scape bearing a many-headed thyrus, subdiœcious. Fertile florets filiform, in several rows, with 4 or 5 tubular barren ones in the centre; or in heads with the florets all barren, or 3—4 fertile. Fl. purple, appearing before the leaves.

B. Florets of the ray ligulate (Radiate); sometimes in *Senecio* the ray is absent.

* *Pappus pilose.*

26. **TUSSILAGO**.—Involucre in one row, with membranous margins. Florets of the ray in several rows, narrowly ligulate. Receptacle naked. Fl. all yellow, appearing before the leaves.
27. **ASTER**.—Involucre imbricated, with a few scales on the peduncle. Achenes compressed. Receptacle flat, naked and pitted. Fl. of the disk yellow, ray purple.
28. **SOLIDAGO**.—Involucre closely imbricated. Achenes round. Pappus in one row. Receptacle naked. Florets of the ray few. Heads numerous, yellow.
29. **SENECIO**.—Involucre cylindrical or conical, with numerous scales at the base, brown or withered at the tip. Receptacle naked. Florets all yellow; sometimes the ray is absent.
30. **DORONICUM**.—Involucre hemispherical, equal, in two rows. Pappus of the ray-florets absent. Receptacle naked, or nearly so. Fl. yellow, leaves undivided.

31. *INULA*.—Involucre imbricated in many rows. Pappus in one row. Receptacle naked. Anthers with 2 bristles at the base. Fl. yellow.
32. *PULICARIA*.—Involucre closely imbricated in several rows. Pappus in 2 rows, the outer a short, membranous, crenulated cup, the inner pilose, rough. Receptacle naked. Anthers with bristles. Fl. yellow.

** *Pappus none, or shortly membranous.*

33. *BELLIS*.—Involucre of about 2 rows, its scales obtuse, equal and green. Pappus none. Receptacle conical, naked. Florets of the ray white, tinged with pink; disk yellow.
34. *CHRYSANTHEMUM*.—Involucre hemispherical, scales imbricated, with membranous margins. Achenes with a *large raised border*. Pappus none. Receptacle naked. Florets of the ray very large.
35. *MATRICARIA*.—Involucre hemispherical, conical or nearly flat; scales imbricated with membranous margins. Pappus none, or with a slight membranous border. Receptacle flat, or conical, naked. Ray-florets white, disk yellow. Le. *finely divided*.
36. *ANTHEMIS*.—Involucre hemispherical, scales imbricated, with membranous margins. Pappus none, or a membranous border. Receptacle convex or conical, *chaffy*. Le. finely cut.
37. *ACHILLEA*.—Involucre ovate, imbricated with slightly scarioso scales. Pappus none. Receptacle chaffy. Florets of the ray 5—10, short; of the disk compressed with a winged tube.

ORD. 40.—CAMPANULACEÆ.

1. *CAMPANULA*.—Cor. campanulate. Filaments dilated at the base. Stigma 2—5-cleft. Cap. bursting laterally.
2. *JASIONE*. Cor. rotate, segments long, linear. Anthers cohering at the base. Stigma club-shaped. Cap. opening at the top.

ORD. 41.—LOBELIACEÆ.

1. *LOBELIA*.—Corolla 2-lipped, cleft to the base on the upper side; lower lip 3-cleft. Anthers 5, united. Stigma surrounded by a fringe.

ORD. 42.—VACCINIACEÆ.

1. *VACCINIUM*.—Cor. ovate, campanulate, or rotate. St. 8—10. Berry globose, crowned by the limb of the calyx.

ORD. 43.—ERICACEÆ.

1. ERICA.—Cal. 4-partite. Cor. campanulate, often ventricose, persistent. St. 8. Cap. 4-celled, 4-valved.
2. CALLUNA.—Cal. double, surrounded by 4 coloured bracts. Cor. 4-cleft, bell-shaped. St. 8. Cap. 4-celled, 4-valved.
3. ANDROMEDA.—Cal. 4—5-cleft. Cor. ovate or urceolate, deciduous. St. 8—10. Anthers awned. Cap. 5-celled, 5-valved.
4. ARCTOSTAPHYLOS.—Cal. deeply 5-cleft. Cor. ovate, deciduous, St. 10. Fruit with 5, 1-seeded cells.

ORD. 44.—PYROLACEÆ.

1. PYROLA.—Cal. 5-partite. Cor. of 5 connivent petals. St. 10. Anthers opening by pores at the base. Stigma 5-lobed. Cap. 5-valved, opening from near the base.

ORD. 45.—AQUIFOLIACEÆ.

1. ILEX.—Cal. 4—5-toothed, persistent. Cor. rotate, 4—5-cleft. St. 4—5. Stigmas, 4—5, sessile. Berries fleshy, with about 4 stony seeds.

ORD. 46.—OLEACEÆ.

1. LIGUSTRUM.—Cal. 4-cleft. Cor. funnel-shaped. Fruit, a fleshy berry, containing 2 seeds. Le simple.
2. FRAXINUS.—Cal. none, or 4-cleft. Cor. none, or of 4 petals. Fruit dry, oblong, winged at the top (a samara), 2-celled at the base, each with one seed. Le. pinnate.

ORD. 47.—APOCYNACEÆ.

1. VINCA.—Cal. 5-partite. Cor. salver-shaped, segments oblique, tube long. Stigma contracted in the middle. Fruit of 2 follicles.

ORD. 48.—GENTIANACEÆ.

1. ERYTHRÆA.—Cal. 5-cleft. Cor. funnel-shaped, limb short, 5-cleft. St. 5. Anthers twisted. Style simple. Stigmas 2. Cap. 2-celled.
2. GENTIANA.—Cal. 4—5-cleft. Cor. funnel-shaped, tubular at the base, limb short. St. 4—5. Stigmas 2. Cap. 1-celled.
3. MENYANTHES.—Cal. 5-partite. Cor. funnel-shaped, segments fringed within. St. 5. Cap. 1-celled, 2-valved. Le. ternate.
4. VILLARSIA.—Cal. 5-partite. Cor. rotate, limb 5-partite ciliated. St. 5. Cap. 1-celled. Le. simple.

ORD. 49.—POLEMONIACEÆ.

1. POLEMONIUM.—Cal. 5-cleft. Cor. rotate, tube short. St. 5, seated upon the throat of the corolla; filaments dilated at the base.

ORD. 50.—CONVOLVULACEÆ.

1. CONVOLVULUS.—Cal. of 5 sep. Cor. campanulate. St. 5. Style 1. Stigma 2-lobed. Ovary 2-celled. Cells 2-seeded.
2. CALYSTEGIA.—Cal. of 5 sep. enclosed in 2 leafy bracts. Cor. campanulate. St. 5. Style 1. Stigma 2-lobed; lobes filiform. Ovary 1-celled at the apex, with 4 ovules. *Twining plants.*
3. CUSCUTA.—Cal. 4—5-cleft. Cor. urceolate or campanulate, 4—5-lobed. St. 4—5. Styles 2. Ovary 2-celled, with 4 ovules. Cap. bursting transversely, 2-celled. *Leafless parasites.*

ORD. 51.—BORAGINACEÆ.

A. Throat of the corolla not closed with scales.

1. ECHIUUM.—Cal. in 5-deep segments. Cor. irregular, funnel-shaped. Filaments very long, unequal. Style bifid. Achenes wrinkled, with a flat base.
2. PULMONARIA.—Cal. angled, 5-cleft. Cor. funnel-shaped, regular. St. 5, filaments short. Style simple. Achenes smooth, with a flat base.
3. LITHOSPERMUM.—Cal. in 5 deep segments. Cor. funnel-shaped, sometimes a few small scales in the throat. St. included in the tube. Style simple. Achenes smooth.
4. MERTENSIA.—Cal. in 5 deep segments. Cor. funnel-shaped, with minute wrinkles at the throat. St. protruded. Style simple. Achenes smooth, swollen.

B. Throat of the corolla more or less closed with connivent scales or valves.

5. MYOSOTIS.—Cal. 5-cleft. Cor. rotate or salver-shaped; throat nearly closed with rounded valves. St. included, limb 5-cleft, blunt. Style simple. Achenes smooth.
6. ANCHUSA.—Cal. 5-cleft. Cor. funnel-shaped, tube straight. St. included. Achenes depressed, concave at the base.
7. LYCOPSIS.—Cal. in 5 deep segments. Cor. funnel-shaped, tube curved, limb oblique. St. included. Achenes depressed, concave at the base.
8. SYMPHYTUM.—Cal. 5-cleft. Cor. tubular, enlarged upwards, scales in the throat lanceolate or subulate. St. longer than the tube, covered by the scales. Achenes ovate, excavated at the base.
9. BORAGO.—Cal. in 5 deep segments. Cor. rotate, scales emarginate. St. exserted, filaments bifid, inner point bearing the anther. Anthers connivent in the form of a cone. Achenes with an excavated base.
10. ASPERUGO.—Cal. with 5 small teeth, alternating with the large ones; enlarged and depressed in fruit. Cor. funnel-shaped, scales rounded. Achenes covered by tubercles.
11. CYNOGLOSSUM.—Cal. 5-cleft, regular. Cor. shortly funnel-shaped, scales blunt. Achenes covered with muricated points.

ORD. 52.—SOLANACEÆ.

1. *HYOSCYAMUS*.—Cal. tubular. Cor. funnel-shaped, border oblique, lobes blunt. Stigma capitate. Capsule dry, opening by a lid, 2-celled.
2. *ATROPA*.—Cal. 5-partite. Cor. campanulate, tube short. St. diverging. Fruit a pulpy, 2-celled berry.
3. *SOLANUM*.—Cal. deeply divided. Cor. rotate; segments reflexed. Anthers connivent, opening by 2 pores. Fruit a pulpy berry, 2-celled.

ORD. 53.—OROBANCHACEÆ.

1. *LATHRÆA*.—Cal. campanulate, 4-cleft, segments nearly equal. Cor. 2-lipped, the upper lip concave, deciduous. *A leafless parasite.*

ORD. 54.—SCROPHULARIACEÆ.

A. Stamens 2.

1. *VERONICA*.—Cor. irregular, rotate, 4-cleft, lower segment small. Cap. compressed, 2-celled, dissepiment narrow.

B. Stamens 5.

11. *VERBASCUM*.—Cal. 5-partite. Cor. rotate, irregular, with 5 spreading segments. St. with the three upper hairy, the 2 lower ones smooth. Cap. compressed, 2-celled.

C. Stamens 4, didynamous. Calyx 4-cleft.

† *Upper lip of corolla broad, not compressed.*

2. *BARTSIA*.—Cal. tubular. Cor. ringent, upper lip arched, lower one in 3 nearly equal lobes. Anthers hairy. Cap. compressed, 2-celled, many-seeded.
3. *EUPHRASIA*.—Cal. tubular. Cor. 2-lipped, upper one broad, cleft; lower of 3 nearly equal lobes. Cap. compressed, 2-celled, many-seeded.

†† *Upper lip of corolla laterally compressed.*

4. *RHINANTHUS*.—Cal. inflated. Cor. ringent; lower lip plain 3-lobed. Cap. compressed, blunt, 2-celled. Seeds numerous, compressed, margined.
5. *MELAMPYRUM*.—Cal. tubular. Cor. ringent; upper lip with reflexed edges; lower one furrowed, 3-cleft. Cap. obliquely acuminate, compressed, 2-celled; cells 1—2-seeded.

D. Stamens 4, didynamous. Calyx 5-cleft.

6. *PEDICULARIS*.—Cal. inflated. Cor. ringent; upper lip laterally compressed, arched; lower one plain, 3-lobed. Capsule compressed, acute.

7. SCROPHULARIA.—Cal. 5-lobed. Cor. subglobose; limb small, of 2 short lips; upper one 2-lobed, with a scale below and within, lower one 3-lobed. Cap. 2-celled, 2-valved.
8. DIGITALIS.—Cal. of 5 leafy segments, unequal. Cor. large, bell-shaped, oblique, 4—5-lobed. Cap. ovate, acuminate, 2-celled, many-seeded.
9. ANTIRRHINUM.—Cal. 5-partite. Cor. personate, gibbous at the base, lower lip 3-cleft, with a projecting palate closing the mouth. Capsule 2-celled, opening by 2 or 3 pores.
10. LINARIA.—Cal. 5-partite. Cor. personate, spurred; lower lip 3-cleft; mouth closed by a projecting palate. Capsule 2-celled, opening by valves or teeth.

ORD. 55.—LABIATÆ.

A. Stamens 2.

1. LYCOPUS.—Cal. tubular, 5-cleft. Cor. tubular, 4-cleft; limb nearly equal. St. diverging.

B. Stamens 4, nearly equal. Corolla scarcely 2-lipped, shorter than the stamens.

2. MENTHA.—Corolla nearly regular, tube scarcely longer than the calyx.
3. THYMUS.—Cal. 2-lipped, 10—13-ribbed. Cor. with the upper lip straight, lower one patent and trifid. Fl. whorled or capitate.
4. ORIGANUM.—Cal. with 5 equal teeth, 10—13-veined; throat hairy. Cor. with the upper lip nearly straight; lower patent 3-cleft. Fl. in leafy spikes or heads.
5. TEUCRIUM.—Cal. tubular, nearly equal. Cor. with the upper lip bifid, apparently wanting; lower one patent, 3-lobed. St. much exerted from between the lobes of the upper lip. Fl. yellowish white, in 1-sided racemes.
6. AJUGA.—Cal. nearly equal, 5-cleft. Cor. with the upper lip very short or wanting, entire or emarginate; lower one large, trifid. St. much exerted. Fl. bright, blue in whorls.

C. Stamens 4, didynamous. Corolla 2-lipped, upper one longer, and arching over the stamens.

† *Calyx not 2-lipped.*

7. BALLOTA.—Cal. funnel-shaped, with 5 broad mucronate teeth, 10-ribbed. Cor. with the upper lip concave; lower 3-lobed, middle lobe largest, emarginate.
8. LEONURUS.—Cal. tubular, 5-toothed; teeth stiff, 2 lower ones rather the longest. Cor. with the upper lip nearly flat; lower with 3-blunt lobes. Achenes triquetrous.

9. GALEOPSIS.—Cal. tubular, with 5 spinescent teeth; 2 upper ones somewhat longer. Upper lip of cor. arched; lower one 3-lobed, with 2 teeth on its upper side. Anthers *bursting transversely*.
10. LAMIUM.—Cal. campanulate, 5-toothed, 10-ribbed, teeth nearly equal. Upper lip of cor. arched, throat inflated; lower lip patent, 2-lobed, with *1 or 2 teeth on each side at the base*. Anthers bursting longitudinally.
11. BETONICA.—Cal. ovate; teeth 5, acute. Cor. with a long tube; upper lip ascending; lower one patent, trifold, its middle lobe entire. Anthers bursting longitudinally.
12. STACHYS.—Cal. campanulate, 10-ribbed, teeth 5, acuminate, nearly equal. Cor. with the upper lip concave, arched, entire; lower one 3-lobed, the 2 lateral ones reflexed. Anther cells diverging.
13. NEPETA.—Cal. tubular, many-ribbed, teeth acuminate. Upper lip of cor. straight, emarginate or bifid; lower 3-cleft. St. approaching in pairs. Anther cells diverging.

†† *Calyx evidently 2-lipped.*

14. CALAMINTHA.—Cal. 13-nerved, throat mostly hairy. Cor. with the upper lip straight, nearly flat; lower one patent, 3-cleft. Filaments expanding at the top into a sub-triangular connective.
15. PRUNELLA.—Cal. with the upper lip flat, truncate, 3-toothed; lower one bifid. Upper lip of cor. arched, nearly entire, lower one 3-lobed. Filaments bifid, one tooth bearing the anther.
16. SCUTELLARIA.—Cal. ovate, lips entire, nearly closed after flowering; upper lip with a concave, dorsal tooth. Cor. 2-lipped; upper one arched; lower trifold.

ORD. 56.—LENTIBULARIACEÆ.

1. PINGUICULA.—Cal. 2-lipped, lower one bifid, upper 3-lobed, Cor. ringent, spurred. St. 2. Stigma sessile. *Fl. blue.*
2. UTRICULARIA.—Cal. bipartite; upper lobe entire, lower often notched. Cor. personate spurred. Stigma 2-lipped. *Fl. yellow.*

ORD. 57.—PRIMULACEÆ.

1. PRIMULA.—Cal. tubular, 5-toothed. Cor. salver-shaped, tube cylindrical, widening at the insertion of the stamens. St. 5, included in the tube of the corolla. Stigma globose. Cap. opening by 10 teeth.
2. GLAUX.—Cal. bell-shaped, 5-partite, coloured. Cor. none. St. 5, inserted at the base of the calyx. Cap. globose, 5-valved.
3. LYSIMACHIA.—Cal. 5-partite. Cor. rotate, tube short. St. 5, scarcely hairy. Cap. 5—10-valved.

4. ANAGALLIS.—Cal. 5-partite. Cor. rotate with no tube. St. 5, hairy. Cap. opening by a lid.
5. CENTUNCULUS.—Fl. 4-partite. Cor. with a spreading limb, tube inflated. Cap. opening by a lid.
6. SAMOLUS.—Cal. 5-cleft. Cor. salver-shaped, tube short, with 5 scales or barren stamens alternating with the lobes. St. 5 from near the base of the corolla tube. Cap. $\frac{1}{2}$ -superior, opening by 5-valves.

ORD. 58.—PLUMBAGINACEÆ.

1. ARMERIA.—Cal. funnel-shaped, plaited, membranous. Pet. united at the base, bearing the stamens. Styles 5, distinct, hairy. Fl. capitate.

ORD. 59.—PLANTAGINACEÆ.

1. PLANTAGO.—Cal. 4-cleft. Cor. with an ovate tube; limb 4-partite, reflexed. St. 4, with long filaments, seated on the corolla. Cap. opening transversely, 2—4-celled, 2—4-seeded.
2. LITTORELLA.—Fl. monœcious. Barren fl. on a long peduncle. Cal. of 4 sepals. Cor. 4-cleft. St. 4, with long filaments. Fertile fl. sessile. Sep. 3. Cor. oblong. Style very long. Cap. with one seed.

SPECIES OF COROLLIFLORÆ.

35.—CAPRIFOLIACEÆ.

1. SAMBÚCUS. *Elder.*

1. *S. E'BUS*, L.—*Danewort, Dwarf-Elder*. Stems erect, 2—3 ft. high, angular and furrowed, herbaceous. Le. pinnate; leaflets 7—11, lanceolate, serrate, 2—6 in. long, with a stipule or leaf on the stem, at each side of the common petiole. Cymes with 3 principal branches. Fl. white, with a reddish tint outside. Anth. purple. Berries black.

Very rare. "On the roadside between Kittochside and Carmunnock," *Ure*. Still existing. "Lane between Milngavie and Douglaston," *Hopk.* (E) P. 7—8.

2. *S. NÍGRA*, L.—*Common-Elder, Boortree*. A small tree, with spreading branches. Le. pinnate, leaflets mostly 5 or 7, ovate,

acute, sharply serrate. Cymes with 5 principal branches. Fl. numerous, cream-coloured, odour disagreeable. Fr. purple or black.

Frequent. Woods and waste places. (B) T. 6—7. Kelvinside wood; Stonelaw; Cathcart, &c.

2. VIBURNUM. *Guelder-Rose.*

1. *V. O'PULUS*, L.—*Common Guelder-Rose*. A small tree, with smooth branches. Le. large, 2—3 in. broad, 3—5-lobed, subcordate at the base, acuminate and coarsely toothed; leafstalk with 2 or more sessile glands at the top. Cymes large. Fl. white, *outer ones large, neuter*. Berries reddish purple, globular.

Frequent. Woods and coppices. (B) Sh. T. 6—7. Langside wood; banks of the Kelvin; Carmyle and Kenmuir banks; Cambuslang; the Rouken glen, &c.

2. *V. LANTÁNA*, L.—*Wayfaring-tree, Mealy Guelder-Rose*. A large shrub, much branched; shoots and le. when young covered with down. Le. ovate, cordate at the base, serrate, *veined and downy beneath*, upper side sparingly so; pubescence stellate. Cymes dense. Fl. small and white. Berries oblong, purplish black.

Rare. Dunglass glen, H. & A. (E) Sh. 5—6.

3. LONÍCERA. *Honeysuckle.*

L. PERICLYMENUM, L.—*Common Honeysuckle, Woodbine*. Stems woody, twining and climbing over hedges, often to the extent of 15—20 feet. Lower le. slightly stalked; upper ones closely sessile, oval, distinct. Fl. in terminal heads, sessile. Cor. pale yellow, red externally about $1\frac{1}{2}$ in. long. Berries red.

Frequent. In woods and thickets. (B) Sh. 6—9. Banks of the Kelvin; Kenmuir bank; beyond Rutherglen at Stonelaw; Cambuslang glen, &c.

36.—RUBIACEÆ.

1. GÁLÍUM. *Bedstraw.*

A. Flowers yellow.

1. *G. VÉRUM*, L.—*Yellow-Bedstraw, Ladies'-Bedstraw, Cheese-Rennet*. Stems decumbent and ascending, 6—12 in. high. Le. small, linear, deflexed, *margins revolute*, downy beneath; 6—8 in a whorl. Fl. small yellow, in a dense panicle. Fr. smooth.

Common. Dry sandy banks and pastures. (B) P. 7—9. Sand hills, Tollcross; Paisley Canal bank, &c.

2. *G. CRUCIÁTUM*, With.—*Crosswort, Mugwort*. Stems erect, 1—2 ft. high, hairy. Le. ovate, 3-nerved, *4 in a whorl*, hairy.

Fl. small, in axillary corymbs. Fertile fl. terminal, barren ones lateral. Fr. small, smooth.

Common. Hedge banks and bushy places. Banks of the Kelvin, &c. (B) P. 4—6.

B. Flowers white. Fruit smooth.

3. **G. SAXÁTILE**, L.—*Smooth Heath-Bedstraw*. Stems mostly prostrate, much branched, 5—6 in. long. Le. *obovate*, with a small point, upper ones narrow, 6 in a whorl. Fl. in corymbose panicles; lobes of the corolla scarcely pointed. Fr. small, granulated on the surface.

Very common. Heathy pastures. (B) P. 6—8. Paisley Canal bank; Possil marsh, &c.

4. **G. PUSÍLLUM**, L.—*Least Mountain-Bedstraw*. Scarcely differs from the preceding. Le. 8 in a whorl, *linear-lanceolate*, mucronate, edges rolled back, lower ones with marginal hairs. Pan. few-flowered. Pet. somewhat acute. Fr. minutely granular.

Rare. Strathblane hills. (B) P. 7—8.

5. **G. ULIGINÓSUM**, L.—*Rough Marsh-Bedstraw*. Stems weak, slender, brittle, 12—18 in. high. Le. 6—8 in a whorl, *linear-lanceolate*, *terminated* by a *mucro*; margins and angles of the stem with reflexed prickles. Panicles small, axillary, few-flowered. Plant not turning black in drying.

Frequent in wet places; not so common as the next species. (B) P. 7—8. Paisley Canal bank; near Cambuslang; banks of the Forth and Clyde Canal; Gourrock to Arran.

6. **G. PALÚSTRE**, L.—*White Water-Bedstraw*. Of the same habit as the preceding. Stem nearly smooth on the angles. Le. mostly 4 in a whorl, *obtuse*, tapering to the base, sometimes a little rough on the edge. Fl. small, in spreading panicles; branches of the panicle spreading at right angles.

Var. *Witheringii*, Sm.—Margins of the le., midrib on the back; and angles of the stem rough with reflexed prickles.

Very common. Wet ditches, sides of rivers, and borders of lakes. (B) P. 7—8. Banks of the Kelvin; Paisley Canal bank, Possil marsh, &c.

7. **G. MOLLÚGO**, L.—*Great Hedge-Bedstraw*. Stems smooth, of straggling growth, 1—3 ft. high, swelling above the joints. Le. 6—8 in a whorl, *obovate*, oblong or linear, mucronate, prickles on the margin pointing forward. Lobes of the cor. with a small point. Fruit-stalks divaricate. Fruit smooth.

Rare. In hedges and thickets. (E) P. 7—8. "On the rocks at Cartlane crags north side," *Lightf.* "Banks of the Clyde at Carmyle," *Hopk.* (E) P. 7—8.

C. Flowers white. Fruit hispid.

8. **G. BOREÁLE**, L.—*Cross-leaved Bedstraw*. Stems erect, 12—18 in. high. Le. 4 in a whorl, lanceolate, linear, 3-ribbed, firm,

smooth. Fl. numerous, in terminal panicles. Fruit covered with hooked bristles.

Frequent. On moist rocks. "Bowling bay; Dalbeth; Carmyle," &c. *Hopk.* Falls of Clyde. (H) P. 6—8.

9. *G. APARÍNE*, L.—*Goose-Grass, Cleavers, Robin-run-the-hedge.* Stem weak, scrambling among bushes and hedges, several feet high. Le. 6—8 in a whorl, linear-lanceolate, margins and midrib rough with reflexed prickles. Ped. axillary, few fl. Fr. with short hooked bristles.

Very common. In hedges. (B) A. 6—7.

2. *SHERÁRDIA. Field-Madder.*

S. ARVÉNSIS, L.—*Blue Sherardia.* Stems prostrate or decumbent, much branched, very leafy, 4—6 in. long. Le. 6 in a whorl, lower ones obovate, acute; upper ones linear-lanceolate, edges rough. Involucral le. 7—8. Fl. capitate. Cor. with a slender tube, lilac or pink.

Frequent. Fields and neglected gardens. (B) A. 4—10. Pollokshaws; Cathcart; Rutherglen and Cambuslang.

3. *ASPÉRULA. Woodruff.*

A. ODORÁTA, L.—*Sweet Woodruff.* Stem erect, 6—10 in. high. Le. 6—8 in a whorl, lanceolate, the lowest smaller and obovate. Fl. white, in a loose cyme. Fr. globular and hispid. Plant fragrant when dry.

Common. In woods and shady places. (B) P. 5—6. Kelvinside wood; Carmyle and Kenmuir banks; Cambuslang glen, &c.

37.—VALERIANACEÆ.

1. *VALERIÁNA. Valerian.*

1. *V. DIOICA*, L.—*Marsh-Valerian.* Rhizome creeping. Stem erect, 6—8 in. high. Radical le. ovate, on long stalks. Stem le. pinnatifid, with a large terminal lobe. Fl. small, pale rose-coloured, corymbose, imperfectly dioecious.

Very rare. In boggy places. (E) P. 5—6. "About Balvie," *Hopk.*; Bishops Loch.

2. *V. OFFICINÁLIS*, L.—Var. *sambucifolia*, Mik.—*Great Wild-Valerian.* Rhizome tuberous. Stem erect, 2—4 ft. high, sulcate, sending out creeping runners from the base. Le. pinnatifid or pinnate, with 4—6 pairs of broad lanceolate segments, coarsely toothed, or entire, slightly hairy underneath. Stem le. few, pinnatifid, distant. Fl. small, flesh-coloured, or pale purple, in a broad corymb.

Frequent. Sides of rivers and ditches. (B) P. 6—8. Banks of Kelvin, Cart, and Clyde; Paisley Canal bank; Gourrock to Arran.

Var. *Mikanii*, Syme. Radical le. pinnate, leaflets narrow of 6—10 pairs.

In drier places than last, roots more aromatic. Bute; Arran, *J. G. Baker*.

* 3. *V. PYRENÁICA*, L.—*Heart-leaved Valerian*. Stem erect, furrowed, 2—3 ft. high. Le. large (5—6 inches), heart-shaped, coarsely toothed; upper ones with 1 or 2 pairs of very small lanceolate leaflets on the short footstalk. Fl. light purple, or rose colour, in terminal corymbs.

Rare. Banks of the Clyde, Carmyle. "On the Calder at Woodhall," *Patr.* Calderwood glen. P. 6—7.

2. FÉDIA. *Corn-Salad*.

1. *F. OLITÓRIA*, Vahl.—*Lamb's-Lettuce*, *Common Corn-Salad*. Stem dichotomous, smooth, or slightly downy, 2—6 in. high. Le. spathulate. Stem le. narrower, broad at the base, often slightly toothed. Bracts linear, ciliate. Fl. pale blue, in dense cymes. Fruit compressed, having a corky mass on the back of the fertile cell.

Frequent. On banks and in corn fields (B) A. 4—6. Below Carmyle; near Govan; Cambuslang; Gourrock; Cumbræ and Arran.

2. *F. DENTÁTA*, Vahl?—*Smooth Narrow-fruited Corn-Salad*. Stem 4—12 in. high, branched, slender and wiry. Le. narrow, more or less toothed at the base. Fl. in the forks of the stem; cymes loose. Bracts small, narrow. "Capsule ovate, flattish and 2-ribbed in front, acuminate," crowned with the prominent oblique unequally-toothed cup-shaped limb of the calyx.

"Field at Covant-burn bridge," *Patr.* "Arran," *Lands*. (E) A. 6—8.

38.—DIPSACACEÆ.

1. DÍPSACUS. *Teasel*.

D. SYLVÉSTRIS, L.—*Wild-Teasel*.—Stems erect, 4—5 ft. high, prickly. Le. sessile, opposite and undivided. Stem le. broadly connate at the base. Involucre long, stiff, prickly, curved upwards. Scales of the receptacle *not hooked* at the extremity. Fl. in dense heads, pale lilac.

Rare. In waste places. (E) B. 8—9. Arden Quarry, near Thornliebank; Inchinnan bridge; Blantyre; and near Hamilton.

D. FULLÓNUM, L.—*Fuller's-Teasel*. This is now considered to be a cultivated variety of the former, with the scales of the receptacle hooked at the extremity.

2. SCABIÓSA. *Scabious*.

S. SUCCÍSA, L.—*Devil's-bit Scabious*. Rhizome abrupt (præ-morse) below. Stem nearly simple, 1—2 ft. high. Root-le.

oblong, entire, hairy. Stem le. dentate. Involucre in 2 or 3 rows, outer ones as long as the fl., inner ones scaly. *Fl. nearly all alike*, in globular heads, deep blue, rarely white.

Common. Meadows, banks, and heaths. (B) P. 7—10. Tollcross; Paisley Canal bank; banks of Clyde; Gourrock to Arran.

3. KNAÚTIA.

K. ARVÉNSIS, Coult.—*Field-Knautia*. Stem erect, 2—3 ft. high, rough with coarse hairs. Radical le. simple, lanceolate, serrate, stalked. Stem le. toothed or pinnatifid. Fl. in heads, on long peduncles, *outer florets very large oblique*, appearing as if rayed, lilac or purple. Involucre short. Cal. with 8 or more awned teeth. Fruit 4-angled, with 4 depressions.

Very rare. Corn fields, Tollcross; Uddingston, and near Blantyre; Bute and Arran. (B) P. 6—8.

39.—COMPOSITÆ.

TRIBE 1. CICHORACEÆ.

1. TRAGOPÓGON. *Goat's-Beard*.

1. T. PRATÉNSIS, L.—*Yellow Goat's-Beard*. Stem erect, smooth, 1½—2 ft. high. Radical le. very long, channelled, base dilated, tapering to the acuminate apex. Ped. thickened at the summit, with a single head of yellow fl. Involucre as long as the corollas. Achenes long and striate. Fl. closing before noon.

Not common. Pastures and banks. (B) B. 6—7. "Banks of the Clyde at Clyde Iron-works," *Hopk.*, and opposite Cambuslang; side of Hundred-acre-hill wall, on the road from Rutherglen to Cathcart.

* **2. T. PORRIFÓLIUS**, L.—*Purple Goat's-Beard*. *Salsafy*. Scarcely differs from the preceding except in being stronger, and with violet or blue fl.

Formerly cultivated, but very rarely found except where grown in gardens and escaping, such as near Renfrew, and in Cumbræ. B. 5—6.

2. APÁRGIA. *Hawk-bit*.

1. A. HÍSPIDA, Willd.—*Rough Hawk-bit*. Scape 6—12 in. high, thickened upwards, single flowered. Le. coarsely toothed, or runcinate, hispid with *forked hairs*. Scales of the involucre narrow and hispid. Fl. yellow, drooping in bud, florets glandular on the apex. *Pappus in 2 rows, outer setaceous*.

Common. Pastures and gravelly banks. (E) P. 6—9. Banks of Clyde and Paisley Canal; Forth and Clyde Canal, &c.

2. A. AUTUMNÁLIS, Willd.—*Autumnal Hawk-bit*. Flowering stems branched, bearing a few scales. Le. lanceolate toothed or pinnatifid, with narrow lobes, smooth or with a few stiff hairs. Ped. swollen beneath the involucre. Fl. yellow. *Pappus in one row plumose*.

Common. In the same localities as the last. (B) P. 8.

3. THRÍN CIA. *Hairy-Thrincia.*

T. HÍRTA, Roth.—Scape single flowered, mostly glabrous. Le. all radical, lanceolate, sinuate or shortly pinnatifid, with a few forked hairs. Involucre with several small ones at the base. Fl. yellow, reddish beneath. Outer achenes with a scaly cup-like pappus; inner one feathery, broad at the base.

Very rare. "Moors about Aldrie," *Hopk.* "About Glenhove, New Monkland," *Patr.* (E) P. 7—8.

4. HYPOCHÆ'RIS. *Cat's-Ear.*

1. **H. RADICÁTA**, L.—*Long-rooted Cat's-Ear.* Stems erect, leafless, 1—2 ft. high, quite smooth, with a few scales, thickened below the involucre. Le. all radical, narrow, toothed or runcinate, obtuse, scabrous, with stiff *simple hairs*. Scales of the involucre in several rows. *Receptacle with narrow pointed scales.* Fl. yellow.

Common. Pastures and waysides. (B) P. 7. Paisley Canal bank; Cambuslang; Tollcross, &c.

2. **H. GLÁBRA**, L.—*Smooth Cat's-Ear.* Stem 6—12 in. branched. Le. spreading oblong, toothed. *Inv. as long as the fl.* Ped. erect, with a few scales. Fruit with the outer row not beaked. Fl. yellow.

Dry fields; Whiting Bay, Arran, *Dr. Syme.* (E) A. 6—7.

5. SÓNCHUS. *Sow-Thistle.*

1. **S. ARVÉNSIS**, L.—*Corn Sow-Thistle.* Stems simple, 3—4 ft. high. Lower le. sinuate-runcinate, and finely toothed, cordate at the base, stalked. Upper ones entire, clasping the stem. *Peduncles and involucre with glandular hairs.* Fl. corymbose, large, very bright yellow.

Common. In corn fields. (B) P. 8—9. Rutherglen; Tollcross; Cathcart, &c.

2. **S. OLERÁCEOUS**, L.—*Common Annual-Sow-Thistle.* Stem erect, branched, thick, hollow, 3—4 ft. high. Lower le. stalked, undivided or pinnatifid, toothed. Upper ones lanceolate, clasping the stem, *auricles spreading, arrow-shaped.* Fl.-heads sub-umbellate. Involucres smooth. Fl. small, yellow. Achenes transversely wrinkled.

Common. Waste ground and cultivated fields. (B) A. 6—8. Cathcart; Paisley Canal bank; and Cambuslang.

3. **S. AS'PER**, Hoffm.—*Sharp-fringed Annual-Sow-Thistle.* Differs but little from the preceding, and grows in the same localities; such as Cambuslang, where, on a railway cutting, both grow intermixed. Leaves closely and sharply toothed, *auricles rounded.* Achenes not transversely wrinkled.

Common. Waste ground and cultivated fields. (B) A. 6—8.

6. CRÉPIS. *Hawk's-Beard.*

1. **C. VIRENS**, L.—*Smooth Hawk's-Beard*. Stem branched, 1—2 ft. high. Le. very variable, glabrous, toothed or pinnatifid, sometimes runcinate, upper ones linear or lanceolate, clasping the stem, auricles spreading, arrow-shaped distantly toothed. Fl. small, yellow, in subcorymbose panicles, sometimes with a few le. Outer involucre narrow, linear. Plant light green. *Achenes shorter than the pappus*.

Very common. Dry pastures, roadsides, and wall tops. (B) A. 6—9. Tollcross, Cathcart, &c.

2. **C. PALUDÓSA**, Mœnch.—*Marsh Hawk's-Beard*. Stem erect, branched, 1—3 ft. high. Radical le. ovate, coarsely toothed, narrowed into a footstalk which bears a few small lobes. Stem le. lanceolate, toothed at the base, amplexicaul with pointed auricles. Fl. large, yellow, subcorymbose. Involucre with *dark glandulose hairs*. Pappus brittle.

Frequent. In moist woods and shady places amongst rocks. (S) P. 7—9. Kenmuir bank; Cambuslang glen; banks of the Calder; Gourrock; Cumbræ and Arran.

7. LEÓNTODON. *Dandelion.*

L. TARÁXACUM, L.—*Common Dandelion*. Root descending deeply into the soil, thick, and dark outside. Le. all radical, runcinate and toothed; scape single-flowered, tubular, Fl. large, yellow, very handsome. Outer involucre reflexed. Pappus stipitate, pilose.

Common everywhere: were it not so, it would be highly prized on account of its beauty. (B) P. 3—11.

Var. palustre, with the involucre scales erect or adpressed.

On wet moors. Possil marsh; Cathkin hills, &c.

8. HIERÁCIUM. *Hawk-Weed.*

A. Peduncles bearing one flower-head.

1. **H. PILOSÉLLA**, L.—*Mouse-ear Hawk-weed*. Le. oblong or lanceolate, entire, hairy, with short stellate down underneath, scape single, flowered, hairy. Fl. lemon-coloured, tinged on the ray, with red outside.

Common. Dry banks on roadsides and in pastures. (B) P. 5—8. Possil Quarry; Paisley Canal bank, &c.

2. **H. ALPÍNUM**, L.—*Alpine Hawk-weed*.—Stem 4—8 in. high, hairy, bearing one flower-head. Le. oblong or lanceolate, slightly toothed, green, subglabrous above, hairy below. Stem with 1 sessile le., seldom more. Involucre scales *few, broad, and*

acuminate, clothed with long, soft, rusty hairs. Fl.-head rather large, bright yellow, slightly nodding in bud. Ligules pilose at the apex. Styles yellow.

On the highest mountains. (H) P. 7—8. Hills above Loch Eck, rare.

B. Stem leafless. Flowers in a dense corymb.

* 3. *H. AURANTIACUM*, L.—*Orange Hawk-weed*, *Grim-the-Collier*. An outcast from gardens; known from the former by bearing a close corymb of dark orange flowers. Involucre blackish, with dark hispid hairs. Le. with no stellate down.

"In the fields about Balvie and Douglaston," *Hopk.* Spreading as a weed in the Southern Necropolis. P. 6—7.

C. Stem leafy, with more than one flower-head.

4. *H. LAWSÓNI*, Sm. Var. *Ang'licum*, Fr.—Stems 1—2 ft. high, usually with one leaf, narrowed to the base; radical le. ovato-lanceolate, with hairy petioles. Fl. heads 2—5; involucre swollen, scales slender, adpressed. Florets pilose at the apex, styles livid. Fl. pale yellow.

On mountains. Island of Arran, *J. G. Baker.* (H) P. 7—8.

5. *H. MURÓRUM*, L.—*Wall Hawk-weed*. Stem 12—18 in. high, with 1—2 le., sometimes none. Fl.-heads subcorymbose. Radical le. ovate, rounded or cordate at the base, with irregular, patent and deflexed teeth below, slightly hairy. Petioles with long hairs. Stem le. ovate, acuminate. Involucre with glandular hairs, intermixed with floccose down, and a few black-based hairs; scales acute, inner acuminate, not curved, but *straight in bud*. Fl. yellow.

Frequent. On rocks and in woods. (B) P. 6—8. Campsie glen; Bowling on rocks; banks of the South Calder. "Rocks on the Avon below Cadzow," *Patr.* Gourock; Cumbrae and Arran.

Var. *cæstum*, Back.—Radical le. coriaceous, glaucous, ovate or lanceolate, narrowed to a dentate base, smooth above, not fringed with coarse hairs, petioles slender. Stem le. few or none, sessile. Fl.-heads few, large. Involucre with glandular hairs and floccose down thinly spread. Fl. bright yellow, styles livid.

Island of Arran, *J. G. Baker.* P. 7—8.

6. *H. SYLVATICUM*, Sm.—*Wood Hawk-weed*. Stem 1—2 ft. high, with several le. Fl.-heads corymbose or paniculate. Radical le. oblong or lanceolate, *tapering into the footstalk*, hairy, entire or dentate about the middle, teeth patent or *pointing upwards*. Stem le. sessile and amplexicaul or stalked. Involucre, with glandular hairs, scales somewhat acute, inner ones curved when in bud. Fl. yellow. Plant green or glaucous; le. underneath sometimes purplish.

Common. In woods and on banks. (B) P. 7—9. Possil quarry; banks of the Kelvin; Carmyle; Cambuslang glen; Gourock; Cumbrae and Arran.

Var. *maculatum*, Sm.—Le. spotted with purple, root ones soon withering, those of the stem broad.

Not common. Calderwood glen; Campsie; Dumbarton, and Inverkip glen.

7. *H. GÓTHICUM*, Fr.—*Naked-headed Hawk-weed*. Stem rigid, 1—3 ft. high, not much branched, leafy, with few flower-heads. Le. ovato-lanceolate, narrowed at both ends, dentate in the middle, dark green, root ones shortly stalked; upper stem leaves sessile. Peduncles rigid, erect. Involucral scales *dark green, broad, blunt*, with few brownish hairs. Fl. yellow, cylindrical in bud; ligules smooth. Styles yellow, with fuscous hairs.

Heathy or grassy subalpine places. (H) P. 7—9. “Cumbræ,” Dr. Balfour. Island of Arran, and Campsie hills.

8. *H. UMBELLÁTUM*, L.—*Narrow-leaved Hawk-weed*. Stems 1—3 ft. high, rigid, leafy. Radical le. none. Stem le. linear-lanceolate, tapering below, coarsely toothed, sometimes entire. Fl. heads corymbose or subumbellate, numerous. Ped. floccose. Involucres *glabrous*, or with few white hairs. Scales imbricated, outer often spreading at the tips, shorter than the inner. Styles yellow.

Not common. Stony or rocky places, in woods or on banks. (B) P. 7—9. Banks of the railway near Eastfield; old quarry, Eastfield; wood near Cambuslang.

9. *H. BOREÁLE*, Fries.—*Shrubby Broad-leaved Hawk-weed*. Stem 2—3 ft. high, very leafy, hairy. Radical le. none at the time of flowering. Lower stem le. lanceolate, toothed, tapering into a footstalk. Upper ones sessile, rounded at the base, or clasping the stem. Heads of fl. loosely corymbose. Ped. very hairy, intermixed with floccose down. Involucre with dark green or *blackish scales*, glabrous, or with a few brittle hairs. Styles livid blackish. Fl. golden yellow, sometimes pale.

Common. Woods, hedges, and sides of rivers. (B) P. 7—10. Fossil road; banks of Clyde; Carmyle and Kenmuir; banks of the Kelvin, &c.

9. LÁPSANA. *Nipple-wort*.

L. COMMÚNIS, L.—Stem branched, 1—3 ft. high, mostly smooth, furrowed upwards. Le. thin, lower ones nearly lyrate, or with a few small leaflets along the petiole. Stem le. narrow, entire. Fl. heads in a loose corymb or panicle, small, yellow on weak peduncles; scales of the involucre few, glabrous.

Very common. Waste and cultivated ground. (B) A. 7—9.

10. CICHÓRIUM. *Succory, Chicory*.

* *C. I'NTYBUS*, L.—Root long, fusiform. Stem 2—3 ft. high, alternately branched. Lower le. numerous, runcinate or pinnati-

fid, midrib hairy. Stem le. small, amplexicaul, auricles pointed, entire. Fl.-heads generally in pairs, axillary nearly sessile, numerous. Fl. bright blue.

Very rare, and only near gardens. (E) P. 7—10. "In a field near Belvidere, and one near Tollcross," *Hopk.* Banks of the Kelvin near the grinding mill, but truly an escape. Uddingston.

TRIBE 2. CYNAROCEPHALÆ.—*Thistle Tribe.*

11. A'RCTIUM. *Burdock.*

A. LÁPPA, L. Var. *minus*, Schk.—Stem upwards of 3 ft. high. Radical le. very large, coarsely toothed, cordate at the base, lobes prolonged; clothed underneath with a close white tomentum, above with short down; petioles tubular. Fl.-heads racemose, terminal, shortly stalked, globular. *Involucral le. not so long as the florets, webbed.* Plant downy, with purple flowers.

Frequent. Roadsides and waste places. (B) B. 7—8. Farm-house beyond Clyde Iron-works; Cambuslang; Carmyle; Rutherglen; Gourrock; Cumbræ and Bute; Arran, *J. G. Baker.*

Var. *intermedium*, Lange.—Fl.-heads subracemose, larger than the last, with longer peduncles. *Involucral le. equalling the florets, much webbed.*

Island of Arran, *J. G. Baker.*

12. SERRÁTULA. *Saw-wort.*

* S. TINCTÓRIA, L.—"Stem 2—3 ft. high, branched, stiff. Le. usually pinnatifid or lyrate, and finely serrate. Sometimes entire and without serratures. Fl. purple," *H. & A.*

"Banks of the Clyde, between Daldowie and Bothwell," *Hopk.* (E) P. 8.

13. CÁRDUS. *Thistle.*

A. Leaves without white veins.

1. C. NÚTANS, L.—*Musk-Thistle.* Stems erect, 2—3 ft. high, stout. Leaves deeply sinuated or pinnatifid, very prickly; decurrent along the stem as prickly wings, covered with loose cottony hairs. Fl.-heads large, mostly solitary, *drooping.* Fl. purple or crimson. Outer scales of the involucre ending in a reflexed prickle, cottony; inner ones linear, acute.

Very rare. "At Mauldslee," *Patr.* (E) B. 5—10.

2. C. ACANTHOÍDES, L.—*Wetted-Thistle.* Stems 3—4 ft. high, much branched. Le. sinuate, pinnatifid, spinous, decurrent along the stem as prickly wings; more thickly spinous than the last, smooth, or cottony beneath. Fl.-heads *aggregated* (forming the

C. crispus), or solitary, on long peduncles. Fl. deep purple or white. The form with aggregated heads is common.

In 1813 *Hopkirk* remarked, "Abundantly in the waste ground beside St. George's Church!" Still frequent in the vicinity of Glasgow; near the Townsmill, on the banks of the Molendinar burn; near Pollokshields, Cathcart, &c. (B) A. B. 6—8.

3. *C. TENUIFLÓRUS*, Curt.—*Slender-Flowered Thistle*. Stem 2—4 ft. high. Le. lanceolate, sinuate, shortly spinous, decurrent along the stem as a prickly wing, downy or cottony beneath. Fl.-heads small, numerous, generally in clusters, *cylindrical, sessile*. Involucral scales broad at the base, attenuate, terminating in an erect prickle. Fl. pink or white.

Very rare. Waste sandy places near the sea. (E) A. B. 6—8. "About Balvie," *Hopk*. Near Largs.

B. Leaves with white veins.

* 4. *C. MARIANUS*, L.—*Milk-Thistle*. Stem 3—5 ft. high, slightly branched. Radical le. deeply pinnatifid, lobes broad, prickly, upper ones large, waved spinous, amplexicaul with prickly auricles, smooth and shining above, *variegated with white veins and blotches*. Fl.-heads large, globose, drooping, involucral scales broad at the base, terminated by a long recurved spine, bordered by lateral prickles. Florets purple.

Very rare. "Dumbarton Castle," *Hopk*. Occasionally escaping from gardens. B. 7.

14. CNÍCUS. *Plume-Thistle*.

1. *C. LANCEOLÁTUS*, Willd.—*Spear Plume-Thistle*. Stem 2—4 ft. high. Le. pinnatifid, segments narrow, long, ending in a stiff prickle, decurrent along the stem, rough with short stiff hairs above, cottony beneath. Fl.-heads *nearly solitary*, large. Involucres ovate with cottony down; scales lanceolate, terminating in a stiff spreading spine. Fl. purple.

Common. Pastures and waste places. (B) B. 7—8.

2. *C. PALÚSTRIS*, Willd.—*Marsh Plume-Thistle*. Stem 4—5 ft. high, erect, scarcely branched. Le. narrow, pinnatifid, wavy, spinous, decurrent along the stem in wavy prickly lobes, scabrous. Fl.-heads very numerous, *clustered*, small. Involucral scales broad, keeled, adpressed, ending in a spine. Florets purple, often white.

Common. Wet meadows and moist banks. (B) B. 7—8. Possil marsh; Paisley Canal bank, &c.

3. *C. ARVÉNSIS*, Hoffm.—*Creeping Plume-Thistle, Way-Thistle*. Rhizome creeping. Stem 3—4 ft. high, scarcely branched. Le. narrow, pinnatifid, wavy, very prickly, sessile or slightly decur-

rent. Fl. heads *diœcious*. Involucre ovate, nearly smooth, scales broadly lanceolate, appressed, with spreading prickly points. Fertile florets short, purple; barren long and spreading.

Common everywhere. Fields and roadsides. (B) P. 7.

4. **C. ERIÓPHORUS**, Willd.—*Woolly-headed Plum-Thistle*. Stem 2—3 ft. high, branched, furrowed, stout. Le. pinnatifid, lobes narrow, *alternately pointing up and down*, ending in a sharp stout spine, white and cottony beneath, not decurrent. Fl. heads large, globular, clustered. Involucral scales covered with cottony wool, lanceolate, with a long spinous, reflexed point.

Very rare. "Dumbarton Castle," *Mr. Murray*, in Fl. Sc. Cultivated in gardens at Rutherglen; hence appearing wild in the vicinity. (E) B. 7.

5. **C. HETEROPHÝLLUS**, Willd.—*Melancholy Plume-Thistle*. Rhizome creeping. Stem striate, slightly branched above, 2—3 ft. high. Le. lanceolate, clasping the stem, scarcely decurrent, undivided, sometimes pinnatifid, fringed with ciliato-serrate prickles. Stem and under side of the le. covered with white cottony down. Fl. heads *single*, large, slightly nodding. Scales of the involucre obtuse or pointed, slightly downy. Florets purple.

Not common. Mountain pastures. (S) P. 7—8. "Daldowie," *Hopk.* Hills above Dunoon and in Arran.

6. **C. PRATÉNSIS**, Willd.—*Meadow Plume-Thistle*. "Creeping le. soft, mostly radical, cauline ones sessile, lanceolate, waved at the edges, or pilose above, cottony beneath, fringed with minute prickles. Heads mostly solitary, globose, terminal, slightly cobwebbed. Scales lanceolate, closely imbricate, mucronate," *H. & A.*

Very rare. Of this I have never seen specimens. "Island of Arran," *Mr. Murray*. (E) P. 6—8.

15. ONOPÓRDUM. *Cotton-Thistle.*

* **O. ACÁNTHIUM**, L.—Stem stout, branched, 4—6 ft. high. Le. large, sinuate, or coarsely toothed, prickly, decurrent, forming spinous wings at the top of the stem. Fl. heads very large, globular, solitary, erect, in a loose panicle. Scales of the involucre subulate, ending in a spreading prickle, outer recurved. Fl. purple. Plant covered with loose cottony wool.

Not common. An escape from gardens. "Barncluith," *Patr.* (E) B. 8.

16. CARLÍNA. *Carline-Thistle.*

C. VULGÁRIS, L.—Stem erect, 4—12 in. high, pubescent. Le. lanceolate, sinuate, spinous, not decurrent, cottony beneath. Fl. heads in small terminal corymbs, inner scales of the involucre

linear, entire, shining yellow, forming a spreading horizontal ray; *outer ones leaf-like*, pinnatifid or spinous on the border. Fl. purplish; anth. yellow.

Very rare. "Struey rocks, Arran," *Lands*. (E) B. 6—10.

17. CENTAURÉA. *Blue-Bottle, Star-Thistle.*

1. **C. NÍGRA**, L.—*Knapweed, Hardheads*.^{*} Stem branched, hard, 1—2 feet high. Lower le. with coarse teeth, upper entire or nearly so, sessile, clasping the stem, rough with minute hairs. Fl.-heads globose, very hard, on terminal peduncles. Scales of the involucre closely imbricated, deeply fringed with *black or brown teeth*. Florets purple, sometimes the outer row forming a ray. Pappus short, deciduous.

Very common. Pastures and banks. (B) P. 6—9.

2. **C. SCABIÓSA**, L.—*Greater Knapweed, Matfelon*. Stem branched, hard, 2—3 ft. high, stouter than the last. Le. deeply pinnatifid, rough. Fl.-heads large, hard. Scales of the involucre with a *scarious margin and pale fringe*. Florets purple, outer ones enlarged and neuter. Pappus of stiff hairs nearly as long as the achene.

Very rare. Margins of fields. (B) P. 7—9. "Banks of the Calder, near the bridge," *Hopk*.

3. **C. CÝANUS**, L.—*Corn Blue-Bottle, Corn-flower*. Stem erect, 1—3 ft. high, slightly cottony. Le. lanceolate, nearly all entire; lower ones sometimes toothed, slightly cottony on the under side. Fl.-heads solitary, on long ped. Scales of the involucre bordered by a fringe of very *small brown teeth*. Florets of the centre short, bluish purple, of the ray large and bright blue. Pappus as long as the achene.

Corn fields. Very rare around Glasgow. Often cultivated as a garden annual. (B) A. 6—8. Possil road; near Shettleston; Cumbræ.

TRIBE 3. CORYMBIFERÆ.

18. BÍDENS. *Bur-Marigold.*

1. **B. CÉRNA**, L.—*Nodding Bur-Marigold*. Stem erect, branched, 1—2 ft. high. Le. *lanceolate, serrate*. Bractees longer than the involucre. Fl.-heads drooping. Florets generally tubular, brownish yellow. Fruit with 3—4 *stiff bristles*, rough with reflexed prickles at the apex.

Frequent. In ditches and lakes. (E) A. 7—10. Buttery-burn Loch; Erskine and Kilpatrick; St. Germans Loch; Hamilton, &c.

2. **B. TRIPARTÍTA**, L.—*Trifid Bur-Marigold*. Le. on the lower part of the stem, *tripartite*, sometimes cut into 5-segments. Fl.-heads nearly erect, *bristles 2—3*.

Not common. Marshy places. (E) A. 7—9. Cumbræ; Bute and Arran.

19. TANACÉTUM. *Tansy.*

T. VULGÁRE, L.—Stem erect, 2—3 ft. high. Le. large, bipinnatifid; leaflets inciso-serrate. Fl.-heads in terminal corymbs. Florets golden yellow. Plant bitter.

Frequent. Waste places and roadsides. (B) P. 8. Banks of Clyde below Carmyle; Cambuslang; Gourrock; Kilmun; Cumbræ; Arran, &c.

20. ARTEMÍSIA. *Mugwort.*

A. VULGÁRIS, L.—*Common-Mugwort.* Stem erect, leafy, furrowed, 2—4 ft. high. Le. deeply pinnatifid, segments coarsely toothed or lobed, white and woolly beneath. Fl.-heads in clustered panicles, leafy. Involucres cottony. Florets brownish yellow.

Frequent. Hedges and waste ground. (B) P. 7—9. Banks of Clyde near Eastfield; Cambuslang; Cathcart; Kilmun; Gourrock; Dunoon; Cumbræ; Bute and Arran.

21. EUPATÓRIUM. *Hemp-Agrimony.*

E. CANNÁBINUM, L.—Stem erect, 3—4 ft. high. Le. opposite, downy, cut into 3—5 deep segments, coarsely toothed, middle one longest. Fl.-heads numerous, in compact corymbs. Florets 5 to 6 in a head, reddish purple. Scales of the involucre about 10; outer 5 short and blunt. Plant slightly aromatic.

Frequent. Banks of streams and moist bushy places. (B) P. 7—9. Kenmuir wood; Gourrock; Wemyss bay; Cumbræ; Bute and Arran.

22. ANTENNÁRIA. *Everlasting.*

A. DIOÍCA, Gærtn.—*Mountain-Everlasting, Cat's-foot.* Stems tufted, with procumbent shoots, and simple flowering stems, 4—6 in. high. Lower le. *spathulâte*, woolly beneath, upper ones linear-lanceolate, adpressed, both sides woolly. Fl.-heads dioecious, in a dense corymb. Inner scales of the barren head broad, blunt, and spreading; of the fertile linear, erect; pappus long protruding.

Common. Mountain pastures and heaths. (S) P. 6—7. Possil marsh; Cathkin hills; banks of the Paisley Canal; Gourrock to Arran.

23. GNAPHÁLÍUM. *Cudweed.*

1. **G. SYLVÁTICUM**, L.—*Highland-Cudweed.* Stem nearly erect, simple, cottony, 3—8 in. high. Le. linear-lanceolate, cottony on the under side. Fl.-heads small, in *axillary clusters*, forming a leafy interrupted spike. Scales of the involucre with a brown border.

Frequent. Woods and heathy pastures. (B) P. 7—9. Possil marsh; Cathcart; Carmunnock; Gourrock to Arran.

2. **G. ULIGINÓSUM**, L.—*Marsh-Cudweed.* Stem much branched, cottony, 3—8 in. high. Le. linear-lanceolate, broader above,

woolly on both sides, especially beneath. Fl.-heads in *terminal clusters* at the ends of the branches, shorter than the le. Scales of the involucre yellowish brown.

Frequent. Wet sandy places, especially where water has stood during winter (B) A. 7—9. Near Thornliebank; Kelvindock; banks of the Clyde below Carmyle; Gourock; Cumbrae and Arran.

3. **G. SUPÍNUM**, L.—*Dwarf-Cudweed*. Stems decumbent, tufted, about 2 in. high. Le. linear, downy. Fl.-heads 1—5 in a *terminal cluster*. Achenes compressed, white.

Highland mountains. Ben Lomond. (H) P. 7—8.

24. FILÁGO. *Filago*.

1. **F. MÍNIMA**, Pers.—*Least-Filago*. Stem erect, simple or dichotomously branched, leafy. Le. linear-lanceolate, acute, adpressed to the stem, cottony. Fl.-heads small, in *axillary and terminal clusters*, longer than the le. Scales of the involucre cottony, shining at the tips, *obtus*. Florets yellowish.

Frequent. In sandy and gravelly fields. (B) A. 6—9. Tollcross; beyond Uddingston; near Largs; and Arran.

2. **F. GERMÁNICA**, L.—*Common-Filago*, *Impious-weed*. Stem slightly decumbent at the base, then erect, 6—12 in. high. Le. erect, lanceolate, acute, cottony. Fl.-heads small, globular, *one terminal, from which spring others in a proliferous manner*, rearing their heads above the parent cluster, hence the name, *Impious-weed*. Scales of the involucre pale yellow brown, *acute*.

Frequent. In sandy and gravelly pastures. (B) A. 7—9. "In gravel pits at Bothwell," *Hopk*. Gourock; Bute; Cumbrae and Arran.

25. PETASÍTES. *Butter-Bur*.

P. VULGÁRIS, Desf.—Le. very large, upwards of 2 ft. broad, roundish-cordate, with distant unequal teeth, cottony beneath. Fl. appearing before the le. on short stalks; in a long lax panicle in the fertile plant, more compact in the barren, with long scales on the ped. Fl. pink or flesh-coloured.

Common. Moist banks, roadsides, and sandy places. (B) P. 3—5. Banks of Clyde, Kelvin, and Cart.

26. TUSSILÁGO. *Colt's-foot*.

T. FÁRFARA, L.—Scape 6—8 in. high, terminating in a single yellow head of fl. appearing before the le. Scales of the stem entire, downy and glandular. Le. roundish-cordate, angular, toothed, cottony beneath. Fl.-heads drooping before expansion, and again when the seed is ripe. Florets of the ray numerous. narrow.

Very common, and troublesome, in cultivated stiff soils; roadsides, &c. (B) P. 3—4.

27. A'STER. *Starwort, Michaelmas-Daisy.*

A. TRIPÓLIUM, L.—*Sea-side Starwort.* Stem erect, or decumbent, smooth, 3—15 in. high. Le. linear-lanceolate, entire, somewhat fleshy. Fl.-heads corymbose. Scales of the involucre imbricated, blunt, membranous, the inner longest. Florets of the ray few, purplish or blue, sometimes absent, of the disk yellow.

Frequent. On the banks of the Clyde from Renfrew to Arran. (B) P. 8—9.

28. SOLIDÁGO. *Golden-Rod.*

S. VIRGAÚREA, L.—Stem erect, very stiff, 6 in. to 2 ft. high. Le. oblong or lanceolate, slightly toothed, tapering to the base. Fl.-heads crowded, in narrow panicles, with a spreading ray of 10—12 florets. Scales of the involucre lanceolate, acute. Achenes downy.

Frequent. In woods and bushy places. (B) P. 7—9. Carmyle and Kenmuir woods; Cambuslang glen; Garscube; Gourrock; Cumbrae and Arran.

29. SENÉCIO. *Groundsel, Ragwort, Fleawort.*

A. Florets of the ray wanting, or small and rolled back.

1. **S. VULGÁRIS, L.**—*Common-Groundsel.* Stem erect, branched, 6—12 in. high. Le. pinnatifid, toothed, half clasping the stem. Fl.-heads in terminal clusters. Involucres cylindrical, outer scales very small, with black points. *Florets of the ray generally absent.* Achenes silky.

Very common. Waste ground, fields, and gardens all the year round. (B) A.

2. **S. VISCÓSUS, L.**—*Stinking-Groundsel.* A coarser and taller plant than the last. Le. more deeply pinnatifid, downy, viscous, with a foetid smell. Fl.-head with more florets, *ray rolled back.* Florets paler in colour. Scales of the involucre lax, hairy, viscid. Achenes smooth.

Not common. (G) A. 7—8. "At Rawhead," Ure. On a railway running from the west end of Cadder Wilderness to the Forth and Clyde Canal, plentiful; Possil marsh.

3. **S. SYLVÁTICUS, L.**—*Mountain-Groundsel.* Stems 1—2 ft. high, mostly branched, hairy. Le. deeply pinnatifid, lobed, unequally toothed, downy, scarcely viscid, nor with such a foetid smell as the former. Fl. in corymbose heads. Outer scales of the involucre very short, smooth, ray rolled back. Achenes silky.

Not common. Banks, sandy and gravelly pastures. (B) A. 7—9. Sand hills, Tollcross; near Cambuslang and High Blantyre; Gourrock; Bute and Arran.

B. Florets of the ray large and spreading.*1. Leaves pinnatifid.*

4. **S. JACOBÆ'A, L.**—*Common-Ragwort*. Stem erect, striate, branched. Le. bipinnatifid, terminal lobe large, segments spreading, toothed, and cut, glabrous, sometimes with a loose down. Fl.-heads large, handsome, golden yellow, in compact corymb. Scales of the involucre tipped with black, outer ones few, very small. Achenes of the ray *smooth*, of the disk *silky*.

Very common. Waste ground and roadsides; a good crop with bad farmers. (B) P. 7—9.

5. **S. AQUÁTICUS, Huds.**—*Marsh-Ragwort*. Often passed over as the former species. Lowermost leaves stalked, obovate, or oblong, crenate, upper ones lyrate, pinnately cut or serrate, glabrous. Fl.-heads large, with a broad ray, bright yellow, on long peduncles, loosely corymbose. *Achenes all smooth*.

Frequent. Sides of rivers and marshy places. (B) P. 7—8. Cambuslang; banks of Clyde from Renfrew to Arran.

6. **S. TENUIFÓLIUS, Jacq.**—*Hoary-Ragwort*. Rhizome creeping. Stem erect, 2—3 ft. high. Le. pinnatifid, regularly divided, segments linear, slightly revolute, under side of the le. and stem cottony. Outer scales of the involucre half the length of the inner. *Achenes all silky*.

Very rare. Woodhall, near Calderbank, a few miles from Airdrie. (E) P. 7—8.

2. Leaves undivided.

7. **S. SARACÉNICUS, L.**—*Broad-leaved Groundsel*. Stem erect, solid, 3—8 ft. high. Le. lanceolate, sessile, acute, quite smooth, teeth small, incurved. Fl.-heads small, corymbose, few-flowered.

"In a small island on the Clyde, a little below Bothwell bridge," *Dr. Brown* in *Hopk. Fl. Glot.* Still growing in the same station. "Border of a field near Mugdock Castle," *Hopk.* (I) P. 7—8.

30. DORÓNICUM. Leopard's-Bane.

* **D. PARDALIÁNCES, L.**—*Great Leopard's-Bane*. Rhizome creeping, stem with few le., 2—3 ft. high, erect, hairy. Lower le. on long naked petioles, cordate, toothed; intermediate stem ones semi-amplexicaul, by the petiole being dilated at the base; upper ones sessile, clasping, all hairy. Fl.-heads large, on long peduncles. Florets yellow.

Rare. Woods and banks. P. 5—7. Banks of Clyde below Carmyle; near Cambuslang, &c.

31. I'NULA. Elecampane.

* **I. HELÉNÍUM, L.**—Stem erect, stout, 2—3 ft. high. Le. ovate, toothed, clasping the stem, smooth above, downy beneath.

Fl.-heads large, terminal, solitary, bright yellow. Scales of the involucre broadly ovate, outer ones leafy, reflexed and downy. Florets of the ray long and linear. Achenes angular, smooth.

An escape from cultivation. "About the ruins of Mugdock Castle," *Hopk.*
"Banks of the Avon at Barncluith," *Patr.* (E) P. 7—8.

32. PULICÁRIA. *Flea-Bane.*

P. DYSENTÉRICA, Gærtn.—Stem erect, branched, 12—18 in. high. Le. oblong, waved, clasping the stem with rounded auricles; under side of the le. and stem woolly. Fl.-heads axillary and terminal, bright yellow. Scales of the involucre narrow. Florets of the ray numerous, longer than the disk. Pappus of the outer row like a *small membranous cup*.

Very rare. "Struey rocks, Arran," *Lands.* (E) P. 7—9.

33. BÉLLIS. *Daisy, Gowan.*

B. PERÉNNIS, L.—Le. all radical, spathulate, obovate, crenate, one-ribbed. Scape with a single flower-head; disk yellow, ray white, tinged with pink or crimson.

Found everywhere, and in flower nearly all the year round. (B) P.

34. CHRYSÁNTHEMUM. *Ox-eye-Daisy.*

1. **C. LEUCÁNTHEMUM**, L.—*Great White Ox-eye-Daisy.* Stem erect, simple, or slightly branched, 1—2 ft. high. Radical le. obovate, tapering into a long petiole, coarsely toothed. Stem le. sessile, oblong, blunt, cut at the base or pinnatifid. Fl.-heads very large (nearly 3 in. across), solitary *disk yellow, ray white*.

Very common. On banks and in pastures. (B) P. 6—8.

2. **C. SÉGETUM**, L.—*Corn-Marigold, Yellow-Ox-eye, Gule.* Stem erect, branches spreading, smooth, 12—15 in. high. Lower le. obovate, stalked, stem ones amplexicaul, deeply cut at the top, with a few teeth at the base, somewhat glaucous beneath. Fl.-heads terminal, solitary large; *all the florets deep golden yellow*.

Frequent. Corn and potato fields. (B) A. 6—9. Near Cathcart and Pollok-shaws.

35. MATRICÁRIA. *Wild Chamomile, Feverfew.*

1. **M. PARTHÉNium**, L.—*Common Feverfew.* Stem branched, 1—2 ft. high. Le. pinnate, the segments *ovate or oblong*, bipinnatifid and toothed. Ped. very much branched, corymbose. Fl.-heads numerous; disk yellow, ray white. Achenes with a jagged membranous pappus.

Frequent. Waste places, often near farm-houses. (B) P. 7—9. Banks of Clyde, near Cambuslang; near Carmunnock; Cathcart Gourrock Cumbræ; Bute and Arran.

2. *M. INODÓRA*, L.—*Corn-Feverfew, Scentless-Mayweed*. Stem branched, spreading 12—18 in. high. Le. bi- or tri-pinnatifid, segments very narrow. Fl.-heads large, ped. terminal, disk yellow, ray white. Scales of the involucre lanceolate, blunt, with a brown scarios edge. *Receptacle convex*. Pappus with an entire border, depressions on the fruit round. Faintly aromatic.

Common. Fields and waste places. (B) A. 6—10.

Var. *maritimum* is merely a fleshy state growing on the sea coast. Pappus lobed, depressions oblong.

3. *M. CHAMOMÍLLA*, L.—*Common Wild-Chamomile*. Stem erect, branched, 12—18 in. high. Le. bipinnatifid, with narrow linear segments. Fl.-heads large on terminal ped., disk yellow, ray white. Scales of the involucre all of one length, linear, blunt, edges scarious. *Receptacle hollow conical*, sometimes acute. Achenes *without a border*. Faintly aromatic.

Very rare. Corn fields and waste ground. (E) A. 6—8. "Fields at Merryton," *Patr.* Possil road; banks of Clyde amongst rubbish.

36. A 'NTHEMIS. *Chamomile*.

1. *A. NÓBILIS*, L.—*Common or True Chamomile*. Stems procumbent, much branched, very leafy, 8—12 in. long. Le. bipinnate, segments linear, slightly downy. Fl.-heads on terminal ped., disk yellow, ray white. Scales of the involucre scarious; *bracts or scales of the receptacle*, thin, blunt, nearly equal in length to the central florets. *Ray florets with a style*. Plant bitter, highly aromatic.

Very rare. Cumbræ in several stations, one distant nearly a mile from the nearest house, the others near houses. "Island of Bute," *W. S. Murray*. (E) P. 7—9.

2. *A. ARVÉNSIS*, L.—*Corn-Chamomile*. Stem erect, branched, 1—2 ft. high. Le. bipinnatifid, segments longer than in the last, linear-lanceolate, hoary, with minute silky hairs. Fl.-heads large on long ped., disk yellow, ray white. Scales of the *receptacle acute*, appearing above the florets of the disk. Ray florets with a style. Pappus entire.

Very rare. "Haugh-head," *Patr.* Corn fields, Tollcross. (E) A. B. 6—8.

3. *A. CÓTULA*, L.—*Stinking-Chamomile, Stink-Mayweed*. Stem erect, branched, 12—15 in. high. Le. bipinnatifid, segments subulate, covered with glandular dots. Fl.-heads solitary, terminal; disk pale yellow, ray florets large, white, neuter *without a style*. Scales of the receptacle acute, confined to the centre, Pappus none. Achenes with glandular dots.

Very rare. Corn fields; Shields farm; near Cathcart; below Govan. (E) A. 6—9

37. ACHILLÉA. *Yarrow, Milfoil.*

1. **A. PTÁRMICA**, L.—*Sneeze-wort, Goose-Tongue.* Stem erect, 1—2 ft. high. Le. *linear-lanceolate*, acuminate, acutely serrate, serratures adpressed. Fl.-heads few, corymbose, white. Scales of the involucre cottony, with a brown membranous border. Ray florets 10 to 15, broad and short.

Common. In pastures and cultivated fields. (B) P. 7—8.

2. **A. MILLEFÓLIUM**, L.—*Milfoil, Yarrow.* Stems erect, branched, leafy, 6—18 in. high. Le. *linear-lanceolate* in outline, closely bipinnatifid, segments linear-acute, woolly, sometimes glabrous. Fl.-heads small, numerous, in a dense terminal corymb, white, sometimes pink. Scales of the involucre nearly smooth, with a brown margin. Ray florets 5—6.

Very common. Roadsides, pastures, and banks. (B) P. 6—9.

* 3. **A. TOMENTÓSA**, L.—*Woolly Yellow-Yarrow.* Stem erect, 6—8 in. high. Le. pinnatifid, lobes linear, trifid, acute, crowded, woolly. Fl.-heads small, golden yellow, repeatedly corymbose. Scales of the involucre woolly, edged with brown.

"On Spittlehill, to the north-west of Balvie, near Milngavie," *Hopk.* Cultivated and not native. P. 8.

40.—CAMPANULACEÆ.

1. CAMPÁNULA. *Bell-Flower.*

1. **C. ROTUNDIFÓLIA**, L.—*Hairbell, Round-leaved Bell-Flower.* Stem ascending or erect, slender, 8—12 in. high. Radical le. reniform or cordate, on long footstalks, mostly withered before the time of flowering. Stem le. *linear-lanceolate*, entire. Fl. in a loose raceme or panicle, blue, rarely white, drooping. Cor. bell-shaped. Cap. opening by clefts at the base.

Very common. Dry banks, heaths, and borders of fields. (B) P. 7—9.

2. **C. HEDERÁCEA**, L.—*Ivy-leaved Bell-Flower.* Stems tufted in thread-like branches. Le. small, delicate, *orbicular or cordate*, with broad angular lobes. Fl. *solitary*, on weak filiform ped., drooping in bud, erect in fl., pale blue, sometimes white. Cor. narrow bell-shaped. Cap. opening by valves at the top.

Very rare. Moist woods and shady pastures. (A) P. 7—8. In a glen near Dunoon; Inverkip.

3. **C. LATIFÓLIA**, L.—*Giant Bell-Flower.* Stem erect, simple, 2—4 ft. high. Le. *ovato-lanceolate*, doubly-serrate, lower ones stalked, nearly 6 in. long, hairy. Fl. racemose, erect, very large,

pale blue or nearly white. Cor. smooth, hairy within. Cap. short, crowned by the minutely serrated segments of the cal.

Frequent. In moist woods. (S) P. 7—8. Banks of the Clyde near Carmyle; banks of the Calder and of a small stream running into Clyde below Bothwell bridge, &c.

4. *C. TRACHÉLIUM*, L.—*Nettle-leaved Bell-Flower*, *Throat-wort*. Stem erect, angular, *hispid*, 2—3 ft. high. Lower le. cordate, on long stalks, upper ones lanceolate, acuminate, both *coarsely doubly-serrate*, rough. Fl. large, blue, in few-flowered axillary racemes. Cor. bell-shaped.

Very rare. "On the old walls of Mugdock Castle," *Hopk.* (E) P. 7—9.

2. JASIÓNÉ. *Sheep's-Scabious*, *Sheep's-Bit*.

J. MONTÁNA, L.—Stems decumbent or ascending, 6—10 in. high. Le. linear, waved on the edges, *hispid*. Fl. collected into a dense head. Bracts ovate. Ped. long, solitary, smooth above. Pedicels very short. Cal. segments small, setaceous. Cor. small, light blue.

Frequent. Dry banks. on a light gravelly soil. (B) A. B. 6—9. Tollcross sand hills; banks of the Clyde; Gourrock; Cumbrae; Bute and Arran.

41.—LOBELIACEÆ.

1. LOBÉLIA. *Water-Lobelia*.

L. DORTMÁNNA, L.—Scape or stem almost leafless, rising slightly above the surface of the water. Stems tufted, sending up le. 1—2 in. long, composed of 2 hollow tubes. Raceme of very few, pale blue, drooping fl.

Not common. In the shallow part of lakes. (S) P. 7—8. Bardowie and Mugdock lochs; Loch Lomond; Dunloskin Loch, near Dunoon; Loch Ascog, Bute, and Arran.

42.—VACCINIACEÆ.

1. VACCÍNIUM. *Whortleberry*.

1. *V. MYRTÍLLUS*, L.—*Blaeberry*, *Bilberry*, *Whortleberry*.—A small branching shrub, nearly erect, 1—2, and even 3 ft. high in woods. Stems angular. Le. ovate, serrate, smooth, *deciduous*. *Ped. axillary*, 1-fl. reflexed. Cor. globular, white tinged with pink and green, nearly waxy. Fl. nodding. Berry globular, black, with a glaucous bloom.

Common. Heathy woods and banks in mountainous districts. (B) Sh. 4—6. Cadder Wilderness; Cathkin hills; near Cambuslang; Maryhill; Gourrock, &c.

2. **V. VITIS-IDÆ'A**, L.—*Cowberry, Red-Whortleberry*. Stems procumbent, much branched, straggling. Le. obovate, margins slightly revolute, dark green above, pale and dotted beneath. *Racemes dense*, terminal, drooping. Cor. campanulate, 4-cleft, lobes spreading. Fl. flesh-coloured. Berries red. A low ever-green shrub.

Not common. Rocky mountain heaths. (H) Sh. 6—7. Falls of Clyde; glens in the Campsie hills; hills above Gourock; Inverkip; Kilmun; Dunoon and Arran.

3. **V. OXYCÓCCUS**, L.—*Cranberry, Marsh-Whortleberry*. Stems slender, creeping. Le. small, ovate, margins revolute, glaucous beneath. Fl. on terminal *single-flowered* ped., rose-coloured, drooping. Cor. deeply-cleft, segments rolled back, very elegant. Berries red.

Frequent. In marshes among *Sphagnum*. (B) Sh. 6—7. Heath at Garnkirk railway station; Craigmaddie moor at the "*Auld wives' lifts*;" Campsie hills; bog at Barloch, &c.

43.—ERICACEÆ.

1. ERÍCA. *Heath*.

1. **E. TÉTRALIX**, L.—*Cross-leaved Heath*. Stems branched at the base, flowering ones ascending. Le. 4 in a whorl, linear, edge rolled back, ciliate. Fl. in *capitate-umbels*, drooping. Sep. downy. Cor. rose-coloured, sometimes white, found frequently with cleft-segments.

Common. On moors, with the next species, but not so abundant. (B) Sh. 7—9.

2. **E. CINÉREA**, L.—*Fine-leaved Heath*. A bushy shrub, taller than the last. Le. 3 in a whorl, linear, acute, shining, keeled beneath, bearing tufts of small ones in the axils. Fl. in whorled, terminal racemes, drooping, reddish purple, occasionally white.

Very common. On all heaths. (B) Sh. 6—9.

2. CALLÚNA. *Ling, Ling-Heather*.

C. VULGÁRIS, Salisb.—*Scotch-Heather*. A low much branched tufted shrub. Le. closely imbricated in 4 rows, small, opposite, with 2 small spurs at the base, pubescent, often quite hoary. Fl. very small, on short stalks, drooping, purplish pink, in leafy racemes along the terminal branches. Bracts 4, resembling the cal. True cal. nearly concealing the small 4-cleft corolla.

Very common. On all heaths. (B) Sh. 6—9.

3. ANDRÓMEDA. *Marsh-Andromeda.*

A. POLIFÓLIA, L.—*Wild-Rosemary*. Stems slender, woody below, branching, prostrate. Flowering stems ascending. Le. oblong-lanceolate, margins rolled back, glaucous beneath, evergreen. Fl. in short racemes, drooping, pale pink, or rose-coloured.

Not common. (I) Sh. 5—9. In the moss behind the Garnkirk railway station; Cadder moss; Paisley moss, "Mr. Murray.

4. ARCTOSTÁPHYLOS. *Black Bear-Berry.*

A. UVA-ÚRSI, Spreng.—Stems long, trailing, bark coming off in scales. Le. obovate or oblong, entire, shining, rigid, and evergreen. Fl. in terminal drooping racemes, rose-coloured. Berries small, globular, bright red.

Common on the Holy Isle at Lamlash, Arran. (H) Sh. 5—6.

44.—PYROLACEÆ.

1. PÝROLA. *Winter-Green.*

1. **P. SECÚNDA**, L.—*Serrate Winter-Green*. Stem branched, 3—5 in. high, with several scales. Le. numerous, ovate, acute, serrate. Fl. in a *secund* raceme, white, drooping, nearly closed. Style very long. Stigma 5-lobed, without a ring or projecting points.

Very rare. "In Kittoch glen, near Busby." Dr. Ross. (S) P. 7,

2. **P. MÍNOR**, L.—*Lesser Winter-Green*. Le. tufted, broadly ovate or rotundate, entire, or slightly crenate, thick, smooth, on longish stalks. Ped. 4—6 in. high, with 1 or 2 small scales. Fl. drooping, in a short raceme, pale pink. St. and style shorter than the cor. Stig. large, 5-ayed.

Frequent in mossy woods. (S) P. 7—8. Falls of Clyde; Bothwell woods; old quarry near Lambhill bridge; Cadder Wilderness; wood east side of Gourrock, &c.

45.—AQUIFOLIACEÆ.

1. I'LEX. *Holly.*

I. AQUIFÓLIUM, L.—*Common Holly*. A small evergreen tree. Le. ovate, shortly stalked, shining, thick, waved, and bordered with strong spines, upper ones when a tree entire. Fl. in dense clusters, axillary white. Berries bright scarlet, seldom yellow. A well-known tree, of great beauty, with very hard, tough wood.

Frequent. In woods and hedges. (B) T. 5—8.

46.—OLEACEÆ.

1. LIGÚSTRUM. *Privet.*

L. VULGÁRE, L.—A bushy shrub with slender branches, 6—8 ft. high. Le. lanceolate or oblong, entire, with short petioles. Fl. in dense panicles. Cor. small, white. Berries globular or somewhat ovate, black. Nearly an evergreen.

Common. Hedges and thickets, much planted. Fl. every season at the Mill on the banks of the Kelvin. (E) Sh. 6—7. A questionable native.

2. FRÁXINUS. *Common Ash.*

F. EXCÉLSIOR, L.—A large handsome tree. Le. pinnate, with from 7 to 11 leaflets, which are ovato-lanceolate, acuminate, serrate. Fl. appearing before the le. in clusters, surrounded at the base by thick scales. Stamens sometimes absent. Fruit a single samara.

Very common. In woods. (B) T. 4—5.

47.—APOCYNACEÆ.

1. VÍNCA. *Periwinkle.*

1. V. MÍNOR, L.—*Lesser Periwinkle.* Stems trailing, very tough. Le. ovate or oblong, smooth, evergreen. Flowering stems short, erect, bearing 1 blue or white fl. Cal. segments smooth.

Frequent. Probably introduced. (E) P. 4—6. Woods at Barncluith, Hamilton; Bothwell Castle; Stonelaw beyond Rutherglen.

* **2. V. MAJÓR**, L.—*Greater Periwinkle.* Larger than the last. Le. broadly ovate, ciliate on the margin. Cal. segments narrow, ciliate on the edges. Cor. large, blue.

Very rare, and certainly introduced, being frequently cultivated. Bothwell woods; "Skelmorlie and Kelburne woods," *Mr. Murray.* (E) P. 4—5.

48.—GENTIANACEÆ.

1. ERYTHRÆ'A. *Centaury.*

1. E. CENTAÚRIUM, Pers.—*Common Centaury.* Stem erect, branched above, quadrangular, 8—10 in. high. Le. ovate-oblong, in opposite pairs. Fl. corymbose, nearly sessile, pinky red. Cal. about half as long as the tube of the opening cor. Plant very bitter.

Frequent. In dry pastures. (B) A. 6—9. Between Wishaw and Motherwell; near Blantyre; banks of Clyde opposite Dalziel Camp; Gourrock; Cumbræ and Arran.

2. E. LINARIFÓLIA, Pers.—*Dwarf-tufted Centaury.* Stem erect, seldom branched, 3—6 in. high. Root le. crowded, spathulate;

stem le. oblong-linear, blunt. Fl. few, sessile, corymbose, rose-coloured. Cal. deeply cleft, *as long as the tube of the opening corolla*.

Frequent. On the sea shore, among grass in damp places. (B) A. 6—8. Near Largs; Bute; Cumbræ and Arran.

2. GENTIÁNA. *Gentian*.

G. CAMPÉSTRIS, L.—*Field-Gentian*. Stem erect, much branched, 6—8 in. high. Le. ovato-lanceolate. Cal. 4-cleft, 2 outer segments large. Cor. 4-cleft, mouth fringed. Fl. very numerous, blue.

Frequent. Hilly pastures. (B) A. 8—10. Cathkin hills at the little braes; "Near Airdrie and Kilbride," *Patr.* Drummond road near Craigton and Auchineden; Cumbræ, Bute, and Arran.

3. MENYÁNTHES. *Buckbean*.

M. TRIFOLIÁTA, L.—*Bogbean, Marsh-Trefoil*. Rhizome extensively creeping. Le. ternate, on long footstalks; leaflets obovate or oblong, wavy. Fl. racemose, peduncles rising from the sheathing base of the le. Cor. white, tinged with pink, elegantly fringed within with white filaments.

Frequent. Boggy ground and marshes. (B) P. 5—7. In Possil marsh; Cathkin hills: Frankfield Loch; Germiston Loch; Gourrock to Arran.

4. VILLÁRSIA. *Villarsia*.

V. NYMPHÆOÍDES, Vent.—*Nymphaea-like Villarsia*. Le. floating on the surface of the water, orbicular heart-shaped, peduncles clustered, single-flowered. Cor. *ciliate*, yellow. Le. resembling the water-lily.

Cultivated in an old arm of the Kelvin at Cadder House, and by this means getting into the Forth and Clyde Canal; lakes near Corehouse. (G) P. 7—8.

49.—POLEMONIACEÆ.

1. POLEMÓNIUM. *Jacob's-Ladder*.

P. CÆRÚLEUM, L.—*Blue Jacob's-Ladder, Greek-Valerian*. Stem erect, 1—2 ft. high. Le. pinnate, leaflets ovato-lanceolate. Stem le. few, pinnate. Fl. numerous, paniculate, slightly drooping, bright blue or white.

Certainly an outcast from gardens. "Banks of the Avon at Barncluith," *Patr.* Banks of the Calder; Falls of Clyde, in the woods. (I) P. 6—7.

50.—CONVOLVULACEÆ.

1. CONVÓLVULUS. *Bindweed*.

C. ARVÉNSIS, L.—*Small-Bindweed*. Stem twining, mostly prostrate. Le. arrow-shaped, *basal lobes acute*. Ped. axillary,

1 or 2-flowered. Bracteas minute. Cor. white, striped and variegated with pink.

Very rare. A doubtful native. (E) P. 6—7. Banks of Clyde at Cranstonhill Old Water-works, nearly destroyed by the washing away of the bank; Forth and Clyde Canal bank, at the pond above Cowcaddens.

2. CALYSTÉGIA. *Bearbind, Hooded-Bindweed.*

1. *C. SÉPIUM*, Br.—*Great Convolvulus*. Stem twining and climbing over hedges, several feet long. Le. arrow-shaped, lobes truncate. Fl. solitary, on square peduncles. Bracts large, heart-shaped, concealing the cal. Cor. large, white, rarely pink.

Frequent. In hedges and thickets. (E) P. 6—8. Banks of the first stream above Dalmarnock bridge, south side of Clyde; railway bank above Dunlop's bridge; banks of Clyde at Dalbeth; field on the Possil road; Gourrock to Arran.

2. *C. SOLDANÉLLA*, Br.—*Sea-side Convolvulus*. Rhizome creeping in the sand. Stem prostrate. Le. broadly rounded or reniform succulent. Ped. single-flowered, with 4-winged angles. Fl. very large, pink or rose-coloured, with a yellow band in the centre of each segment. Forming a very elegant object when lying on the bare sand.

Frequent. Sandy sea shores. (E) P. 6—8. Fintry bay, Cumbræ; Bute and Arran.

3. CÚSCUTA. *Dodder.*

C. EPILÍNUM, Weihe.—*Flax-Dodder*. Stems slender, twining, nearly simple. Heads of fl. sessile, bracteate. Cor. with a globose tube, scarcely longer than the campanulate cellular cal. Styles not longer than the flower (included). Scales adpressed to the tube of the cor., bifid and fimbriated.

Rare. Parasitical on flax, not native, but introduced with flaxseed. A. 8. "Near Kilsyth," *Mr. Duncan*. "Arran," *Lands*. Near Chryston.

C. Europæa and *C. Epithymum* are both noticed, the latter in *Hopk. Fl. G.*, and both in *Patr. Ind. Pl. Lan.*, as having been found on flax; may they not be *C. Epilinum*?

51.—BORAGINACEÆ.

1. E'CHIUM. *Viper's-Bugloss.*

**E. VULGÁRE*, L.—*Common Viper's-Bugloss*. Stem simple, erect, hispid, 1—2 ft. high. Radical le. lanceolate, petiolate. Stem le. linear-lanceolate, hispid. Spikes of fl. lateral, ultimately forming a long, one-sided, compound raceme. St. longer than the cor. Fl. at first reddish, turning bright blue.

Rare. On rubbish. Possil road; near Govan; Bute. (B) B. 6—7.

2. PULMONÁRIA. *Lungwort.*

**P. OFFICINÁLIS*, L.—Stem 6—12 in. high. Le. ovate, cordate, stalked; upper stem le. ovate, sessile, all covered with

coarse hairs, often spotted. Fl. in a forked cyme. Cal. very hairy. Cor. with short lobes, purple, sometimes white.

Rare. An outcast of gardens. P. 5. "Bothwell Castle; Dalbeth and Easterhill," *Hopk.*

3. LITHOSPÉRMUM. *Gromwell.*

1. **L. OFFICINÁLE**, L.—*Common Gromwell, Grey-Mill.* Stem erect, much branched, 1—2 ft. high. Le. lanceolate, acute, veined and hispid, with bulbous hairs above; hairy beneath. Fl. greenish yellow, tube of the cor. as long as the cal. Achenes greyish white, *highly polished.*

Rare. On rubbish. (B) P. 6—7. "On the old walls of Mugdock Castle," *Hopk.* "Western tower of Bothwell Castle," *Patr.* "Arran," *Lands.* Occasionally on rubbish around Glasgow.

2. **L. ARVÉNSE**, L.—*Corn Gromwell, Bastard Alkanet.* Stem erect, branched, 6—12 in. high. Le. lanceolate, acute, hoary, with adpressed bulbous hairs. Fl. small, white. Calycine segments nearly as long as the cor., spreading in fruit. Achenes polished, wrinkled or pitted.

Not common. In corn fields. (B) A. 5—6. "In the fields at Bogle's hole," *Hopk.* Rutherglen; Tollcross; Gourrock.

4. MERTÉNSIA. *Smooth-Gromwell.*

M. MARÍTIMA, Don.—*Sea-side Smooth-Gromwell.* Stems pro-cumbent, branched. Le. ovate, acute, rough with hardened dots, fleshy, covered with a glaucous bloom, upper le. lanceolate. Fl. in racemes, beautiful purplish blue. Achenes smooth. The taste of the le. is said to resemble oysters, hence the name *Oyster plant.*

Frequent. On gravelly sea beaches. Often changing its place, and reappearing. (S) P. 5—6. Cumbræ, Bute, and Arran.

5. MYOSÓTIS. *Scorpion-Grass.*

A. Hairs on Cal. straight and adpressed.

1. **M. PALÚSTRIS**, With.—*Forget-me-not.* Stem angular 8—16 in. high. Le. obovato-lanceolate, blunt. *Teeth of cal. $\frac{1}{3}$ of its length, open in fruit.* Limb of cor. flat, *longer than its tube.* Style as long as the cal. tube. Fl. bright clear blue, with a yellow eye, pubescence of the stem usually spreading, sometimes wanting. A form occurs with the pubescence of the stem adpressed.

Common. In marshes and ditches. (B) P. 7—8. Possil marsh; Forth and Clyde Canal; Hogganfield and Frankfield lochs.

2. **M. RÉPENS**, Don.—*Creeping Water-Scorpion-Grass.* Stem 6—12 in. high, slightly angular, hairs spreading. Cal. with narrow teeth, cleft half-way down, open in fruit. Limb of cor. flat,

longer than its tube. *Style shorter than the cal. tube.* Cor. pale blue, smaller than in *palustris*.

Frequent. In boggy places. (B) P. 5—8. Possil marsh; Cambuslang; Maryhill; Geurock to Arran.

3. *M. CÆSPITÓSA*, Schultz. — *Tufted Water-Scorpion-Grass.* Stem tufted, much branched. Le. smaller than in the two former. Cal. with narrow teeth, and few bristles, cleft half-way down, open in fruit. Limb of cor. often concave, *equalling the tube.* Style very short. Fl. smaller than in the preceding, bright blue.

Frequent. By the sides of ponds. (B) P. 6—8. Possil marsh; banks of the Cart; Bute; Cumbrae and Arran.

B. Hairs on cal. spreading, hooked.

4. *M. ARVÉNSIS*, Hoffm. — *Field-Scorpion-Grass.* Stem and le. with spreading hairs. Cal. fully more than half 5-cleft, *closing in fruit*; pedicels diverging, *longer than the cal.* Limb of cor. and its tube of the same length. Plant usually very hairy, with small bright blue fl., often mistaken for the true *Forget-me-not*.

Very common. Hedge banks on roadsides, and in cultivated fields. (B) A. B. 5—8.

5. *M. VERSÍCOLOR*, Reich. — *Yellow and Blue-Scorpion-Grass.* Stem slender. Le. narrow, slightly pointed. Cal. closed when in fruit, more than half 5-cleft, *longer than the erect pedicels.* Fl. very small, limb of cor. shorter than its tube; colour of the expanding fl. yellow, turning blue as the racemes unroll.

Frequent. Banks and moist meadows. (B) A. 4—6. Possil marsh; beyond Rutherglen; Tollcross; Gourrock, &c.

6. *M. COLLÍNA*, Hoffm. — *Early Field-Scorpion-Grass.* Very like the former. Cal. ventricose when in fruit, *open, as long as the diverging pedicels.* Cor. with the limb shorter than its tube. Fl. very small, an unchangeable blue.

On Sandy banks and wall tops. (B) A. 4—5. May be found common as it becomes better known; have frequently gathered plants coming near the character ascribed to this, but they were too near *M. arvensis*.

6. ANCHÚSA. *Alkanet.*

* 1. *A. OFFICINÁLIS*, L. — *Common Alkanet.* Stem 1—2 ft. high, with coarse stiff hairs. Le. oblong-lanceolate, hispid. Spikes unilateral. Fl. crowded. Bracts small, leafy as long as the cal. Cor. large, deep purple or blue, scales hairy.

Very rare. "Uddingston," H. & A. Bute. P. 6—7.

* 2. *A. SEMPERVIRENS*, L. — *Evergreen Alkanet.* Stem 1—2 ft. high, rough with spreading coarse hairs. Le. ovate, petioles of the lower ones long. Fl. in axillary, short, one-sided spikes. Cor. a rich blue, tube short, scales downy.

Very rare. Waste places and on rubbish. (E) P. 5—6. Craignethan Castle; "bank of the Avon opposite Cadzow Castle," Patr. "Castlemilk," Hopk.

7. LYCÓPSIS. *Bugloss.*

L. ÁRVÉNSIS, L.—*Small Bugloss.* Plant very hispid, hairs from a white tubercle. Stem procumbent at the base, then erect, 12—18 in. high. Le. lanceolate, waved and denticulate, upper ones clasping the stem. Spikes one-sided, terminal. Cor. pale blue, curved in the middle. Achenes wrinkled.

Frequent. Corn fields and hedge banks. (B) A 6—7. Near Rutherglen; Cathcart; Carmyle; Gourrock; plentiful in Bute; Cumbrae and Arran.

8. SÝMPHYTUM. *Comfrey.*

1. S. OFFICINÁLE, L.—*Common Comfrey.* Stems erect, branched and winged, 2—3 ft. high. Lower le. petiolate; upper ones sessile, decurrent to the next below, lanceolate, hispid. Racemes in pairs, unilateral, drooping. Fl. dingy purple, seldom pale yellow.

Common. Moist fields and river banks. (E) P. 5—6. Kelvin; Cart at Langside; fields beyond Possil, &c.

2. S. TUBERÓSUM, L.—*Tuberous Comfrey.* Root tuberous. Stem nearly simple, 12—15 in. high. Lower le. alternate below, oblong; upper ones nearly sessile, slightly decurrent. Racemes small, few-flowered, unilateral, with a pair of large bracts at the base. Fl. yellowish white. A smaller plant than the former.

Common. Shady woods and damp places. (S) P. 6—7. Banks of Clyde, from Bogle's hole to Kenmuir; Cambuslang; banks of the Kelvin, &c.

9. BORÁGO. *Borage.*

* **B. OFFICINÁLIS**, L.—Stem 12—15 in. high. Lower le. attenuate at the base, obovate or oblong, upper ones shortly stalked, eared at the base. Fl. on long pedicels, drooping. Segments of cor. acute. Anthers dark, contrasting with the brilliant blue cor. Plant hispid, with bulbous hairs.

Found occasionally as an outcast of gardens. B. 6—7.

10. ASPERÚGO. *German-Madwort.*

* **A. PROCUMBENS**, L.—Stem procumbent, rough with bristles, many of them curved or hooked. Lower le. stalked, upper ones sessile, oblong or lanceolate, uppermost pair opposite, all slightly hispid. Fl. axillary, solitary, or sometimes 2—3 together on short recurved pedicels. Cor. small, blue. Achenes granulated.

Waste ground near gardens, not native. (L) A. 6—7. Island of Bute, &c.

11. CYNÓGLÓSSUM. *Hound's-Tongue.*

* **C. OFFICINÁLE**, L.—Stem erect, 1—2 ft. high, whole plant covered with soft downy hairs, dull green, fœtid. Lower le. elliptical, stalked; upper ones lanceolate, sessile, clasping the stem.

Racemes without bracts, numerous, from the axils of the upper le. Fl. a lurid purple. Achenes covered with barbed spines.

Cambuslang glen. Certainly introduced. (E) B. 6—7.

52.—SOLANACEÆ.

1. HYOSCÝAMUS. *Henbane.*

H. NÍGER, L.—Stem erect, 1—2 ft. high, plant covered with downy viscid hairs, foetid. Lower le. stalked; upper ones sessile, sinuate, toothed or pinnatifid, amplexicaul. F. axillary, nearly sessile, pale dingy yellow, with purplish veins. Cal. enlarging with the fruit, strongly veined. Plant narcotic.

Very rare. "On the rocks, Dumbarton Castle," *Hopk.* (E) A. B. 6—8.

2. A'TROPA. *Dwale, Deadly-Nightshade.*

A. BELLADÓNNA, L.—Stem herbaceous, erect, 3 ft. high, smooth, or slightly downy. Le. large, ovate, entire, accompanied by a smaller one from the same point. Fl. axillary, drooping, peduncles short. Cor. large, lurid purple. Berry large, globular, shining black; poisonous.

Very rare. An outcast of gardens, or on ballast heaps. "Banks of the Cart near Cathcart Mill," *Dr. Brown.* (E) P. 6—8.

3. SOLÁNUM. *Nightshade.*

1. S. DULCAMÁRA, L.—*Bitter-Sweet, Woody-Nightshade.* Stem woody at the base, flexuose, climbing. Lower le. cordate-ovate; upper ones hastate or lobed at the base. Fl. in corymbs, opposite the le. or extra-axillary, drooping. Cor. purple, with 2 green spots at the base of each segment. Anthers large, yellow. Berries small, ovate, red.

Not common. (B) Sh. 6—8. Banks of the East-burn, Cambuslang; near Eastfield; Inchinnan bridge; Gourock; Cumbræ and Arran.

* **2. S. NÍGRUM**, L.—*Black-Nightshade.* A smaller plant than the last, 1 ft. high. Le. stalked, ovate, bluntly and coarsely toothed. Fl. in small lateral cymes drooping. Cor. small, white. Berries globular, black.

Very rare. A rubbish plant, or a garden outcast. (E) A. B. 6—11. Banks of the Gareloch; near Largs; Cumbræ.

53.—OROBANCHACEÆ.

1. LATHRÆ'A. *Toothwort.*

L. SQUAMÁRIA, L.—Stem erect, 6—10 in. high, with no true le., but covered with fleshy, tooth-like scales. Bracts ovate or lanceolate. Fl. drooping, in a dense one-sided spike or raceme.

Cor. light bluish, or flesh coloured, with red streaks. A succulent plant. Colour pale pink.

Very rare. Parasitical on the roots of hazels, &c. (E) P. 3—5. Carmyle wood, below the village. On the same spot for two seasons in May.

54.—SCROPHULARIACEÆ.

1. VERONÍCA. *Speedwell.*

A. Spikes or racemes terminal.

1. *V. SERPYLLIFÓLIA*, L.—*Thyme-leaved Speedwell.* Stems in leafy tufts, rooting below, then erect, 3—5 in. high. Le. ovate or elliptical, obtuse, very slightly crenate, mostly smooth. Fl. in elongated racemes, lower bracts large, leaf-like. Cor. small, pale blue or nearly white, with dark veins. Cap. *broader than long*, smooth or slightly hairy. *Style long.*

Very common. Roadsides and pastures. (B) P. 5—7.

2. *V. ARVÉNSIS*, L.—*Wall-Speedwell.* Stems ascending, sometimes erect and simple, 3—6 in. high. Le. cordate-ovate, toothed. Bracts longer than the fl. lanceolate, sessile. Fl. pale blue or nearly white, sessile, pedicels only present when in fruit. Cap. compressed, with rounded lobes, *ciliate on the edge.* Seeds 12—14, compressed. *Style short.*

Very common. In fields, on walls, and in gardens. (B) A. 4—7. Cathcart, Rutherglen, and Tollcross.

B. Racemes axillary.

1. *Plant glabrous.*

3. *V. SCUTELLÁTA*, L.—*Marsh-Speedwell.* Stems spreading and ascending, 6—12 in. high, weak. Le. sessile, linear-lanceolate, slightly and distantly toothed, with the teeth directed backwards. Racemes alternate, pedicels slender, *reflexed after flowering.* Fl. flesh-coloured, with dark blue veins. Cap. flat, broad, and deeply notched.

Frequent. In boggy places. (B) P. 7—8. Possil marsh; Frankfield and Hogganfield lochs; Gourock to Arran.

4. *V. ANAGÁLLIS*, L.—*Water-Speedwell.* Stems thick, hollow, 1—2 ft. high. Le. sessile, lanceolate, mostly toothed, clasping the stem. *Racemes opposite*, long and many-flowered, sometimes glandular. Fl. small, pedicellate, pale blue. Cap. *oval*, slightly notched. Plant slightly succulent, especially the stem.

Not common. Wet ditches and ponds. (B) P. 7—9. "Near Flenders, beyond Busby," *Dr. Ross.* Cumbrae, Bute, and Arran.

5. *V. BECCABÚNGA*, L.—*Brooklime, Wallink.* Stems procumbent, rooting at the joints. Flowering stems ascending. Le. shortly stalked, elliptical, obtuse, slightly toothed, rather fleshy.

Racemes opposite, short, often not longer than the le. Fl. deep brilliant blue. Cap. roundish, slightly notched.

Common. Wet ditches, streams, and ponds. (B) P. 5—9. Possil marsh; Paisley Canal bank, &c.

2. *Plant more or less hairy.*

6. *V. OFFICINÁLIS*, L.—*Common Speedwell*. Stems much branched, creeping and rooting at the joints, 8—15 in. long. Le. ovate, or obovate, toothed, shortly stalked. Spikes or racemes erect, *much longer than the le.* Fl. nearly sessile, pale blue, Capsule obcordate.

Very common. Banks and pastures. (B) P. 5—7.

7. *V. MONTÁNA*, L.—*Mountain-Speedwell*. Stem weak and trailing, rooting at the joints, *hairy all round*, 12—15 in. long. Le. broadly ovate, serrate, stalked. Racemes loosely flowered, slender. Fl. few, pale blue. Cap. orbicular, flat, notched, minutely toothed, and ciliate on the edge.

Frequent. Woods and shady places. (B) P. 4—7. Carmyle and Kenmuir woods; Kelvinside; Langside; Gourock; Campsie, &c.

8. *V. CHAMÆ'DRYS*, L.—*Germander-Speedwell*. Stems procumbent at the base, weak, 12—15 in. long, *with two opposite lines of hairs running down from between each pair of le.*, alternating at each node. Le. shortly stalked, cordate-ovate, deeply crenate, or incisso-serrate, wrinkled. Racemes many-flowered, much longer than the leaves. Fl. large, clear bright blue; very handsome.

Common. All over the country, on nearly every hedge bank. (B) P. 5—6.

C. Flowers axillary, solitary. Stems procumbent.

9. *V. HEDERÆFÓLIA*, L.—*Ivy-leaved Speedwell*. Stem weak, trailing. Le. slightly fleshy, petiolate, cordate, with 5—7 large lobes, middle one broad and rounded. Cal. segments *broadly cordate, ciliate*. Cor. pale blue. Cap. swollen, smooth, with 4 ovules. Seeds concave on the under side and wrinkled.

Common. Corn fields and neglected gardens. (B) A. 5—8. Rutherglen; Carmyle; Tollcross, &c.

10. *V. AGRÉSTIS*, L.—*Green Procumbent-Speedwell*. Stems procumbent or prostrate, much branched, 3—10 in. long. Le. shortly stalked, ovate, toothed or incisso-serrate. Peduncles scarcely as long as the le. Cal. *with oblong segments*. Cor. small, pale blue or white. Cap. swollen. Seeds 4—5 in each cell, concave on the under side, rough.

Very common. A weed of cultivation in fields and gardens. (B) A. 4—9.

* 11. *V. BUXBAÚMII*, Ten.—*Buxbaum's-Speedwell*. Similar to the last, but larger and more hairy. Fl. as large as *V. Chamædrys*,

bright blue. Cap. with divaricate lobes, compressed upwards, keeled, seeds about 8 in a cell.

Very rare. In gardens and fields; Cumbrae as an outcast. (E) A. 4—9.

2. BÁRTSIA. *Bartsia*.

1. **B. VISCÓSA**, L.—*Yellow Viscid-Bartsia*. Stem erect, rigid, 8—12 in. high, *whole plant viscid*. Le. lanceolate, deeply serrate or toothed. Floral le. alternate. Fl. axillary, forming a terminal spike. Cal. tubular. Cor. yellow, lower lip longer than the upper one. Anthers hairy.

Not common. (A) A. 6—10. Gourock; Ardencaple; and in fields coming towards Dumbarton.

2. **B. ODONTÍTES**, Huds.—var. *serotina*.—*Red-Bartsia*. Stem erect, 8—12 in. high, with branches curving upwards. Le. lanceolate, toothed, *narrow at the base*, lower ones opposite, upper alternate. Bracts shorter than the fl. Racemes unilateral. Cal. campanulate. Cor. reddish purple. Anthers slightly hairy. Capsule oblong.

Common. Fields and roadsides. (B) A. 6—8.

Var. *verna*.—Le. broad at the base; branches straight, ascending. Bracts longer than the flowers.

Frequent. In corn fields. Bute; Arran, J. G. Baker.

3. EUPHRÁSIA. *Eye-bright*.

E. OFFICINÁLIS, L.—*Common Eye-bright*. Stem erect, branched, 2—8 in. high. Le. opposite, sessile, ovate, deeply toothed. Fl. axillary, forming a leafy spike. Cor. white or tinged with purple, veined, and marked by a yellow blotch in the throat, lower lip with emarginate lobes, the upper one spreading. Capsule oblong.

Common. Pastures and on heaths. (B) A. 5—9. Near Cambuslang; Cathkin hills; Paisley Canal bank, &c.

4. RHINÁNTHUS. *Yellow-Rattle*.

R. CRISTA-GÁLLI, L.—*Common Yellow-Rattle*. Stem erect, simple or branched, 1—2 ft. high. Le. opposite, lanceolate, coarsely toothed. Fl. in a loose leafy spike. Cal. inflated, contracted at the mouth. Cor. yellow, lower lip with 3 spreading lobes; upper lip with bluish, blunt lobes. Capsule orbicular. Seeds large, flat, when ripe lying loose, and rattling on the fruit being shaken.

Common. Meadows and pastures. (B) A. 5—7.

5. MELAMPÝRUM. *Cow-Wheat*.

M. PRATÉNSE, L.—*Common Yellow-Cow-Wheat*. Stem with spreading opposite branches, 6—12 in. high. Le. lanceolate,

sometimes with a cordate base; floral ones distant, toothed at the base. Fl. in pairs, axillary, distant, all turned to one side, spreading horizontally. Cor. pure yellow, lower lip projecting.

Frequent. Woods and thickets. (B) A. 5—8. Falls of Clyde; Calderwood glen; Campsie glen; near Milngavie; Gourrock; Cumbrae and Arran.

6. PEDICULÁRIS. *Lousewort.*

1. **P. PALÚSTRIS**, L.—*Marsh-Lousewort*, *Red-Rattle*. Stem erect, much branched from above the base, 1—2 ft. high. Le. pinnatifid, segments bluntly lobed. Fl. crimson, in the axils of leafy bracts. Cal. slightly hairy, ribbed, broadly ovate, lobes of 2 crenate, irregularly cut or jagged segments. Cor. with 2 *projecting teeth* near the middle of the upper lip.

Frequent. Marshes and wet meadows. (B) A. P. 5—9. Possil marsh; Gourrock to Arran.

2. **P. SYLVÁTICA**, L.—*Pasture-Lousewort*. Stem prostrate or spreading, branching from the base, 3—6 in. high. Le. pinnatifid, segments deeply cut. Cal. quite smooth, reticulated with green veins, unequally cut in 5 nearly leafy segments. Cor. rose-coloured, sometimes nearly white, *upper lip without any teeth in the middle*.

Common. Moist heathy pastures. (B) P. 4—7. Possil marsh; Cathkin hills; Gourrock to Arran.

7. SCROPHULÁRIA. *Figwort.*

1. **S. NODÓSA**, L.—*Knotted-Figwort*. Rhizome large, knotted. Stem erect, *sharply quadrangular*, 2—3 ft. high. Le. large, broadly ovate, subcordate, pointed, doubly crenate, or acutely serrate. Panicle composed of loose cymes, with small lanceolate bracteas. Sep. with a narrow membranous margin. Fl. greenish purple, scale in the upper lip slightly notched.

Frequent. Woods and moist hedges. (B) P. 6—8. Langside; banks of the Cart, Clyde, and Kelvin; Gourrock to Arran.

2. **S. EHRHÁRTI**, C. A. Stev.—*Ehrhart's-Figwort*. Stem erect, with 4 leafy wings, 2—5 ft. high. Le. ovato-lanceolate, or oblong, rounded at the apex, sharply crenate, serrate at the base. Bracteas acute. Cymes lax. Sep. with a broad scariose border. Fl. dark purplish green, scale in the upper lip of the cor. *emarginate, slightly crenate with diverging lobes*, about three times broader than long. Cap. nearly orbicular.

Very rare. Banks of the Cart at Inchinnan bridge. (E) P. 7—9.

3. **S. AQUÁTICA**, L.—*Water-Figwort*. “Cymes dense, corymbose, bracteas linear, obtuse, scale of the upper lip roundish-reniform entire. Capsule pointed.”

Rare. Watery places. (E) P. 7—8. “Ditch at the old mansion-house, Jerviston,” *Patr.*

* 4. **S. VERNÁLIS**, L.—*Yellow-Figwort*. Stem erect, 1—2 ft. high, whole plant hairy. Le. cordate, acute, coarsely toothed. Bracts leafy. Cymes axillary. Fl. yellow. St. longer than the tube of the cor., *without any scale in the upper lip*.

Very rare. P. 4—6. "Walls of Bothwell Castle," *Dr. Walker in Fl. Scotica*.

8. DIGITÁLIS. *Foxglove, Folk's-glove.*

D. PURPÚREA, L.—*Purple-Foxglove*. Stem erect, 2—4 ft. high. Lower le. on long stalks, ovato-lanceolate, crenate, downy, coarsely veined. Fl. in a long unilateral raceme, large, elegant and drooping, purple, marbled with white inside. Cap. pointed, surrounded by the leafy segments of the cal., uppermost one narrow. Fl. rarely flesh-coloured or white.

Frequent. Hedge banks, walls, and open woods. (B) P. 6—8. Cadder Wilderness; Baldernock; Calderwood glen; Hamilton woods; Gourrock to Arran.

9. ANTIRRHÍNUM. *Snapdragon, Calves'-Snout.*

* **A. MÁJUS**, L.—*Great Snapdragon*. Stem erect, 1—2 ft. high. Le. lanceolate or linear, entire, opposite or alternate. Fl. racemose, Sep. ovate, blunt. Cor. large, purplish red or white, opening when pressed on the side by the finger and thumb.

Very rare. On old buildings. P. 7—9. "Walls at Barncluith and at Chatelherault," *Patr.* "Mugdock Castle," *Hopk.*

10. LINÁRIA. *Toadflax.*

* 1. **L. CYMBALÁRIA**, Mill.—*Ivy-leaved Toadflax*. Stem filiform, trailing and rooting, 1—2 ft. long. Le. cordate, stalked, 5-lobed, quite smooth. Fl. small, solitary, *axillary*, pale blue or lilac, with a yellow palate.

A garden outcast. "Old walls, Bothwell Castle," *Hopk.* P. 5—9. Garden walls in various places.

2. **L. VULGÁRIS**, Moench.—*Yellow Toadflax*. Stem erect, 1—2 ft. high. Le. crowded, linear-lanceolate, glaucous-green. Fl. racemose, large, yellow, with an orange lower lip, *spur long and pointed*. Ped. with a few glandular hairs.

Peloria var. is a curious monstrosity, cultivated in gardens, having a regular cor. with 5 spurs.

Frequent. Hedges and borders of fields. (B) P. 7—10. Cambuslang; banks of the Kelvin; banks of Clyde above Dalmarnock bridge; on the railway banks near Eastfield; Gourrock to Arran.

3. **L. MÍNOR**, Desfon.—*Least Toadflax*. Stem erect, simple or branched, 3—4 in. high. Le. linear-lanceolate, blunt, with a slight glandular down. Fl. few, small, axillary and solitary. Ped. 3 times as long as the cal. Cor. small, spur short, blunt. Fl. pale purple, lower lip yellowish.

Very rare. (E) A. 5—10. Sandy corn fields at Tollcross. "Old walls, Barncluith," *Hopk.*

11. VERBÁSCUM. *Mullein.*

V. THÁPSUS, L.—*Shepherd's Club, High-Taper, Cow's Lungwort.* Stem erect, 2—4 ft. high. Le. densely woolly on both sides, decurrent, lower ones stalked, 6—8 in. long, crenate. Fl. in a long, dense spike. Cor. concave, about twice as long as the cal., golden yellow. Filaments of the 2 longest st. smooth, the other 3 covered with white wool.

Not common. Banks and thickets. (E) B. 6—8. "On old walls, Calderwood," *Ure*. "Banks of the Clyde below Renfrew," *Hopk.* Railway bank near Eastfield; Kilmun; Fairlie; Cumbræ and Arran.

55.—LABIATÆ.

1. LÝCOPUS. *Gipsy-Wort.*

L. EUROPÆ'US, L.—Stem erect, slightly hairy, 1—2 ft. high. Le. shortly stalked, ovato-lanceolate, deeply toothed or pinnatifid, especially at the base, wrinkled. Fl. very small, numerous, in dense axillary clusters, whitish, with purple dots.

Not common. Ditches and river banks. (B) P. 6—9. Forth and Clyde Canal; Gourock; Cumbræ; Bute and Arran.

2. MÉNTHA. *Mint.*

1. M. SYLVÉSTRIS, L.—Var. *alopecuroides*, Hull.—*Horse-Mint.* Le. "roundly cordate-oval, serrate, silky beneath. Spikes short, dense, bracts subulate. Fruit. cal. contracted at the mouth. Scent sweet."

Brodict, *Dr. Balfour*. Lamlash, *J. G. Baker*, who considers it a garden outcast.

* **2. M. VÍRIDIS, L.**—*Spear-Mint.* Le. sessile, oblong-lanceolate, coarsely serrate, smooth above, with a few hairs and glandular dots beneath. Spikes several, slender. Fl. smooth; smell very pungent.

This being much cultivated is often found growing in the vicinity of dwellings, especially watery places; near Hamilton; Largs; Bute and Arran.

3. M. AQUÁTICA, L.—*Water Capitate-Mint.* Stem branched, 12—18 in. high. Le. stalked, ovate, slightly heart-shaped, or rounded below, serrate, pubescent or slightly hairy. Fl. in dense oblong or round terminal clusters, occasionally with a few whorls in the axils of the upper le. Cal. tubular, with triangular teeth, and fine points, hairy as well as the pedicels.

Frequent. Marshes and river banks. (B) P. 8—9. Paisley, and Forth and Clyde Canal banks; Kelvin; Gourock to Arran.

4. M. SATÍVA, L.—*Marsh Whorled-Mint.* Stem spreading at the base, then erect, or ascending. Le. stalked, elliptical-ovate, serrate, more or less hairy. Fl. in dense axillary whorls, mostly

confined to the upper le. Cal. *tubular, triangular-lanceolate, acuminate*, hairy as well as the pedicels.

Frequent. Wet places and river banks. (B) P. 7—8. Banks of Clyde Inchinnan bridge; Hamilton, above the bridge; Gourrock to Arran.

Var. *rubra*, hairs confined to the upper part of the cal., *lower portion and pedicels smooth*.

Banks of a small stream below Lamlash, amongst bushes.

Var. *paludosa*, Sole. Stem and le. hairy; upper whorls of fl. very close, with small bracts; resembles *aquatica*.

In marshy places, amongst Hazel-bushes and Alders, at Lamlash, J. G. Baker.

5. *M. ARVÉNSIS*, L.—*Corn-Mint*. Stems spreading, branched, 6—12 in. high; similar in appearance to the former. Le. stalked, ovate, serrate. Fl. in axillary whorls, mostly absent in the terminal le. Cal. *bell-shaped, teeth triangular, as broad as long*, with spreading hairs.

Very common. In corn fields. (B) P. 6—9.

3. THÝMUS. *Wild-Thyme*.

T. SERPÝLLUM, L.—Stems procumbent, rooting, branched, wiry at the base, 6—12 in. long. Le. very small, ovate or oblanceolate, obtuse, entire, narrowed into the fringed base. Fl. capitate, on the apex of the ascending flowering stem, usually 6 in a whorl. Cor. purple. Cal. mostly hairy. Fragrant.

Very common. On all our mountains and dry heathy pastures. (B) P. 6—8.

Var. *Chamædrys*, Fr.—Stems ascending, barren shoots lateral. Le. larger, ovate, abruptly narrowed into the fringed petiole. Fl. in one or more whorls beneath the terminal head, flowering shoots exceeding the barren ones.

On heathy banks; not so plentiful as the species.

4. ORÍGANUM. *Common Marjoram*.

O. VULGÁRE, L.—Stem erect, 1—2 ft. high, hairy. Le. stalked, ovate or ovato-lanceolate, slightly toothed or waved, thinly covered with hairs. Fl. in globular compact heads, usually trichotomous. Bracts tinged with purple. Cal. with nearly equal teeth, hairy inside the mouth. Cor. twice the size of the cal., purple. Fragrant.

Not common. Dry bushy places, banks and hilly pastures. (B) P. 7—9. Kenmuir bank; Rotten Calder in several places; Falls of Clyde; Spout of Ballagan, &c.

5. TEÚCRIUM. *Wood-Germander*.

T. SCORODÓNIA, L.—*Wood-Sage*. Stem ascending or erect, 10—15 in. high. Le. stalked, oblong, cordate at the base, coarsely toothed, pale green below, wrinkled and downy. Fl.

in pairs, forming a one-sided raceme. Bracts small. Cor. yellowish white. Cal. with the upper tooth broad and slightly turned back.

Frequent. Woods and dry hedge banks. (B) P. 7—8. Tollcross; Cambuslang; Cathkin hills; Gourrock, &c.

6. A'JUGA. *Bugle.*

A. RÉPTANS, L.—*Common Bugle.* Stem throwing out creeping scions at the base, solitary, 6—10 in. high. Le. obovate, sinuate or broadly crenate, narrowed into a stalk. Floral le. or bracts sessile, upper ones coloured. Fl. in axillary whorls, the upper ones close together. Cor. blue, rarely white. •

Common. Moist pastures and woods. (B) P. 5—6. Carmyle and Kenmuir banks; Kelvinside wood, &c.

7. BALLÓTA. *Black-Horehound.*

B. NÍGRA, L.—Stem erect, hairy, branched 2—3 ft. high. Le. stalked, ovate or cordate, coarsely toothed. Bracts linear. Fl. in dense axillary clusters, shortly stalked. Cal. teeth broadly ovate, suddenly acuminate, tipped with a mucro, reflexed. Cor. short, purple. Plant covered with short hairs, having a disagreeable odour.

Very rare. Waste places near towns; "Cathcart Castle," *Hopk.* (E) P. 6—10.

8. LEONÚRUS. *Motherwort.*

* **L. CARDÍACA, L.**—Stem stiff, much branched, 2—3 ft. high, slightly downy. Le. stalked, lower ones deeply cut into 5—7 lobes, toothed. Floral le. narrow, wedge-shaped at the base, 3-lobed, uppermost ones entire. Fl. in crowded whorls, forming an interrupted spike. Cor. pink or nearly white, upper lip very hairy.

Very rare. Waste places. P. 7—9. "Craignethan Castle," *Hopk.* "Near Corehouse, Lesmahagow," *Patr.*

9. GALEÓPSIS. *Hemp-Nettle.*

1. G. TÉTRAHIT, L.—*Common Hemp-Nettle.* Stem erect, hispid, swollen below the joints, 1—2 ft. high. Le. ovate or oblong, acuminate, serrate, hispid. Fl. in whorls, numerous. Cal. teeth *twice as long as the tube.* Cor. tube of the same length as the cal., purple or white.

Very common. Cultivated ground, and in woods. (B) A. 7—9.

2. G. VERSÍCOLOR, Curt.—*Variegated Hemp-Nettle.* A stronger and coarser plant than the last, of nearly the same character in foliage. Cal. *teeth shorter than the tube.* Cor. very large, yellow, with a purple spot on the lower lip; upper one large, roundish-oval.

Very common. In cultivated ground. (S) A. 7—9.

10. LÁMIUM. *Dead-Nettle.*

1. **L. ÁLBUM**, L.—*White Dead-Nettle.* Stems decumbent or ascending, branched, flowering stems 8—12 in. high. Le. stalked, ovate, cordate at the base, acuminate, coarsely crenate. Fl. in close axillary whorls. Cal. teeth long, spreading. Cor. white, with a ring of hairs inside, upper lip long, arched.

Frequent. Waste places and hedges. (B) P. 5—9. Near Partick Mills, on the banks of the Kelvin; hedges opposite and above Clyde Iron-works; banks of the Cart near Langside; Busby, *Dr. Ross.*

A variety is found below Partick, in an old quarry, with white fl., and leaves with white blotches.

Var. *maculatum*, with purple fl., small le., and white blotches, is found near Barncluith, Hamilton; often the outcast of gardens.

2. **L. PURPÚREUM**, L.—*Red Dead-Nettle.* Stem spreading, branched, 6—10 in. high, lower le. small, orbicular, on long stalks; upper ones shortly stalked, ovate, heart-shaped, crenate, with a silky hairiness, and purplish tint. Fl. in axillary whorls. Cal. teeth as long as the tube, spreading. Cor. with the lateral lobes of the lower lip, having 2 fine teeth, tube slightly curved below, *with a ring of hairs within*; colour purplish red.

Very common. In cultivated and waste ground. (B) A. 2—11.

3. **L. INCÍSUM**, Willd. — *Cut-Leaved Dead-Nettle.* Stem branched, 6—12 in. high. Le. all stalked, cordate, incisedentate; upper or floral ones deeply cut, wedge-shaped at the base. Cal. teeth spreading, *as long as the tube.* Cor. reddish purple, with a straight tube, *naked within.*

Frequent. In cultivated ground. (B) A. 4—6. Cathcart; Rutherglen, &c.

4. **L. INTERMÉDIUM**, Fries.—*Intermediate Dead-Nettle.* Lower le. stalked, obtuse, inciso-crenate; upper or floral ones reniform-cordate, obtuse, sessile. Cal. teeth *spreading, longer than the tube.* Cor. reddish-purple, with a straight tube, and a slight ring of hairs within.

Not so common as the preceding. Cultivated fields. (S) A. 6—9. Cathcart; Cambuslang; Gourrock; Cumbræ and Arran frequent.

5. **L. AMPLEXICAÚLE**, L.—*Henbit Dead-Nettle.* Le. roundish cordate, wrinkled, bluntly inciso-crenate, floral ones sessile, clasping the stem. Cal. teeth slightly longer than the tube, *closing when in fruit.* Cor. remarkable for its fine deep rose-colour, tube long and slender, naked within, seldom expanding, with no teeth on the lateral lobes of the lower lip.

Frequent as a weed in gardens around Glasgow; Cathcart; Rutherglen; Cambuslang; Gourrock; Cumbræ &c. (B) A. 4—8.

11. BETÓNICA. *Wood-Betony.*

B. OFFICINÁLIS, L.—Stem hairy, 1—2 ft. high. Lower le. numerous, on long stalks, oblong, coarsely crenate, cordate at the base; upper le. few, distant, on short stalks or sessile, oblong-lanceolate, acute, serrate. Bracts linear, entire, as long as the cal. Fl. in dense whorls, collected into an oblong spike. Cor. much longer than the cal., purplish red; plant hairy.

Very rare. A few plants used to grow in Kenmuir wood and Cambuslang Glen; woods about Hamilton; and "In an island in the Clyde at Nethanfoot," *Patr.* (E) P. 6—8.

12. STÁCHYS. *Woundwort.*

1. S. SYLVÁTICA, L.—*Hedge-Woundwort.* Stem erect, branched, coarsely hairy, 2 ft. high. Le. all stalked, *ovate, cordate* at the base, acute, serrate. Bracts lanceolate, minute, entire. Whorls 6—8 flowered, forming a long terminal spike. Cal. teeth acute, spinous. Cor. dark purple, lower lip with white markings. Whole plant having a disagreeable smell; hairy, with longer ones on the veins beneath.

Common. On the edges of woods and shady banks. (B) P. 7—8. Langside wood; banks of the Kelvin, &c.

2. S. PALÚSTRIS, L.—*Marsh-Woundwort.* Stem erect, 1—2 ft. high, hollow. Lower le. shortly stalked, *linear-lanceolate* or oblong-lanceolate, rounded or cordate at the base; upper ones sessile, all serrated. Bracts small. Fl. in a short crowded spike, 6—10 in a whorl, pale purple. Not so hairy as the former, nor smelling so strongly.

Frequent. Banks of streams and moist places. (B) P. 7—8. Banks of the Forth and Clyde and Monkland Canals; Kelvin, &c.

Var. ambigua. Le. distinctly stalked, tube of cor. longer than in the former, considered a hybrid.

Frequent. Below Innellan; Cumbræ; Bute and Arran.

3. S. ARVÉNSIS, L.—*Corn-Woundwort.* Stems slender, ascending or erect, 3—12 in. high. Le. small, stalked, *ovate, cordate* at the base, *obtusely* crenate, slightly hairy. Bracts oblong, toothed. Fl. 4—6 in a whorl. Cal. with long teeth, ending in a small spine. Cor. pale purple, scarcely longer than the cal. Achenes dotted.

Frequent. In corn fields. (B) A. 5—9. Tollcross; Carmunnock; Gourrock; Largs; Cumbræ and Arran.

13. NÉPETA. *Catmint, Ground-Ivy.*

1. N. CATÁRIA, L.—*Catmint.* Stem erect, branched, 2—3 ft. high. Le. stalked, *ovate, cordate*, pointed and coarsely toothed,

downy, often whitish beneath. Whorls dense, many-flowered, forming oblong spikes. Cal. softly downy. Cor. white, spotted with red.

Very rare. "Hedges near Craignethan Castle," *Hopk.* (E) P. 7—9.

2. **N. GLECHÓMA**, Benth.—*Ground-Ivy, Gill, Ale-hoof*. Stem weak, creeping extensively, flowering ones shortly ascending. Le. stalked, reniform, crenate. Fl. in axillary whorls, stalked, 3 in each axil, united on one common pedicel, unilateral. Cal. teeth ending in a small sharp spine. Cor. with a tube twice as long as the cal., brilliant deep blue. Anth. forming a cross.

Frequent. Hedge banks and waste places. (B) P. 3—5. Carmyle woods; Cambuslang; banks of the Kelvin; Gourock to Arran.

14. CALAMÍNTHA. *Common Wild-Basil.*

1. **C. CLINOPÓDIUM**, Benth.—Stems mostly erect, softly hairy, 1—2 ft. high. Le. stalked, ovate, slightly toothed. Bracts subulate, hairy. Fl. in compact, crowded, hairy whorls. Cal. teeth subulate, hairy. Cor. with a long tube. Le. aromatic.

Frequent. Hilly places, in open woods. (B) P. 7—9. Kenmuir wood; Campsie glen; Paisley Canal bank, about 4 or 5 miles out. "In the woods, Hamilton," *Hopk.* "Side of Cart, near Busby," *Dr. Ross.*

2. **C. A'CINOS**, Clairv.—*Basil-Thyme*. Stems ascending, 6—8 in. long, much branched from the base. Le. ovate, acuminate, shortly stalked, subserrate. Cal. gibbous at the base, 3 upper teeth triangular and recurved. *Whorls of about 5—6 fl.* Cor. bluish purple. Leaves fragrant.

Very rare. Dry banks. (B) A. B. 7—8. Bonnington farm, near Lanark, *Mr. Dunlop*. Newton, above Cambuslang.

15. PRUNÉLLA. *Self-heal.*

P. VULGÁRIS, L.—Stems procumbent, with ascending flowering branches, 3—9 in. high. Le. stalked, ovato-oblong, slightly toothed. Bracts large, reniform, suddenly acuminate. Fl. in whorls, forming an oblong spike. Cal. with a truncate upper lip, dark purplish red. Cor. blue, rarely white, lower lip with a toothed margin.

Common. On roadsides and barren pastures. (B) P. 7—8.

16. SCUTELLÁRIA. *Skullcap.*

1. **S. GALERICULÁTA**, L.—*Common Skullcap*. Stem procumbent, then ascending in flower, 8—12 in. high. Le. with very short stalks, ovato-lanceolate, rounded or cordate at the base. Fl. axillary, nearly sessile, one from each axil and turning to the same side along the stem. Cor. large, dingy light blue. Whole plant downy.

Frequent. Banks of lakes and in stony places by the sea shore. (B) P. 7—8. "Brother Loch, Mearns," *Dr. Ross.* Bowling; Dumbarton; Gourock to Arran.

2. *S. MÍNOR*, L.—*Lesser Skullcap*. A smaller and smoother plant than the last, 4—8 in. high. Le. entire. Fl. small, pale pink, lower lip spotted.

Very rare, and probably extinct in the vicinity of Glasgow; as the station of *Ure's*, at Rosebank on the Clyde, is now cut up by a railway; and the last one picked was at Buttery-burn Loch, 25 years ago. "Bog between Luss and Helensburgh," *H. & A.* Cockle Bay, Bute. (E) P. 7—10.

56.—LENTIBULARIACEÆ.

1. PINGUÍCULA. *Butterwort*.

1. *P. VULGÁRIS*, L.—*Common Butterwort*. Le. all radical, spreading, pale green, fleshy, covered with minute crystalline points, margins involute, curving back from the point after being gathered, hiding the roots. Scape 3—5 in. high, with a single drooping violet-blue fl., palate hairy; spur subulate. Capsule ovate.

Frequent. Bogs and heaths. (S) P. 5—7. Cathkin hills; banks of the Kintoch burn; marshy places all round the shores of the Firth, and on the hills plentiful.

2. *P. LUSITÁNICA*, L.—*Pale Butterwort*. Smaller than the last, with a slender downy scape. Fl. pale yellow, tinged with purple; spur cylindrical, obtuse, curved, shorter than the limb of the cor. Cap. globose.

Not common. Wet bogs. (A) P. 6—9. Cumbræ; Bute and Arran.

2. UTRICULÁRIA. *Bladderwort*.

1. *U. VULGÁRIS*, L.—*Greater Bladderwort*. A floating plant, 6—12 in. long, or even more in deep water. Le. multifid, segments capillary, bearing little green bladders, with a small crest. Flowering stems 6—8 in. high, with 6—8 rather large, bright yellow fl. in a raceme. Spur about half the length of the cor., more or less curved, conical. Palate broad, convex, upper lip short.

Very rare. (B) P. 6—7. "Deep hole in the marsh, Possil; also at Robroyston?" *Hopk.* "Loch Davie, Arran," *Lands.* Island of Cumbræ.

2. *U. MÍNOR*, L.—*Lesser Bladderwort*. Smaller in size than the last, very much branched, slender. Le. small, tripartite, and repeatedly forked, bearing 1—2 bladders. Fl. small, pale yellow. Spur very short, or a mere projecting blue point.

Not common. Ditches, pits, and pools. (B) P. 6—9. Frankfield Loch; Possil marsh; St. Germans Loch; and Cumbræ.

57.—PRIMULACEÆ.

1. PRÍMULA. *Primrose, Cowslip*.

1. *P. VULGÁRIS*, L.—*Primrose*. Le. all radical, obovate-oblong, tapering from the middle downwards, toothed, wrinkled, pale

green. Fl. on a sessile umbel, erect, dimorphous. Cal. tubular, teeth narrow and pointed. Cor. large, pale yellow, sometimes reddish purple, *limb large, flat*, tube with scale-like folds in the mouth.

Two varieties are made out of this single species, one with the flowers springing from an extremely short stalk, concealed by the base of the le., the other with the stalk rising above the le., and bearing the flowers in an umbel—this last is the origin of our garden *polyanthus*. I have a root gathered on Cathkin hills, with the rhizome in two branches, the one branch bearing the flowers in a sessile umbel, the other having them elevated on a stalk, as in the *polyanthus*. Common. Woods and hedge banks. (B) P. 4—5.

*2. **P. VÉRIS**, L.—*Cowslip, Paigle*.—Le. all radical, ovate, crenate, suddenly contracted below the middle, wrinkled, downy. Peduncle elongated. Fl. in an umbel, nodding. Cal. teeth broad, obtuse. Cor. concave, smaller than in the former, with scale-like folds in the contracted mouth of the tube, dull yellow, with orange spots at the base of the limb.

Rare and introduced. Cathkin; Bothwell and around Hamilton. (B) P. 4—5.

2. GLAÚX. *Sea-Milkwort, Black-Saltwort.*

G. MARÍTIMA, L.—Stem decumbent then erect, branched, 3—8 in. high. Le. ovate, entire, opposite, sessile, fleshy. Fl. axillary, solitary, sessile rose-coloured or pale pink.

Very common. In muddy salt marshes, all along the Firth. (B) P. 6—7.

3. LYSIMÁCHIA. *Loosestrife.*

1. **L. VULGÁRIS**, L.—*Great Yellow Loosestrife*. Stem erect, branched, 2—3 ft. high. Le. nearly sessile, ovato-lanceolate, usually in whorls of 3—4. Fl. in short compound, leafy racemes in the upper axils of the branches, and terminal, forming a large leafy panicle. Cor. large, yellow, nearly campanulate; lobes of the limb entire; filaments minutely glandular; plant downy.

Very rare. Banks and shady places near water. (E) P. 7—8. Kenmuir bank; Cambuslang; banks of the Clyde at Bowling.

L. ciliata, L.—Banks of the Leven above Dumbarton; “banks of Loch Lomond,” *Mr. Gault*. Not native.

2. **L. THYRSIFLÓRA**, L.—*Tufted Loosestrife*. Stem erect, 1—2 ft. high. Le. opposite, sessile, lanceolate, entire, with minute raised dots. Racemes axillary, on long peduncles. Fl. numerous, small, collected into a *dense thyrsus*. Cal. with narrow segments. Cor. deeply divided, often into 6 parts, yellow with orange dots.

Not common. Wet marshes and streams. (I) P. 7. Possil marsh; Forth and Clyde Canal at Lambhill bridge, going east on the south bank; Monkland Canal beyond Blackhill locks.

3. **L. NÉMORUM**, L.—*Yellow-Pimpernel, Wood-Loosestrife*. Stem prostrate, 6—12 in. long. Le. opposite, on very short stalks,

ovate, pointed. Fl. axillary, on slender pedicels, *longer than the leaves*. Sep. narrow. Cor. rotate, bright yellow. St. smooth. Pedicels curving backwards as the fruit ripens.

Common. Woods and shady banks. (B) P. 5—6. Kelvinside wood; Carmyle and Kenmuir; Cambuslang glen, &c.

4. **L. NUMMULÁRIA**, L.—*Moneywort, Herb-Twopence, Creeping-Loosestrife*. Stem prostrate, creeping, branched. Le. opposite, shortly stalked, ovate or rounded, obtuse. Fl. axillary, solitary, *pedicels shorter than the le.* Sep. cordate, ovate, pointed. Cor. large, bright yellow, deeply divided.

Not common. Can scarcely be considered native. (E) P. 6—7. Hedge bank, beside a rivulet at east Harvey's dyke; old road west of Cambuslang; Bothwell, &c.

4. ANAGÁLLIS. *Pimpernel.*

1. **A. ARVÉNSIS**, L.—*Poor Man's Weather-Glass, Scarlet Pimpernel*. Stem procumbent, fl. branches ascending, 6—12 in. long. Le. opposite, sessile, ovate, dotted beneath. Fl. axillary, solitary. Pedicels longer than the le., bent back in fruit. Cal. nearly as long as the cor., pointed. Cor. rotate, fringed on the edge with minute glandular hairs, bright scarlet.

Frequent. Corn fields and gardens. (B) A. 5—10. Tollcross; Cathcart; Gourock. Very common in Bute; Cumbræ and Arran.

The blue variety, cultivated in gardens as an annual, is by some ranked as a species, under the name *A. cærulea*, but rarely found.

2. **A. TENÉLLA**, L.—*Bog-Pimpernel*. Stem prostrate, slender, filiform, 3—4 in. long. Le. very small, opposite, orbicular, shortly stalked. Fl. on long slender pedicels, axillary. Cor. bell-shaped, deeply cleft, rose-coloured or pink. A very elegant little plant, adorning the mossy bogs on which it grows.

Not common. (B) P. 7—8. Helensburgh; Gourock; Bute; Cumbræ and Arran.

5. CENTÚNCULUS. *Chaffweed, Bastard-Pimpernel.*

C. MÍNIMUS, L.—Stems 1—2 in. long, prostrate. Le. alternate, ovate, acute. Fl. axillary, very small, pale rose-colour, shorter than the leaves.

Rare. Moist gravelly places in Cumbræ and Arran. (E) A. 7—8.

6. SÁMOLUS. *Brookweed, Water-Pimpernel.*

S. VALERÁNDI, L.—Stem erect, 8—10 in. high. Le. tufted at the base of the stem, obovate, tapering into the footstalk. Stem le. few, oblong, with a small point. Fl. in a loose raceme, small, white, with a bract above the middle of the pedicels. Fruit crowned by the teeth of the cal.; plant quite smooth.

Common. In salt marshes by the sea coast, all round the Firth. (E) P. 7—8.

58.—PLUMBAGINACEÆ.

1. ARMÉRIA. *Thrift, Sea-Pink, Sea-Gilliflower.*

A. VULGARIS, Willd.—Rhizome thick, tufted. Le. all radical, linear, grooved and dotted above. Scape 3—6 in. high, bearing a head of pale purple or pink fl.; with a reflexed sheath or involucre round the upper portion of the scape. Fl. intermixed with scales.

Very common. On rocks by the sea side all round our shores. (B) P. 4—9.

59.—PLANTAGINACEÆ.

1. PLANTÁGO. *Plantain.*

1. **P. MÁJOR**, L.—*Greater Plantain, Way-Bread.* Le. all radical, spreading, broadly ovate, 7—9-ribbed, converging at the base into a grooved footstalk. Scape 6—12 in. high. Spike long, with greenish fl., closely arranged on the rachis. Bracts ovate, keeled. Sep. green in the centre, scarioso on the edge. St. longer than the cor. *Anth. purple.* Capsule 2-celled, with 4—8 seeds in each.

Very common. On roadsides and pastures. (B) P. 6—8.

* 2. **P. MÉDIA**, L.—*Hoary Plantain.* Le. all radical, spreading flat on the ground, sessile, or shortly stalked, elliptical, hoary with short down. Spike cylindrical, shorter than in the former species, 1—2 in. long, shining from the silvery scarious cor. Sep. not keeled. Filaments purple, *anthers yellow.* Cap. 2-celled, with one seed in each.

Very rare, and only found as an introduced plant with grass seeds, not retaining its place so as to become permanent in pastures. (E) P. 6—10.

3. **P. LANCEOLÁTA**, L.—*Ribwort Plantain.* Le. all radical, lanceolate, tapering into a short footstalk, often with tufts of long hairs at the base. *Scape furrowed, hairy.* Spike ovate or oblong. Bracts ovate, blackish at the tips, acute or cuspidate. Sep. keeled, tips black. Filaments long, slender. *Anthers yellow.* Cap. 2-celled, with one seed in each.

Very common. On roadside and pastures. (B) P. 6—7.

Var. *Timbali*, Jord.—Bracts and sepals with broad silvery margins. Clover fields on the Kilmarnock Road, introduced.

4. **P. MARÍTIMA**, L.—*Sea-side Plantain.* Le. linear, channelled, thick and fleshy, sometimes slightly toothed, woolly at the base. Scape round. Spike 1—2 in. long, cylindrical, with rather lax fl. Cor. tube pubescent. Cap. 2-celled, with one seed in each.

"On the roadside near to the avenue into Whitemoss," *Ure.* "At the waterfall near Linn House, Cathcart," *Dr. Ross.* Very common on the shores of the Firth. (B) P. 6—9.

A variety is found among rocks in Cumbræ, with the le. plain, scape densely hairy, *H. & A.*

5. **P. CORÓNOPUS**, L.—*Buck's-Horn Plantain, Star of the Earth*. Le. spreading in a dense tuft, linear pinnatifid or coarsely toothed; segments linear, sometimes toothed, more or less hairy. Scape round. Spike cylindrical, slender, 1—2 in. long. Bracts ovato-subulate. Lateral sep. with a *ciliate membranous wing*. Ovary 4-celled.

Common. On gravelly places and dry banks by the sea coast. (B) A. 6—7.

2. LITTORÉLLA. *Plantain Shore-Weed*.

L. LACÚSTRIS, L.—Le. all radical, tufted, $1\frac{1}{2}$ —3 in. long, linear, fleshy. Ped. of the male fl. 2—3 in. long, bearing 1 or 2 white fl., with filaments upwards of half an inch long. Female fl., sessile in the axils of the le., with a long filiform style.

Common. On the margins of our lakes. (B) P. 6—7. Hogganfield, Frankfield, Bardowie, and St. Germans lochs; Cumbræ; Bute and Arran.

Sub-Class 4.—MONOCHLAMYDEÆ.

A. Barren flowers not in catkins.

1. Ovary 1-celled or with a solitary ovule.

Ord. 60. **CHENOPODIACEÆ**.—Perianth 3—5-cleft. Fruit a utricle. Stipules one. Le. fleshy.

Ord. 61. **SCLERANTHACEÆ**.—Perianth tubular, 4—5-cleft, enclosing the utricle. Styles 2. St. 10, several barren. Stipules none.

Ord. 62. **POLYGONACEÆ**.—Perianth 4—6 partite. Styles and stigmas several. Achenes triangular, sometimes compressed. Stipules (*Ochreæ*) usually tubular.

Ord. 67. **URTICACÆ**.—Fl. monœcious or dioecious. Achenes lenticular. Stamens elastic. Stipules membranous, free.

Ord. 63. **THYMELACEÆ**.—Perianth tubular. Stamens inserted in the tube. Style 1. Stigma 1. Fruit a berry. Without stipules.

For Alchemilla see Rosaceæ.

2. Ovary 2 or more celled, or with several ovules.

Ord. 64. **EMPETRACEÆ**.—Fl. dioecious, Perianth of several scales in 2 rows. St. 3. Stigma peltate. Fruit a berry. Le. *heath-like*.

Ord. 65. **EUPHORBACEÆ**.—Fl. imperfect. Perianth none or 3-partite. Styles 2—3. Capsule 2—3-celled.

Ord. 66. **CALLITRICHACEÆ**.—Fl. monœcious. Perianth none. St. 1. Ovary 4-celled. Fruit keeled on the back. Le. opposite, simple.

Ord. 68. *ULMACEÆ*.—Fl. mostly perfect. Perianth membranous, 3—8-cleft. Fruit a double samara. Le. scabrous. *Trees*.

For Fraxinus see Oleaceæ.

B. Barren flowers in catkins.

Ord. 69. *ELÆAGNACEÆ*.—Dioecious. Barren fl. somewhat amentaceous. Ovary enclosed in the succulent perianth tube. Le. covered with scurf or scales. *Shrubs*.

Ord. 70. *MYRICACEÆ*.—Fl. all, amentaceous. Perianth none. St. 2—8. Fruit surrounded by persistent scales. Le. aromatic. *Shrubs*.

Ord. 71. *BETULACEÆ*.—Fl. all amentaceous, monœcious. Scales of the fertile catkin 2-lobed. Ovary 2-celled, each with 1 seed. *Trees*.

Ord. 72. *SALICACEÆ*.—Fl. all amentaceous. St. 1 or numerous. Ovary 1-celled, many-seeded; seeds when ripe covered with hairs.

Ord. 73. *CUPULIFERÆ*. Barren fl. in catkins, or in a lax spike. Fertile fl. clustered, or in loose catkins. Ovary inferior, with 2 or more cells. Fruit a 1-celled nut, more or less surrounded by a coriaceous involucre. *Trees*.

GENERA OF MONOCHLAMYDEÆ.

ORD. 60.—CHENOPODIACEÆ.

1. *CHENOPODIUM*.—Fl. perfect. Peri. 3—5-cleft, persistent, not altered when ripe. St. 5. Stigmas 2—3. Ovary not combined with the perianth. Seed crustaceous, lenticular. Le. flat.
2. *ATRIPLEX*.—Flowers imperfect, monœcious or dioecious. *Barren fl.* Peri. 3—5-partite. St. 5. Style none. *Fertile fl.* Peri. of 2 valves, or flat bracts, enclosing the utricle. Seeds vertically compressed. Le. flat.
3. *SALICORNIA*.—Flowers perfect, immersed in an excavation of the rachis. Peri. fleshy, obscurely lobed, flat. St. 1—2. Style short. Stigma bifid. Fruit covered by the persistent perianth. *Stems jointed*.
4. *SUÆDA*.—Flowers perfect. Peri. 5-partite. St. 5. Style none. Stigmas 3. Flowers with bracts. *Le. fleshy*.
5. *SALSOLA*.—Flowers perfect. Peri. inferior, 5-cleft, persistent, segments with a scarious wing at the top when ripe. St. 5. Styles 2. Seeds horizontal. *Le. fleshy with prickly points*.

ORD. 61.—SCLERANTHACEÆ.

1. SCLERANTHUS.—Peri. 5-cleft, contracted at the mouth. St. 10, often with 5 abortive, inserted in the mouth of the tube. Styles 2. Fruit enclosed in the hardened tube of the perianth.

ORD. 62.—POLYGONACEÆ.

1. POLYGANUM.—Peri. 5-partite. St. 5—8. Styles 2—3. Achene triangular, sometimes compressed.
2. RUMEX.—Peri. 6-partite; the 3 inner segments large, at length covering the triquetrous fruit, enlarged, and often bearing tubercles. St. 6. Styles 3.
3. OXYRIA.—Peri. 4-partite; the 2 inner segments larger than the others. St. 6. Styles 2. Achene compressed with a membranous wing.

ORD. 63.—THYMELACEÆ.

1. DAPHNE.—Peri. 4-cleft. St. 8, inserted in the tube. Berry fleshy, 1-seeded.

ORD. 64.—EMPETRACEÆ.

1. EMPETRUM.—*Barren fl.* Peri. 3-partite, petaloid, with several external bracts. St. 3. *Fertile fl.* as in the barren, with 1 style and a peltate stigma. Fruit a globose 1-celled berry.

ORD. 65.—EUPHORBIACEÆ.

1. MERCURIALIS.—Fl. dioecious. *Barren fl.* Peri. tripartite. St. 9—16. *Fertile fl.* Per. tripartite. Styles 2. Capsule 2-celled, 2-seeded.
2. EUPHORBIA.—Fl. monœcious, collected into a small head surrounded by a bell-shaped involucre. *Barren fl.* consisting of one st. jointed near the middle. *Fertile fl.* with a 3-lobed ovary. Styles 3. Peri. none.

ORD. 66.—CALLITRICHACEÆ.

1. CALLITRICHE.—Flowers monœcious. Bracts 2, fistular. Peri. none. St. 1, rarely 2. Ovary compressed. Styles 2. Fruit 4-celled, 4-lobed.

ORD. 67.—URTICACEÆ.

1. URTICA.—Monœcious or dioecious. *Barren fl.* Peri. 4-partite. St. 4. *Fertile fl.* Peri. 2-partite. Stigma 1, sessile, tufted. Seeds flattened. Le. opposite.

2. PARIETARIA.—Fl. polygamous. Peri. bell-shaped, 4-partite, surrounded by an involucre. St. 4. Style filiform.
3. HUMULUS.—Dioecious. *Barren fl.* Peri. 5-partite. St. 5. *Fertile fl.* in a catkin. Peri. or scales concave. Stigmas 2, sessile, filiform. *Twining plants.*

ORD. 68.—ULMACEÆ.

1. ULMUS.—Peri. campanulate, 4—5-cleft, persistent. St. 5. Styles 2. Seed winged all round (*a samara*). *Trees.*

ORD. 69.—ELÆAGNACEÆ.

1. HIPPOPHAË.—Dioecious. *Barren fl.* in a sort of catkin, scales 1-flowered. Peri. 2-partite. St. 4. *Fertile fl.* solitary. Peri. tubular. Style short. Stigma long. Seed enclosed by the fleshy perianth. *Shrubs.*

ORD. 70.—MYRICACEÆ.

1. MYRICA.—Dioecious. Flowers in catkins. *Barren fl.* Scales concave. St. 4—8. *Fertile fl.* Styles 2. Berry superior, 1-seeded. *Shrubs.*

ORD. 71.—BETULACEÆ.

1. BETULA.—Monœcious. *Barren fl.* in catkins. Peri. none. St. 10—12. *Fertile fl.* with 3-lobed, 3-flowered scales, deciduous. Fruit winged. *Trees.*
2. ALNUS.—Monœcious. *Barren fl.* in catkins. Scale 3-lobed, 3-flowered. Peri. 4-partite. St. 4. Scales of the *fertile catkin* 2-fl., coriaceous, persistent. Styles 2. Fruit compressed, without wings. *Trees.*

ORD. 72.—SALICACEÆ.

1. SALIX.—Dioecious. Flowers in catkins. *Barren fl.* Scales entire. St. 1—5. *Fertile fl.* with a free 1-celled ovary, 1—2 glands at its base. Seeds hairy. *Trees or shrubs.*
2. POPULUS.—Dioecious. *Barren fl.* in catkins. Scales lacerated. St. 4—30. *Fertile fl.* with a cup-shaped peri. Stigmas 4—8. *Trees.*

ORD. 73.—CUPULIFERÆ.

1. FAGUS.—Monœcious. Fl. in catkins. *Barren catkin* globose. Peri. 5—6-cleft. St. 8—15. *Fertile fl.* 2, in a 4-lobed prickly involucre. Stigmas 3. Nuts 1—2, enclosed in the hardened involucre. *Trees.*

2. CASTANEA.—Monœcious. *Barren fl.* in long spikes. Peri. 5—6-cleft. St. 8—20. *Fertile fl.*, usually 3, within a 4-lobed prickly involucre. Stigmas 6. Nuts 1—2, within the enlarged involucre. *Trees.*
3. QUERCUS.—Monœcious. *Barren fl.* in a lax catkin or spike. Peri. 5—7-cleft. St. 5—10. *Fertile fl.* nearly solitary, within a scaly involucre. Stigmas 3. Nut 1, closely surrounded at its base with the solid, scaly, enlarged involucre. *Trees.*
4. CORYLUS.—Monœcious. *Barren fl.* in a long cylindrical catkin. Scales 3-cleft. St. 8. Anthers 1-celled. *Fertile fl.* surrounded by scaly involucres, compacted together. Styles 2. Nut 1, surrounded by the enlarged lacinated involucre. *A shrub or tree.*
5. CARPINUS.—Monœcious. *Barren fl.* in long catkins. Scales roundish. St. 8—14. Anthers 1-celled. *Fertile fl.* in a lax catkin; scales deciduous. Styles 2. Nut 1-seeded. *Trees.*

SPECIES OF MONOCHLAMYDEÆ.

60.—CHENOPODIACEÆ.

1. CHENOPÓDIUM.

Goose-Foot.

1. **C. ÁLBUM**, L.—*White-Goosefoot, Mites, Meldweed.* Stem erect, 1—2 ft. high. Le. stalked, lower ones ovate or rhomboidal. sinuate-toothed, base entire, upper le. lanceolate, nearly entire, all covered with a *white mealy substance*. Fl. in dense axillary spikes. Seeds horizontally compressed, keeled on the edge.

Common. Cultivated fields and waste places. (B) A. 7—9.

Var. *Viride* is equally common, with green le., and more entire. Spikes branched, elongated.

* 2. **C. RÚBRUM**, L.—*Red Goosefoot.* Stem erect, mostly reddish, 1—2 ft. high, broadly ovate, triangular or rhomboidal. Spikes dense, leafy. Fl. mostly with 2—3 segments to the perianth. Seeds erect, not *horizontally compressed*, very slightly keeled on the edge.

"In waste ground and among rubbish frequent"? *Hopk.* On rubbish, Tradeson: introduced. (E) A. 8—9.

3. **C. BONUS-HENRÍCUS**, L.—*Good King Henry, Mercury-Goosefoot, All-Good.* Stems striate, 12 in. high. Le. large, on long stalks, *triangular-hastate*, entire, dark green; upper le. nearly

sessile. Spikes compound, erect, leafless. Stigma long. Seed vertical, not covered by the peri., smooth and shining.

Not common. "In the lanes near the village of Cathcart," *Hopk.* Still found in the hedges of the village. "In Bothwell Churchyard and Mugdock Castle," *Hopk.* (B) P. 5—8.

2. A. 'TRIPLEX. *Orache.*

1. **A. PORTULACÓIDES**, L.—*Shrubby-Orache, Sea-Purslane.* Stem straggling, much branched, shrubby. Le. obovato-lanceolate, entire, attenuated below, covered with a silvery scaliness; upper le. linear. Spikes short, interrupted. Fl. small, yellowish. Fruiting peri. *united nearly to the top*, more or less toothed. Seeds acute.

Very rare. "Near Helensburgh on the shore," *Hopk.* (E) P. 8—10.

2. **A. LACINIÁTA**, Sm.—*Frosted Sea-Orache.* Stem prostrate, herbaceous, buff-coloured. Le. broadly triangular or rhomboidal, sinuato-dentate, *mealy beneath*. Spike of sterile fl. dense, leafless. Fertile fl. clustered in the axils of the le. Peri. of the fruit often broader than long, 3-ribbed or tubercled on the back. Seeds rough.

Frequent. On the sandy sea beaches of the Firth. Lamlash, *Dr. Syme.* (L) A. 7—9.

3. **A. BABINGTÓNI**, Woods.—*Spreading-Fruited Orache.* Stem herbaceous, spreading, procumbent, with resinous reddish stripes. Le. ovato-triangular, somewhat 3-lobed or unequally sinuato-dentate; upper ones lanceolate, dentate, often 3-lobed. Peri. of the fruit acute, toothed, thick and coriaceous, tubercled on the back. Spikes terminal and axillary, few-flowered. Seeds compressed, minutely tubercular. *Plant covered with mealy scales.*

Frequent. On the sandy sea beaches of Cumbræ; Bute and Arran. (B) A. 7—9.

4. **A. PÁTULA**, L.—*Spreading Halberd-Leaved Orache.* Stem erect or prostrate, herbaceous, striate. Lower le. hastate-triangular, with spreading lobes, coarsely toothed; upper ones nearly entire. Fl. clustered in axillary interrupted spikes, nearly simple. Peri. of fruit triangular-rhomboidal, tubercled on the back, toothed or entire on the margin, united only at the base. Seeds compressed and *wrinkled*.

Very common. Cultivated and waste ground. (B) A. 6—10.

5. **A. ANGUSTIFÓLIA**, Sm.—*Spreading Narrow-leaved Orache.* Stem herbaceous, erect or prostrate. Le. mostly lanceolate, upper ones linear, entire. Peri. of the fruit entire, with ascending lateral angles, smooth on the back. *Seeds smooth, black and polished.*

Common. In cultivated and waste ground. (B) A. 7—10.

Var. *erecta*, with the lower le. sinuato-dentate. Per. of the fruit denticulate, more or less tuberculate on the back. Spikes short, dense, many-flowered. In the same stations as the last.

3. SALICÓRNA. *Glasswort.*

S. HERBÁCEA, L.—*Jointed-Glasswort*. Stem succulent, jointed; smooth, bright green, erect, leafless, 3—6 in. high, much branched, articulations of the stem thickened upwards, notched. Fl. in succulent spikes, jointed as in the stem, placed in a triangle at the joints. Seeds oval, covered with hooked hairs.

Frequent. On the shores of the Firth, from Gourock to Arran, extending up into the Holy Loch and Loch Long. (B) A. 8—9.

4. SUÆ'DA. *Sea-Blite.*

S. MARÍTIMA, Dumort.—Stem branched, erect or procumbent, 4—8 in. long. Le. linear, thick, fleshy, acute. Fl. axillary, sessile, solitary, 2—3 together, each having 2 small bracts at the base.

Frequent. On the shores of the Firth. (B) A. 7—9.

5. SÁLSOLA. *Saltwort.*

S. KÁLI, L.—*Prickly-Saltwort*. Stem hard, much branched, procumbent, smooth, 6—12 in. long. Le. semi-cylindrical, subulate, ending in a prickle; upper ones short and broad, both scabrous. Fl. axillary, solitary with 3 bracts at the base. Peri. cartilaginous with a membranous dorsal appendage.

Frequent. On the sandy shores of the Firth; Largs; Cumbræ; Bute and Arran. (B) A. 7—8.

61.—SCLERANTHACEÆ.

1. SCLERÁNTHUS. *Annual-Knawel.*

S. ÁNNUUS, L.—Stems spreading, much branched, 2—4 in. high. Le. opposite, united at the base by a narrow membranous edge, fringed on the margin. Fl. very small, green, solitary or in axillary clusters. Peri. urceolate, enlarged after flowering with spreading segments, and a narrow membranous margin. Plant slightly downy.

Frequent. Sandy corn fields. (B) A. B. 6—8. Tollcross, roadside on the tops of walls beyond Lambill; banks of Clyde at Bogle's hole; Gourock, &c.

62.—POLYGONACEÆ.

1. POLÝGONUM. *Bistort, Knotgrass, Persicaria.* Styles 3.

1. **P. BISTÓRTA**, L.—*Snake-Weed, Common-Bistort.* Stem

simple, erect, 1—2 ft. high. Radical le. ovato-lanceolate, on long winged footstalks; stem le. nearly sessile, ovate, subcordate. Racemes terminal, dense, oblong. Fl. pink, with small bracts.

Frequent. Moist meadows and borders of fields. (B) P. 6—9. Banks of Clyde above Rosebank; west end of Cambuslang; banks of the Kelvin. "Kilbride," Ure. Cumbræ and Arran.

2. **P. VIVÍPARUM**, L.—*Viviparous Alpine-Bistort*. Stem simple, slender, 4—8 in. high. Radical le. on long stalks, linear or oblong; stem le. nearly sessile, linear-lanceolate, margins revolute. Spike lax, *bulbiferous at the base*, terminating with a few white flowers.

Frequent. On the tops of the highest mountains. (H) P. 6—8. Ben Lomond hills above Loch Eck.

3. **P. AVICULÁRE**, L.—*Common Knot-Grass*. Stem erect or prostrate, wiry. Le. stalked, elliptic or lanceolate. Ochrea 2-lobed, becoming white and ragged on the edges. Fl. axillary, small, on short stalks, green and pink, with white edges. *Achene covered by the peri., striate, with raised points.*

Very common. Waste places and roadsides. (B) A. 5—9.

A variety is got growing on sand by the sea side, with thickish le., and the achenes finely striate, punctures minute. *P. littorale*, Link.

4. **P. RAÍ**, Bab.—*Ray's Knot-Grass*. Stem prostrate, long, and straggling. Le. elliptic-lanceolate. *Peri. not covering the large, smooth shining achene.*

Frequent. On sandy sea shores. (B) A. 7—9. Bute; Innellan; Cumbræ and Arran.

* 5. **P. FAGOPÝRUM**, L.—*Common Buck-Wheat, Brank*. Le. stalked, *cordato-sagittate*, acute. Fl. in cymose panicles.

An escape from cultivation. New City road; rubbish on the Possil road. A. 7—8.

6. **P. CONVÓLVULUS**, L.—*Climbing Buck-Wheat, Black Bind-weed*. Stems angular, twining, very long. Le. stalked, *cordato-sagittate*, pointed. Ochrea short. Fl. racemose, lower ones in small, *loose axillary clusters*. Peri. greenish, keeled on the back. Achene striate with minute points.

Common. In corn fields and waste places. (B) A. 7—9.

Styles usually 2.

7. **P. AMPHÍBIUM**, L.—*Amphibious-Bistort*. Stems long. Le. floating, *stalked*, rising from long ochreae, broadly-lanceolate, smooth, rough on the margins. Fl. in oblong spikes, solitary, terminal, rose-coloured.

Frequent. Floating in ponds and lakes. (B) P. 7—8. Hogganfield and Bardowie lochs; quarry at Possil; Gourrock to Arran.

Var. *terrestre*.—Le. narrow, rough, with short rigid hairs.

Frequent. Growing on dry places and moist banks. Hogganfield and Frankfield.

8. **P. PERSICÁRIA**, L.—*Spotted-Persicaria*. Stems erect, branched, 1—2 ft. high. Le. stalked, lanceolate, upper ones sessile, often marked in the centre by a dark blotch, smooth or sometimes hoary below. Ochreæ loose, *fringed with short glandular bristles*. Spikes terminal, oblong. Perianth smooth, reddish, sometimes green. Ped. never glandular.

Common. Cultivated ground and damp places. (B) A. 7—10.

9. **P. LAPATHIFÓLIUM**, L.—*Pale-flowered Polygonum*. Stem 1—2 ft. high. Le. oblong-lanceolate, tapering into the footstalk, glandular beneath. Lower ochreæ *not fringed*, upper ones fringed, without glands. Ped. and Peri. dotted with small glands. Fl. pale green, or slightly tinged with red.

Frequent. Corn fields and waste places. (B) A. 7—8. Forth and Clyde Canal banks; Cathcart; Gourrock to Arran.

10. **P. HYDRÓPIPER**, L.—*Biting-Periscaria*, *Water-Pepper*. Stem 1—2 ft. high, often decumbent at the base. Le. lanceolate, waved. Ochreæ swollen, fringed with glandular hairs. Spikes lax, *at first drooping*, narrow interrupted. Ped. smooth. Peri. glandular. *Ach. dotted*. Taste hot and peppery.

Common. Ditches and sides of ponds. (B) A. 8—9. Quarry below Partick; banks of Kelvin; Clyde and Cart.

11. **P. MÍNUS**, Huds.—Stems 6—10 in. long, procumbent, flowering branches erect. Le. linear-lanceolate, with short petioles. Ochrea fringed, without glands. Spikes lax, slender, erect, with few flowers. Peri. *without glands*. *Ach. smooth*.

Rare. On the gravelly banks of the Black Loch, Mearns, *Dr. Ross*. (E) A. 8—9.

2. RÚMEX. *Dock, Sorrel*.

A. Plants not acid.

1. **R. HYDROLÁPATHUM**, Huds.—*Great Water-Dock*. Stems erect, 3—5 ft. high. Le. lanceolate, acute; lower ones often 1½—2 ft. long. Panicle long, whorls crowded. Enlarged segments of the peri. ovate-triangular, entire, reticulate, *each bearing a tubercle*.

Very rare. "Borders of the lake at Woodhall," *Patr*. Lakes near Corehouse, *Mr. Dunlop*. Between Fairlie and Largs. (E) P. 7—8.

2. **R. CRÍSPUS**, L.—*Curled Dock*. Stems 2—3 ft. high, slightly branched. Radical le. long, narrow, curled and crisped at the edges, acute; upper ones getting gradually smaller. Whorls of fl. crowded in a long narrow panicle. Enlarged segments of the peri. broadly cordate, entire or crenulate, reticulate, *only 1 bearing an enlarged tubercle*.

Common. On roadsides and in pastures. (B) P. 6—8.

3. **R. OBTUSIFOLIUS**, L.—Var. *Friesii*, Gr. and Godr.—*Broad-leaved Dock*. Stem erect, 2—3 ft. high, striated, with rough points between the ridges. Radical le. ovate-oblong, cordate at the base, blunt at the apex; upper ones getting narrower and more pointed. Whorls of fl. distinct, upper ones leafless. Enlarged segments of the peri. ovate-deltoid, with 3—4 sharp, subulate, spreading teeth, variable in length, not longer than the width of segments, only one bearing an enlarged tubercle.

Very common. On roadsides and waste places. (E) P. 7—9.

4. **R. PRATENSIS**, M. and K.—*Meadow-Dock*. Similar to the last, le. narrower, radical ones oblong-lanceolate, waved. Fl. in distinct whorls, leafless at the top. Enlarged segments of the peri. cordate, *dilated and toothed to the top* with short broad teeth, only one bearing a tubercle.

Waste ground, Lamlash, J. G. Baker. (E) P. 6—7.

5. **R. AQUATICUS**, L.—*Grainless Water-Dock*. Resembles *R. crispus*, but scarcely so much crisped. Enlarged segments of the peri. cordate, entire, reticulate, *without an enlarged tubercle*.

This species existed at Scotstown previous to the widening of the Clyde, but not found now; below Renfrew; banks of the Clyde at Bothwell. (S) P. 7—8.

* 6. **R. ALPINUS**, L.—*Alpine-Dock*, *Monk's-Rhubarb*. Stem 12 in. high. Le. roundish-cordate, obtuse, 8—10 in. broad, wrinkled. Whorls without le., crowded; fl. monœcious. Enlarged segments of the peri. ovato-cordate, entire, or obscurely toothed, membranous, one bearing a *very small tubercle*.

Rare. Roadside from Helensburgh to the head of the Gareloch, and in 2 or 3 stations in that neighbourhood, H. & A. P. 7.

7. **R. SANGUINEUS**, L.—*Bloody-veined-Dock*. Stem erect, 2 ft. high. Le. oblong or lanceolate, waved on the edge; lower ones cordate at the base, *with red veins*. Whorls of fl. distant, on long leafless branches. Enlarged segments of the peri. oblong, narrow, entire blunt, reticulated, only one bearing an enlarged tubercle, which occupies the base of the segment, *leaving no membrane on its edge*.

Very rare. "In the woods, Bothwell," Hopk. "On the bank between Avon and Barncluith gardens," Patr. Near Dumbarton. (B) P. 7—8.

Var. *viridis*, with green veins.

Frequent. Dalbeth; banks of Clyde, opposite side from Carmyle; Bothwell bridge; Cumbræ and Arran.

8. **R. CONGLOMERATUS**, Murr.—*Sharp-Dock*. Stems erect, 2—3 ft. high, branches spreading. Le. oblong, pointed, radical ones rounded or cordate at the base, waved at the edges, whorls distant, leafy. Enlarged segments of the peri. linear-oblong, blunt, entire or obscurely toothed, *all bearing a tubercle*.

Common. Banks of rivers and wet places. (B) P. 6—8. Banks of Clyde at Dalbeth; Cathcart, Kelvin, &c.

9. **R. PÚLCHER**, L.—*Fiddle-Dock*. Stems procumbent, branches spreading, slender, 12—15 in. high. Le. mostly radical, oblong, cordate at the base, blunt at the apex, contracted in the middle; upper ones lanceolate, acute. Enlarged segments of the peri. *triangular-ovate, with raised netted ribs*, toothed below, 1 or 2, sometimes all 3, bearing a tubercle.

Very rare. "On an embankment of stones by the Avon, between Barnclith and Hamilton wood," *Patr.* (E) P. 6—8.

B. Plants acid.

10. **R. ACETÓSA**, L.—*Common Sorrel, Sourock*. Stems erect, scarcely branched, 1—2 ft. high. Le. mostly radical, oblong, *sagittate*. Fl. in leafless panicles, usually turning red; diœcious or monœcious. Outer segments of the peri. reflexed, inner enlarged, roundish-cordate, entire, with a minute scale-like tubercle at the base of each.

Very common. Pastures and hedge banks. (B) P. 5—7.

11. **R. ACETOSÉLLA**, L.—*Sheep's Sorrel*. Stems slender, 3—12 in. high. Radical and lower le. *hastate-lanceolate*, upper ones mostly linear. Fl. in slender terminal panicles, diœcious. Outer segments of the peri. erect; inner ones ovate, scarcely enlarged, no tubercles.

Very common. On dry banks and gravelly places. (B) P. 5—7.

R. scutatus, L.—Garden Sorrel. Le. hastate-ovate, slightly contracted in the middle.

Near Hamilton, an escape from cultivation, *H. & A.*

3. OXÝRIA. *Mountain-Sorrel.*

O. RENIFÓRMIS, Hook.—*Kidney-Shaped Mountain-Sorrel*. Stems slender, 8—12 in. high. Le. mostly radical, reniform, on long footstalks. Fl. small, in spike-like racemes, pedicels thickened upwards, lower portion slender. Fruit very beautiful, with its scarious winged border.

Frequent. Amongst rocks near cascades, in mountain glens. (H) P. 7—8. Glen Messen; Puck's glen, above Rashfield; Glen Sannox and Glen Rosa, Arran.

63.—THYMELACEÆ.

1. DÁPHNE. *Spurge-Laurel.*

D. LAURÉOLA, L.—An evergreen shrub, 1—3 ft. high. Le. lanceolate, attenuate below, quite smooth, crowded at the apex of the branch, which is naked below. Racemes axillary of 3—5 yellowish green, drooping fl. Bracts ovate, concave. Berry bluish black; poisonous.

Very rare. In the woods, Bothwell. Cannot be considered as indigenous. (E) Sh. 1—5.

64.—EMPETRACEÆ.

1. EM'PETRUM. *Crowberry, Crakeberry.*

E. NÍGRUM, L.—Stem procumbent, branched. Le. linear-oblong, margins rolled back, leaving a small white line on the centre of the back of the le. Fl. small purple, axillary, clustered towards the summit of the branches. Fruit small, globular, purplish black.

Frequent. On mountain heaths. (S) Sh. 4—6. Cathkin hills; Campsie moors; Gourock, and on all the hills around the Firth.

65.—EUPHORBIACEÆ.

1. MERCURIÁLIS. *Dog's Mercury.*

M. PERÉNNIS, L.—Stem erect, about 1 ft. high, simple. Le. stalked, confined to the upper part of the stem, ovate or oblong-lanceolate, 2—4 in. long, serrate, rough. Fl. in axillary lax spikes, fertile fl. *concealed by the le.*, 1—2 on the ped. Said to yield a blue dye; poisonous.

Very common in the woods. Kelvinside wood, &c. (B) P. 3—5.

2. EUPHÓRBIA. *Spurge.*

1. **E. HELIOSCÓPIA**, L.—*Sun-Spurge, Wartwort.* Stem erect, 6—12 in. high, slightly branched from the base or simple. Stem le. obovate, tapering into a stalk. Bracts broadly obovate or orbicular, all serrated upwards, glabrous. Umbel in 5 principal branches, each once or twice forked. *Glands of the involucre rounded.* Capsule smooth. Seeds pitted.

Common. In corn fields and waste places. (B) A. 6—10.

2. **E. PÉPLUS**, L.—*Petty-Spurge.* Stem 6—12 in. high, branched from the base. Le. obovate, entire, with short footstalks, glabrous. Bracts ovate. Umbel of about 3 principal branches, each 2 or 3 times forked. *Glands of the involucre crescent-shaped, with long pointed horns.* Capsule glabrous, with narrow wings. Seeds dotted.

Frequent. In cultivated places and waste gardens. (B) A. 7—11. Rutherglen; Cambuslang; Cathcart; Gourock; Cumbræ and Arran.

3. **E. EXÍGUA**, L.—*Dwarf-Spurge.* Stem ascending, branched from the base, 4—8 in. high. Le. *small, linear-lanceolate*, acute, rigid, entire. Umbel of 3—4 principal branches, each 2—3 times forked. *Glands of the involucre crescent-shaped, with 2 fine*

points. Capsule nearly smooth, slightly warted on the back. Seeds small wrinkled.

Not common. In corn fields. (E) A. 7—10. Near Strathbungo; Shawlands; beyond Rutherglen; Tollcross; Cumbræ, &c.

*4. **E. LÁTHYRIS**, L.—*Caper-Spurge*. Stem stout, 2—3 ft. high. Le. of the first year in 4 rows; of the second, oblong-lanceolate, sessile, and cordate at the base, glabrous. Umbel of 3—4 long branches, forked once or twice. Glands of the involucre crescent-shaped, *with 2 blunt horns*. Capsule large, smooth. Seeds rough.

An escape from gardens. “Barncluith, and around Hamilton,” *Patr.* B. 6—7.

66.—CALLITRICHACEÆ.

1. CALLÍTRICHE. *Water-Starwort.*

C. VÉRNA, L.—*Vernal Water-Starwort*. Floating in water, or creeping on mud. Lower le. narrow, linear, obtuse; upper ones oval or obovate, spreading in little rosettes. Fl. axillary. Bracts straightish, deciduous. Fr. in parallel lobes, tetragonal, bluntly keeled on the back.

Common. In ponds and ditches. (B) A. 4—9. Possil marsh; Forth and Clyde Canal; Paisley Canal bank, &c.

Var. *platycarpa*. Bracts falcate, persistent. Fruit in parallel lobes, winged on the back, sinus deep.

Common. Creeping over the surface of mud and in deep water. Possil marsh; Paisley Canal bank; Bute, &c.

67.—URTICACEÆ.

1. URTICA. *Nettle.*

1. **U. ÚRENS**, L.—*Small Nettle*. Stem erect, about 1 ft. high. Le. opposite, ovate or elliptical, serrate. *Barren and fertile fl. intermixed*, in small oblong axillary clusters, shorter than the petioles. Achenes oblong. Plant covered with stinging bristles.

Common. Waste places near villages, and in cultivated ground. (B) P. 6—9. Cathcart; Carmyle; Tollcross, &c.

2. **U. DIOÍCA**, L.—*Common Nettle*. Stem erect, 2—3 ft. high. Lower le. ovato-cordate, deeply serrate; upper ones mostly lanceolate, all opposite and serrate. *Mostly dioecious*. Spikes axillary, branched, in pairs, longer than the petiole. Achenes ovate. Plant hairy, and covered with stinging bristles.

Very common. Waste places, and along hedges by roadsides. (B) P. 6—9.

2. PARIETÁRIA. *Wall-Pellitory.*

P. OFFICINÁLIS, L.—Stems branched. Le. stalked, alternate, ovato-lanceolate, with 2 veins springing from the midrib above the base. Fl. in sessile axillary clusters. Involucre very small, of 2—3 lobed segments. Peri. in the perfect fl. at length enlarged to twice as long as the stamens, but seldom ripening their seed. Whole plant hairy. [See 6th and 7th ed. of Hook. and Arn. Br. Fl. for an accurate description of the flowers.]

Very rare. "Walls of Bothwell Castle," Hopk. (B) P. 6—9.

3. HÚMULUS. *Common Hop.*

* **H. LÚPULUS**, L. Stems very long, twining. Le. stalked, opposite, 3—5-lobed, heart-shaped at the base, sharply serrate, scabrous. Fl. greenish yellow; barren ones in loose panicles, fertile in globular catkins.

Not common. In hedges and thickets. (E) P. 7—8. "Hedges at Tollcross," Hopk. Old quarry, and in the woods at Stonelaw beyond Rutherglen.

68.—U L M A C E Æ.

1. U'LMUS. *Elm.*

1. **U. CAMPESTRIS**, L.—*Broad-leaved Elm, Wynch-Hazel, Scotch or Mountain Elm.* A large tree of considerable beauty, with spreading branches. Le. large, shortly stalked, broadly ovate, cuspidate, unequal at the base, doubly serrate, rough on the upper side, downy beneath. Fl. appearing before the le., reddish, in dense clusters, 5—7-cleft, lobes ciliate. Samara leaf-like, with the seed below the centre, and distant from the slightly notched apex.

Very common. In woods. (B) T. 3—4.

* 2. **U. SUBERÓSA**, Ehr.—*Common Elm.* Not considered a native of Scotland, but frequently planted in woods; distinguished by the notch of the samara, reaching near to the seed, which is considerably above the centre. Le. smaller. [See Hook. & Arn. Bri. Fl., 8th ed., p. 393.]

69.—ELÆAGNACEÆ.

1. HIPPOPHAE. *Sallow-Thorn, Sea-Buckthorn.*

* **H. RHAMNÓIDES**, L.—A willow-like shrub, 4—6 ft. high. Le. alternate, linear-lanceolate, entire, covered with silvery scales, dense below, thin above, rusty on the branches; axillary shoots ending in a prickle. Fl. appearing with the young leaves, axillary. Berry yellowish.

Toward Point. Frequent in shrubberies. (G) Sh. 5—7.

70.—MYRICACEÆ.

1. MYRICA. *Gale.*

M. GÁLE, L.—*Sweet-Gale, Bog or Dutch-Myrtle.* An erect branching shrub, 2—3 ft. high. Le. lanceolate, broader upwards, tapering into a short footstalk, toothed above, dotted with resinous glands. Catkins arranged along the ends of the branches. Le. when rubbed emitting an agreeable smell.

Frequent. In bogs and moors. (B) Sh. 5—7. East end of Frankfield Loch; Gourrock; Kilmun; Bute; Cumbræ and Arran.

71.—BETULACEÆ.

1. BÉTULA. *Birch.*

1. **B. ÁLBA**, L.—*White Birch.* Le. rhombic or ovato-deltoid, unequally or doubly dentate, acute, with raised veins above. Scales of the fertile catkins 3-lobed, the two lateral lobes spreading or slightly recurved. **B. verrucosa**, Ehr.—A well-known tree of great beauty, more especially the variety with drooping branches, found on the borders of Highland lakes.

Common. Woods and copses in heathy soils. (B) T. 4—5.

Var. *glutinosa*, Fr.—Often little more than a bush; lateral lobes of the fertile catkins erect or ascending.

2. **B. NÁNA**, L.—*Dwarf Birch.* A small shrubby plant, 1—2 ft. high. Le. nearly round, with short footstalks, glabrous, obtusely and deeply crenate. Catkins small and sessile. Scales 3-cleft, lobes equal.

Tops of the Highland mountains. "At Bertram, about a mile from Carnwath," *Lightf.* (H.) Sh. 5.

2. A'LNUS. *Common Alder.*

A. GLUTINÓSA, Gærtn.—A tree of moderate size, often forming 2 or 3 trunks, with crooked branches. Le. orbicular, wedge-shaped at the base, often lobed and sharply toothed, axils of the le. beneath, with a little tuft of down. Barren catkins long and drooping. Fertile ones small, ovate, often remaining until next season.

Very common. River banks and moist grounds. (B) T. 3—4. Banks of the Kelvin, &c.

72.—SALICACEÆ.

A. Stamen 1. Filament entire or forked.

1. SÁLIX. *Willow, Sallow, Osier.*

1. **S. PURPÚREA**, L.—*Purple-Willow.* A shrub or slender tree, with smooth purplish branches. Le. 2—3 in. lanceolate, broader

upwards, acute, finely serrulate. Catkins appearing before the le. Cap. sessile. Scales dark at the end. Anthers purple. Stigmas ovate.

Var. *Helix*, L.—*Rose-Willow*. Bark shining yellow. Stigmas linear-bifid, often with fascicles of diseased leaves.

Common. On the banks of rivers. (B) T. 3—5. Banks of Clyde at Dalbeth, and above the Iron-works; banks of Cart, &c.

B. Stamens 5. Petioles glandular.

2. **S. PENTÁNDRA**, L.—*Sweet-Bay Willow*. A small bushy shrub, with shining glossy foliage. Le. broadly lanceolate or oblong, pointed, glandular, dentate, of thick texture. Cap. smooth, ovate, attenuate. Style short. Stigma bifid. *Anthers bright yellow*; sometimes there are more than 5 stamens.

Common. (S) Sh. 5—6. Banks of the Clyde at Dalbeth; Possil marsh; Gourock to Arran.

C. Stamens 2, distinct.

1. *Leaves linear-lanceolate, very long.*

3. **S. FRÁGILIS**, L.—*Crack Willow, Withy*. A large tree, with brittle branches, twigs yellow or brown. Le. 3—6 in. lanceolate, glandular, serrate, *glabrous*. Cap. nearly sessile, or shortly stalked. Style short. Stigma cloven. Male catkin with loose fl., both appearing with the le.

Common. (B) T. 4—5. Banks of Kelvin; Cambuslang; banks of Clyde.

Var. *Russelliana*, Sm.—*Bedford Willow*. Le. attenuated, strongly dentato-serrate, smooth and *light green beneath*. Style the same length as the cloven stigma. A tall tree of rapid growth, considered a hybrid.

Frequent. Beyond Rutherglen, and around Cambuslang.

4. **S. ÁLBA**, L.—*Common White Willow*. A large tree, with whitish foliage and olive twigs. Le. narrow, lanceolate, acute, glandular-serrate, old ones silky on both surfaces. Cap. nearly sessile, ovato-acuminate, smooth. Stigmas nearly sessile, *thick recurved*, bifid. Catkins lax, appearing with the le.

Very common. (B) T. 5. Maryhill road; banks of Clyde; Gourock, &c.

Var. *cœrulea*, Sm.—*Huntingdon Willow*. Le. not so silky beneath, old ones glabrous. A tree of very rapid growth.

Common. Around Glasgow, in woods.

Var. *vitellina*, L.—*Golden Osier, Yellow Willow*. Branches and twigs bright yellow, leaves shorter and broader than in the former var., old ones glabrous above, glaucous beneath.

Common. Cultivated as an osier, near Balmore, &c.

5. *S. VIMINÁLIS*, L.—*Common Osier*. A shrub with long pliant branches. Le. 4—8 in., *narrowly lanceolate*, obscurely toothed and waved, very silky underneath. Catkins sessile or nearly so. Cap. downy. Stigmas long, linear. Well known as an excellent osier, cultivated for basket-work.

Very common. (B) Sh. 4—5. Banks of Clyde at Dalbeth, and Hamilton farm on the banks of a small stream; Gourrock to Arran. Doubtfully native.

6. *S. ACUMINÁTA*, Sm.—*Long-leaved Sallow*. Le. oblong-lanceolate, pointed, finely toothed, wavy, ashy and downy beneath. Cap. ovate, tapering. Stigmas oblong or oblong-linear.

Of this I have never seen living specimens. *Hopk.* has given the "banks of the Kelvin" as a station. (E) T. 4—5. A var. of the former species.

2. *Leaves obovate or oblong, seldom lanceolate.*

7. *S. CINÉREA*, L.—*Grey Sallow*. A tall shrub or bushy tree. Le. elliptic, or lanceolate-obovate, pointed, sub-serrate, slightly pubescent above, reticulated and glaucous beneath, *margin slightly recurved*. Stipules half-cordate. Style very short. Cap. 3 times longer than broad, stalked, silky. Buds downy.

Common. Banks of rivers, moist woods, and swampy places. (B) T. Sh. 3—4. Banks of Clyde; Possil marsh; Gourrock, &c.

8. *S. AURÍTA*, L.—*Round-eared Sallow*. A low bushy shrub, with straggling branches, or a small tree. Le. obovate, repandodentate, pubescent above, veined, wrinkled and very downy beneath, edge recurved, with a *small bent point*. Stipules roundish, semi-cordate. Style very short. Stigmas ovate. Cap. about twice longer than broad. Buds smooth or slightly downy.

Common. Moist woods and thickets. (B) T. Sh. 4—5. Calderwood glen; Cambuslang; Milngavie; Gourrock; Kilmun; Cumbrae and Arran.

9. *S. CÁPREA*, L.—*Great Round-leaved Sallow, Goat-Willow*. A tall bushy shrub or tree. Le. ovate or elliptic, rarely lanceolate, acute, serrate, wavy on the margin, when young downy above, cottony beneath, autumnal ones smooth above. Stipules large, sub-reniform, toothed, *reflexed*. Style very short. *Catkins thick*, blunt, easily known by being loaded early in spring with its yellow blossoms.

Common. In woods and hedges. (B) Sh. T. 4—5. Banks of Kelvin and Clyde; Cambuslang and Calderwood glens; Gourrock; Largs; Cumbrae and Arran.

3. *Leaves very small, stems creeping or prostrate.*

10. *S. FÚSCA*, L.—*Dwarf Silky-Willow*. A small creeping shrub with straggling branches. Le. elliptical or linear-lanceolate, acute, entire, or with minute glandular serratures, more or less *silky beneath*, foliage when young shining white, when old acquiring a dark colour above. Catkins small, sessile when in

flower. Cap. with long silky footstalks, and a few leafy bracts at the base.

Frequent. Moist heaths, moors, and sandy places. (B) Sh. 4—5. Possil marsh; Campsie hills; Gourrock; Kilmun; Cumbræ and Arran.

11. **S. HERBÁCEA**, L.—*Least-Willow*. The smallest British shrub, seldom rising more than 2—3 in. above the surface of the soil. Le. round or oval, finely crenate, shining, smooth, *netted with raised veins beneath*. Catkins very small. Styles short. Stigmas bifid. Ovaries smooth.

Frequent. On the tops of our highest mountains, creeping amongst loose stones. (H) Sh. 6. Hills between Lock Eck and Glen Messen. “Ben Varen, Arran,” *Lands*.

2. PÓPULUS. *Poplar*.

1. **P. ÁLBA**, L.—*Abele, Great White-Poplar*. A large tree, with spreading branches, and ash-white bark. Le. orbicular, more or less cordate at the base, sinuate or lobed, covered with white cottony down underneath, young shoots slightly cottony, when old mostly smooth. Catkins sessile, about 2 in. long. Scales cut at the apex. Stigmas 2, *bipartite, yellow*. Plant throwing up suckers.

Common. In plantations. (E) T. 3—4. Stonelaw woods, &c.

Var. *canescens*.—Le. cottony and grey beneath. Stigmas 3—4-lobed, *purple*.

Frequent. In plantations.

2. **P. TRÉMULA**, L.—*Aspen, Trembling-Poplar*. A smaller tree than either of the former, with slender branches, remarkable for the tremulous motion of its le. when scarce a breath of wind is stirring, caused by the long petioles being very much compressed on the sides. Le. *nearly orbicular*, bluntly sinuate, toothed, smooth on both sides, paler underneath. Scales of the catkin deeply-cleft. Stigmas 2, deeply divided, *purple*. Buds smooth, slightly viscid.

Frequent. In moist woods. (B) T. 3—4. Common in Cumbræ and Arran, evidently wild.

3. **P. NÍGRA**, L.—*Black Poplar*. A very large tree, never throwing up suckers, leaf-buds smooth and viscid. Le. *ovato-triangular, acuminate*, serrate, smooth on both sides. Petioles laterally compressed. Catkins long, loose. Scales hairy on the tip. Stigmas roundish, 2-lobed.

Common. In plantations, and on river banks. T. 3.

Var. *fastigiata*, is the well-known *Lombardy Poplar*, having very erect branches, giving an elongated conical form to the tree.

73.—CUPULIFERÆ.

1. FÁGUS. *Common Beech.*

F. SYLVÁTICA, L.—A large tree, with a straight smooth trunk, and dense head, ending with beautiful pliant branches. Le. ovate, dentate and ciliate on the margin, when young silky. Barren fl. in a drooping catkin, only seen when looking at the under side of the branch. Fertile peduncles erect. Nuts (commonly called mast), with a prickly involucre. “Scarcely wild in Scotland,” *H. & A.*

Woods, extensively planted. (E) T. 4—5.

2. CASTÁNEA. *Spanish Chestnut, Sweet Chestnut.*

* **C. VULGÁRIS**, Lam.—A noble tree when old and well grown; a fine example may be seen in front of Buchanan House on the banks of Loch Lomond. Le. oblong-lanceolate, acuminate, serratures large and tipped with a mucro, smooth on both sides, 5—8 in. long. Barren fl. in a spike. Fertile ones with a prickly involucre.

Common. In plantations, Garscube, &c. T. 5—7.

3. QUÉRCUS. *Oak.*

Q. RÓBUR, L.—*British Oak.* A well-known tree, of very slow growth, with numerous curving branches. Le. sessile or shortly stalked, oblong-obovate, deeply sinuate, blunt, mostly glabrous. Male fl. in a loose catkin or spike. Fruits 2—6 in a long stalked spike. *Q. pedunculata*, Willd.

This is the common Oak of our mountain glens, woods, and plantations. (B) T. 4—5.

Var. *sessiliflora*, Salisb.—Le. with footstalks varying from $\frac{1}{2}$ to 1 in. “Fruits solitary or clustered, either closely sessile on the branch or borne on a short peduncle, very rarely attaining an inch,” *Benth.*

Occasionally in plantations with the preceding.

4. CÓRYLUS. *Common Hazel-Nut.*

C. AVELLÁNA, L.—A shrub, sometimes a small tree. Le. broadly cordate or orbicular, pointed, downy beneath. Stipules oblong, blunt, young twigs downy. Catkins appearing before the le. Barren ones 1—2 $\frac{1}{2}$ in. long, drooping. Fertile fl. on the same branch as a red-tipped bud. Fruit in clusters, with a torn involucre.

Common. In woods and thickets. (B) Sh. 2—4. Banks of the Kelvin; Carmyle; Cambuslang glen, &c.

5. CÁRPINUS. *Common Hornbeam.*

C. BÉTULUS, L.—A tree of moderate size, with numerous

slender branches. Le. plaited when young, in maturity ovate, acute, doubly-serrate, downy in the axils of the veins underneath. Barren catkins sessile, about $1\frac{1}{2}$ -in. long, arching. Fertile ones slender, very long in fruit; scales deeply 3-lobed.

Frequent. In plantations. (E) T. 5. Banks of the Kelvin, by the stream leading to the grinding mill.

Sub-Class 5.—GYMNOSPERMÆ.

Ovaries apparently naked, Perianth none.

ORD. 74.—CONIFERÆ.

Sub-Order 1. ABIETINÆ.—Flowers in catkins. Ovules inverted in the axil of a membranous scale. Pullen curved, with two granular extremities.

1. PINUS.—Monœcious. Male catkins crowded. Anthers 2-celled, seated on the under side of the scale. Female flowers in a many-scaled cane. Scales bearing the 2 inverted ovules on the upper surface.

Sub-Order 2. CUPRESSINÆ.—Barren flowers in catkins. Fertile ones in catkins or solitary. Ovules erect. Pullen globular.

2. JUNIPERUS.—Diœcious. Anthers 4—7, 1-celled, seated on the lower edge of the scales. Fertile fl. few, the 3 upper connate scales becoming a fleshy berry.
3. TAXUS.—Diœcious. Male catkins oval; scales peltate, with 3 anthers below. Fertile flowers with imbricated scales at the base of a fleshy disk, with a solitary erect ovule. Fruit a small berry.

74.—CONIFERÆ.

1. PINUS. *Fir.*

P. SYLVÉSTRIS, L.—*Scotch-Fir.* An evergreen tree of considerable size, with reddish bark, and a dense head; branches curved. Le. in pairs, from a scaly fimbriate sheath, long, narrow, rigid. Young cones recurved, mostly in pairs, about as long as the le. Scales hard, with a thick point when young, disappearing when the cone is ripe.

Common. In woods; only native in the Highland forests. (S) T. 5—6.

2. JUNÍPERUS. *Juniper.*

J. COMMÚNIS, L.—*Common Juniper.* An evergreen shrub, much branched. Le. 3 in a whorl, spreading, linear, with a mucronate point, keeled below, channelled above, glaucous. Berries globular, *Shorter than the le.*, dark purple, with a bloom.

Frequent. Woods and heaths. (B) S. 5—6. Mugdock woods; around Milngavie; Kilmun; Gourrock, &c.

Var. *Nana.*—Stem procumbent, le. short, about as long as the fruit.

Frequent. On mountains.

3. TÁXUS. *Yew.*

T. BACCÁTA, L.—*Common Yew.* A tree of very slow growth, often with a divided trunk, attaining a great size, with dark evergreen foliage. Le. crowded, arranged in 2 rows, on opposite sides of the branch, linear, acute, shining dark green above. Fl. axillary, diœcious. Fruit consisting of a bright red juicy cup, not covering the seed; considered poisonous. Le. noxious and poisonous to cattle.

Frequent. Mountainous woods and plantations. Very fine in the woods at Roseneath. (E) T. 3. Woods at Mugdock; Hamilton.

CLASS II.

MONOCOTYLEDONS OR ENDOGENS.

Sub-Class 1.—PETALOIDEÆ.

A. *Ovary inferior.*

Ord. 75. HYDROCHARIDACEÆ.—Flowers usually diœcious. Perianth regular, 3 outer segments herbaceous. *Floating plants.*

Ord. 76. ORCHIDACEÆ.—Perianth of 6 segments, very irregular. Flowers gynandrous. Anther 2-celled, united with the style.

Ord. 77. IRIDACEÆ.—Perianth in six divisions. Stamens 3. Anthers opening outwards. *Leaves usually equitant.*

Ord. 78. AMARYLLIDACEÆ.—Perianth in 6 divisions. Stamens 6. Anthers opening inwards. *Leaves fleshy.*

B. *Ovary superior.*1. *Flowers mostly perfect. Perianth regular.*

Ord. 79. TRILLIACEÆ.—Leaves reticulate, not articulated with the stem. Perianth of 8 segments, in 2 rows. Filament extending beyond the anther.

Ord. 80. LILIACEÆ.—Perianth of 6 segments, petal-like, usually highly-coloured. Stamens 6. Anthers opening inwards. Ovary 3-celled.

Ord. 81. JUNCACEÆ.—Perianth of 6 segments, stiff, glume-like, or coloured internally and herbaceous. Stigmas 1—3. Ovary 1—3-celled.

Ord. 82. ALISMACEÆ.—Perianth of 6 segments, the inner 3 often petal-like. Stamens 6—9, or more. Ovaries 3—6, or of numerous achenes.

2. *Flowers mostly imperfect. Perianth seldom present.*

Ord. 83. TYPHACEÆ.—Monœcious. Flowers in dense heads or spikes. Spatha none. Perianth? of 3 scales or hairs. Stamens 1—6. Ovary solitary, 1-celled. Leaves rigid, sword-shaped.

Ord. 84. ARACEÆ.—Flowers arranged upon a spadix, either enclosed in a convolute spatha, or flat and continuous with the scape.

Ord. 85. LEMNACEÆ.—Leaves or fronds floating on the surface of the water. Stemless. Flowers on a spadix, surrounded by a spatha, springing from below the edge of the fronds.

Ord. 86. NAIADACEÆ.—Submerged or floating plants. Flowers in a loose spike or spadix. Perianth scale-like, or none. St. 1—4. Ovaries 1—4. Ovules usually solitary. *Leaves very cellular.*

GENERA OF PETALOIDEÆ.

ORD. 75.—HYDROCHARIDACEÆ.

1. ANACHARIS.—Leaves verticillate. “St. 9.” Fertile flower, with a long filiform tube. Stigmas 3.

ORD. 76.—ORCHIDACEÆ.

1. MALAXIS.—Sepals broad, widely spreading. Lip very small, without a spur. Pollen masses in 2 pairs, connected at their apex. Germen twisted.
2. EPIPACTIS.—Perianth spreading. Petals shorter than the sepals. Lip. free from the column, contracted in the middle, the terminal portion broad and petal-like. Germen straight, pedicel twisted.

3. LISTERA.—Sepals broader than the petals. Lip. narrow, 2-lobed at the apex. Anther sessile. *Leaves 2, opposite.*
4. NEOTTIA.—Sepals broadly ovate. Lip somewhat hollowed at the base, 2-lobed at the apex. Anther sessile. Leaves none. *Root of numerous fleshy fibres.*
5. ORCHIS.—Perianth with nearly equal segments, converging. Lip turned down, 3-lobed, spurred. Glands of the pollen masses in a little bag. Pollen in waxy masses. *Flowers purple.*
6. GYMADENIA.—Only differs from the former by the glands of the pollen masses being naked. Spur very long. *Flowers purple.*
7. HABENARIA.—Perianth converging. Lip 3-lobed or entire, spurred. Anther cells either distant and parallel, or diverging at the base. *Flowers yellow or greenish.*

ORD. 77.—IRIDACEÆ.

1. IRIS.—Perianth 6-cleft, the 3 alternate segments reflexed. stigma petaloid, covering the three stamens.

ORD. 78.—AMARYLLIDACEÆ.

1. NARCISSUS.—Flowers from a terminal spatha. Perianth with a campanulate crown, or nectary, and 6 spreading segments.
2. GALANTHUS.—Flowers from a terminal spatha. Outer segments of the perianth longer than the inner, spreading; the 3 inner emarginate.

ORD. 79.—TRILLIACEÆ.

1. PARIS.—Sep. 4. Pet. 4. St. mostly 4. Berry 3—5-celled.

ORD. 80.—LILIACEÆ.

1. RUSCUS.—Flowers diœcious. Perianth 6-partite, spreading. Filaments combined in a tube, with 3 anthers on the top, sometimes 6. *Fertile fl.* Style 1, surrounded by sterile filaments. Flowers on the centre of the leaves.
2. CONVALLARIA.—Flowers on a scape, campanulate, drooping. St. 6. Stigma 1. Fruit a berry.
3. POLYGONATUM.—Perianth tubular, 6-cleft at the apex. St. 6, inserted in the perianth. Stigma 1. Fruit a berry.
4. AGRAPHIS.—Perianth tubular campanulate, segments reflexed at the apex, combined below. St. 6. Filaments decurrent on the segments of the perianth.
5. ALLIUM.—Flowers in umbels, enclosed in a membranous spatha. Perianth with 6 distinct segments. St. 6, inserted at the base of the perianth. Capsule triangular.

6. ORNITHOGALUM.—Perianth of 6 spreading segments, persistent St. 6, with flattened filaments. *Leaves linear, channelled.*
7. GAGEA.—Perianth spreading, of 6 segments, distinct. St. 6. Filaments filiform. *Fl. yellow, corymbose.*
8. TULIPA.—Perianth campanulate. Segments 6, free from the base, acute, and “bearded at the apex.” Style 0. Stigma 3-lobed.
9. TOFIELDIA.—Flowers in racemes, with 3 small connate bracteoles. Perianth 6-partite, with the st. seated on the base. Styles 3, with obtuse stigmas. *Fl. small, pale yellow.*

ORD. 81.—JUNCACEÆ.

1. JUNCUS.—Leaves nearly cylindrical. Perianth glumaceous. St. 6, inserted into the base of the segments. Stigmas 3. Capsule 3-celled, 3-valved.
2. LUZULA.—Leaves flat, generally hairy and soft. Perianth nearly glumaceous. St. 6. Stigmas 3. Capsule 1-celled, 3-valved, 3-seeded.
3. NARTHECIUM.—Perianth coloured on the inside, segments narrow, spreading. Filaments woolly. Capsule pyramidal, 3-celled at the base, 3-valved. Seeds appendaged. *Flowers yellow.*

ORD. 82.—ALISMACEÆ.

1. ALISMA.—Flowers perfect. St. 6. Carpels arranged in a circle, or in a globular head.
2. SAGITTARIA.—Flowers monœcious. St. numerous. Fertile fl. with many compressed carpels forming a head.
3. TRIGLOCHIN.—Flowers perfect. St. 6. Anthers almost sessile. Stigma sessile, feathery. Ovaries 3—6.

ORD. 83.—TYPHACEÆ.

1. TYPHA.—Flowers monœcious. Spadix cylindrical. Stamens surrounded by a few hairs. Filament 1, with 3 anthers. Fertile fl. with a stalked ovary, surrounded by hairs.
2. SPARGANIUM.—Flowers monœcious. Barren and fertile flowers in globular heads. Perianth of 3—4 segments or scales. Fruit sessile.

ORD. 84.—ARACEÆ.

1. ARUM.—Spatha convolute, enclosing the spadix. Fertile fl. at the base. Perianth none. Berry 1-celled. Anther sessile, 2-celled.
2. ACORUS.—Spadix sessile. Spatha leaf-like, flat. Perianth of 6 scales. St. 6. Ovary 3-celled.

ORD. 85.—LEMNACEÆ.

1. LEMNA.—Spatha membranous, urceolate. St. 1—2, distinct, Anthers 2-celled, didymous. Ovary 1-celled.

ORD. 86.—NAIADACEÆ.

1. POTAMOGETON.—Flowers perfect. Perianth of 4 scale-like segments. St. 4. Anthers sessile. Ovaries 4. *Stigmas sessile*.
2. ZANNICHELLIA.—Flowers monœcious, axillary. St. 1, filament long. Perianth none. Fertile flower. Perianth of 1 scale. Ovulus 4. *Stigma peltate*.
3. ZOSTERA.—Stamens and pistils arranged in 2 rows upon one side of a spadix. Spatha sheathing. Anther 1. Ovary 1. Stigmas 2. *Growing in the sea*.

SPECIES OF PETALOIDEÆ.

75.—HYDROCHARIDACEÆ.

1. ANÁCHARIS. *Anacharis*.

* A. ALSINÁSTRUM, Bab.—*Long-Flowered Anacharis*. Stems entirely under water, 1—2 ft. long. Le. 3—4 in a whorl, oval-oblong, blunt, minutely serrulate. Female fl. sessile in the upper axil of the le. Spatha tubular, 2-lobed. Peri. slender, 2—3 in. long. Male fl. not known in this country.

Frequent. In ponds, overrunning many of the streams, and now becoming a pest in canals. Supposed to be introduced from America, but how remains unknown. Pond at Cadder House; Forth and Clyde Canal; Possil marsh. P. 7—10.

76.—ORCHIDACEÆ.

1. MALÁXIS. *Bog-Orchis*.

M. PALUDÓSA, Sw.—A small weak plant, 3 in. high, rising from a little tuber. Le. radical, oval, concave, extremely papillose. Fl. in a small greenish spike, 2 sep. erect, the third recurved. Lip superior, concave, acute, shorter than the sep., embracing the column by its base.

Very rare. In spongy bogs. (B) P. 7—9. Near the head of Loch Lomond, and in the island of Arran.

2. EPIPÁCTIS. *Helleborine*.

1. E. LATIFÓLIA, Sw.—*Broad-leaved Helleborine*. Stem erect, 1—3 ft. high. Le. broadly ovate, strongly ribbed, lower ones

clasping the stem. FL. in a one-sided raceme, upper bracteas shorter than the half-drooping fls.; lower ones longer. Cor. yellowish and green, with a dingy purple marking. Ovary straight, stalk twisted.

Frequent. In woods. (B) P. 7—8. Eastfield and Stonelaw woods; on the banks of a small stream a little south of Bothwell bridge; Dougalston; "Netherton braes," *Dr. Ross*; wood on the east of Gourrock, &c.

2. **E. GRANDIFLÓRA**, Sm.—*Large White Helleborine*. Stem 12—18 in. high. Le. ovate or *ovato-lanceolate*. Fls. erect, in a loose spike or raceme. Bracts longer than the ovary, lower leaf-like. Sep. erect, obtuse. Cor. white or cream-coloured. Lip with the upper lobe recurved. Ovary *twisted*.

Very rare. Of this I know nothing, never having seen fresh specimens. "At Loch Ranza, Arran," *Light*. (E) P. 5—6.

3. **E. ENSIFÓLIA**, Sw.—*Narrow-leaved White Helleborine*. Stem 12 in. high. Le. nearly distichous, lanceolate, upper ones narrower. Bracts much shorter than the ovary. Sep. erect, narrow, pointed. Fls. erect, white. Lip small, obtuse, or slightly pointed, with a yellow spot inside.

Rare. Mountainous woods; near Invercloy and Whiting bay, Arran. (E) P. 5—6.

3. LÍSTERA. *Twayblade*.

1. **L. OVÁTA**, Br.—*Common Twayblade*. Stem 12—18 in. high. Le. 2 opposite on the stem, *broadly ovate*, 2—4 in. long. Raceme long and slender. Flowers rather distant, yellowish green. Lip long, narrow, bifid, Bracts short.

Frequent. Pastures and woods. (B) P. 5—7. Paisley Canal bank; wood on the banks of St. Germans Loch; Gourrock to Arran.

2. **L. CORDÁTA**, Br.—*Heart-leaved-Twayblade*. Stem 4—8 in. high (the former in miniature). Le. 2, opposite on the stem, *cordate*, $\frac{3}{4}$ of an inch long. Raceme short, lax. Fl. greenish brown. Lip linear, 2-cleft, segments long and narrow.

Frequent. Mountain moors. (S) P. 6—8. In a wood on the east side of Gourrock, and on the hills; Bute; Cumbræ and Arran.

4. NEÓTTIA. *Bird's-Nest*.

N. NÍDUS-A'VIS, L.—Root consisting of many thick clustered fibres. Stem 8—12 in. high. Le. *none*, scales loose, sheathing, pale brown. Spike dense, many-flowered. Fl. dingy brown. Lip linear-oblong, deeply cleft in 2 diverging lobes.

Rare. Shady woods. (B) P. 5—6. "Calderwood glen," *Dr. Ross*. Below the Cloch lighthouse. "Cartlane crags," *Mr. Dunlop*.

5. O'RHIS. *Orchis*.

A. Root-knobs, 2 undivided. Bracts 1-veined.

1. **O. MÁSCULA**, L.—*Early Purple-Orchis*. Stem 8—12 in.

high. Le. elliptic-lanceolate, often spotted with purple. Fl. in a loose oblong spike, purple; base of the lip whitish, spotted. Lip crenate, middle lobe emarginate, side lobes broad and short. Spur rather longer than the ovary. Upper sepal and petals converging.

Frequent. In meadows and pastures. (B) P. 4. Below Cathkin hills; "Kittoch glen," *Dr. Ross*. Very plentiful at Gourock and all round the shores of the Firth.

B. Root-knobs 2, palmate. Bracts 3 or more veined.

2. **O.** LATIFÓLIA, L.—*Marsh-Orchis*. Stem mostly hollow, 8—12 in. high. Lower le. oblong, blunt, sometimes with purple spots. Lower bracts longer than the fl. Outer sepals spreading. *Lip obscurely 3-lobed or toothed, sides reflexed*. Spur thick, shorter than the germen. A more luxuriant plant than the next, with deeper-coloured fl., varying from purple to crimson; often in low damp pastures at the coast, of a brick-red colour.

Common. In marshy meadows and wet rich soils. (B) P. 6—7. Possil marsh, Paisley Canal bank; Gourock to Arran.

3. **O.** MACULÁTA, L.—*Spotted Palmate-Orchis*. Stem mostly solid. Lower le. ovato-lanceolate, upper linear-lanceolate, often with purple spots. Lower bracts longer than the germen. Sepals all spreading. *Lip plain, deeply 3-lobed, crenate*. Spur shorter than the germen. Usually a slender plant, with pale purple or nearly white fl., variegated with deeper flexuose markings.

Very common. In meadows, open woods, and on heaths. (B) P. 5—7. Paisley Canal bank; Cathkin hills; Cambuslang; roadsides to Crossbasket; Gourock to Arran.

6. GYMNADÉNIA. *Fragrant-Gymnadenia.*

G. CONÓPSEA, Br.—Root-knobs palmate. Stem 8—12 in. high. Le. linear-lanceolate. Spike cylindrical. Bracts 3-veined. Lateral sep. spreading. Lip 3-lobed, lobes equal, entire, blunt. Spur slender, twice the length of the germen. Fl. purple, sweet-scented.

Frequent. On heathy pastures in hilly countries. (B) P. 6—8. Cathkin hills; "near Milngavie," *Hopk*. Plentiful all round the heathy shores of the Firth.

7. HABENÁRIA. *Butterfly-Orchis.*

A. Spur short.

1. **H.** VÍRIDIS, Br.—*Frog-Orchis, Green-Habenaria*. Root-knobs lobed. Stems 4—6 in. high. Lower le. ovate, obtuse. Spike short, with greenish-brown fl. Bracts longer than the ovary. Sep. and pet. converging. Lip linear, 3-lobed, or 2, and the centre lobe reduced to a simple tooth. Spur 2-lobed, inflated.

Rather uncommon around Glasgow. "Daldowie woods," *Dr. Brown*. "Douglaston," *Hopk*. In dry hilly pastures; Gourock to Arran not uncommon. (B) P. 6—8.

2. **H.** ÁLBIDA, Br.—*Small White-Habenaria*. Root-knobs entire. Stem 4—8 in. high. Le. oblong, blunt. Spike dense,

cylindrical. Fl. small, yellowish white, fragrant. Sep. converging, ovate, concave, very small. Lip 3-cleft, *middle-lobe longest*. Spur short, obtuse.

Not common. Mountain pastures. (S) P. 6—8. "In a hilly pasture above Castlemilk," *Hopk.* "Campsie hills," *Mr. Murray*. Hills below Gourock; Kilmun; Bute and Arran.

B. Spur very long.

3. **H. BIFÓLIA**, Br.—*Butterfly-Orchis*. Root-knobs oval, entire. Stem 10—15 in. high, with a pair of opposite ovate le. from near its base, upper stem le. small lanceolate or reduced to scales. Spike long, loose. Fl. white with a greenish tint, or pure white, fragrant. Upper petals and back sep. arching or connivent. Lip linear, entire. Spur slender, twice as long as the ovary. *Anther cells parallel*.

Frequent. Moist meadows and heaths. (B) P. 6—8. "About Douglaston and Kenmuir," *Hopk.* Possil marsh; Paisley Canal bank; Cathkin hills; Gourock to Arran.

4. **H. CHLORÁNTHA**, Bab.—*Great Butterfly-Orchis*. Very little difference exists between this and the former; the present plant is usually taller and stronger, growing in moist woods. Anther cells *twice the width asunder at the base from what they are at the apex*. Stigma very broad.

Frequent. Moist woods and thickets. (E) P. 5—8. Calderwood glen; Douglaston woods; Gourock; Cumbræ and Arran.

77.—IRIDACEÆ.

1. I'RIS. *Iris, Yellow-Flag.*

I. PSEUD-ÁCORUS, L.—*Yellow Water-Iris, Yellow Flower-de-luce*. Rhizome thick, horizontal, acrid. Stem erect, 2—4 ft. high. Le. sword-shaped, bases clasping each other, equitant. Large segments of the peri. beardless, reflexed; smaller ones oblong, erect, less than the petaloid stigmas. Flowers 2—3, rising from a sheathing bract, large, deep yellow. Capsules large, bluntly 3-angled. Seeds large, angled.

Very common. Along the banks of rivers and in marshy meadows. (B) P. 5—7. Banks of the Forth and Clyde Canal, &c.

Iris foetidissima.—*Fœtid-Iris, Gladdon*. Frequently escaping from gardens, as in Cumbræ. Flowers smaller than the last, dull blue or pale yellowish white. Le. fœtid.

78.—AMARYLLIDACEÆ.

1. GALÁNTHUS. *Snowdrop.*

* **G. NIVÁLIS**, L.—Scape 3—8 in. high. Le. 2, linear, keeled, short at the time of flowering, lengthening as it comes to maturity,

glaucous. Fl. single, rising from a terminal spatha, drooping, outer segments pure white, oblong; inner ones about half as long, greenish at the point, slightly scented.

An introduction, but perfectly naturalized in many places. Gairbraid; Castle-milk and Calderwood glens; between Gourrock and Inverkip, at Sir Michael Shaw Stewart's Kennel. P. 2—3.

Narcissus Pseudo-narcissus, L.—*Daffodil*. Kittoch glen, and Dunoon; not wild. See H. & A., p. 444.

79.—TRILLIACEÆ.

1. PÁRIS. *Herb-Paris, True-Love, One-Berry.*

P. QUADRIFÓLIA, L.—Stem erect, 12—15 in. high. Le. usually 4 in a whorl, large, ovate, acute. Ped. single, springing from the centre of the le., terminating in a greenish yellow fl., tinged with purple. Peri. of about 8 segments, outer ones linear-lanceolate, inner subulate. Berry bluish black.

Rare. A doubtful native. (B) P. 5—6. "Banks a little above Calderwood," *Ure*. "Plantation above Netherlee works," *Dr. Ross*. Jerviswood; woods at Lennox Castle; near Kilsyth.

80.—LILIACEÆ.

1. RÚSCUS. *Butcher's-Broom, Knee-Holly.*

* **R. ACULEÁTUS**, L.—A rigid shrub, much branched, 2—3 ft. high, evergreen. Le. ovate, acuminate, ending in a rigid point. Fl. small, white, springing from the middle of the le., with a small scariose bract at its base. Berry red.

"Very rare. Bothwell woods," *Hopk.* (G) Sh. 3—4.

2. CONVALLÁRIA. *Lily-of-the-Valley.*

C. MAJÁLIS, L.—Scape 8—12 in. high. Le. 2 together, ovato-lanceolate, rising from a scaly sheath. Fl. racemose, pure white, nodding, shallow, bell-shaped, with the apex of the segments recurved, fragrant. Berries red, globular.

Very rare. A doubtful native. (B) P. 5—6. "Woods at the Falls of Clyde," *Hopk.* Cartlane crags. "Waste places about Barncluith," *Patr.*

3. POLYGÓNATUM. *Solomon's-Seal.*

P. MULTIFLÓRUM, All.—Stem nearly erect, 1—2 ft. high. Le. alternate, ovate-elliptical, half-clasping the stem, quite smooth, turning to one side. Fl. on short branching ped. turned to the

opposite or lower side of the stem from the le. Peri. long, narrow in the middle, white, with green tips. Filaments and style downy. Berries dark bluish purple.

Very rare. In woods. "On the ruins of Mugdock Castle," *Hopk.* "Woods at Bothwell," *Patr.*; "Corehouse woods," *Mr. Dunlop.* Cathcart. (E) P. 5—6.

4. A'GRAPHIS. *Blue-Bell.*

A. NÚTANS, Link.—*Wild Hyacinth.* Scape 8—12. in. high. Le. long, linear, channelled. Fl. blue, drooping, in a one-sided raceme, with 2 small linear bracts at the base of each, fragrant. Segments of the peri. revolute at the apex.

Very plentiful. In woods and thickets. (B) P. 4—6. Kelvin woods; Carmyle, &c.

5. A'LLIUM. *Onion, Garlic, Leek.*

* **1. A. SCHÆNÓPRASUM**, L.—*Chives, Chive-Garlic.* Stems tufted, naked, or with 1 le. 9—12 in. high. Le. long, narrow, cylindrical, tubular. Umbel many-flowered, globose, without bulbs. Spathas 2, ovate, pointed. *St. half the length of the lanceolate segments of the peri.* Fl. purplish.

Very rare. Island of Arran. Certainly left by cottars, when turned off their holdings, as at East Glen Sannox, Arran. (L) P. 6—7.

2. A. VINEÁLE, L.—*Crow-Garlic.* Stems 1—2 ft. high. Le. long, narrow, cylindrical, tubular. Umbel bearing numerous bulbs, along with a few fl. Spatha of 1 le., point long and slender. *St. longer than the reddish peri.* Very seldom bearing fl.

Not common. Waste places. (E) P. 6. "In Daldowie woods," *Dr. Brown.* Banks of Clyde above Carmyle, and on a bank below it, amongst some trees; Dunglass rocks; Cumbræ and Arran.

3. A. URSÍNUM, L.—*Broad-leaved Garlic, Ramsans.* Scape about 12 in. high, triangular. Le. *thin, flat, ovato-lanceolate*, tapering into a footstalk. Fl. in a loose umbel, of about 12 white fl. Spathas 2, ovate, quickly falling off before the fls. expand. Peri. spreading. Segments lanceolate. Le. when bruised smelling strongly of garlic.

Frequent. Moist woods and hedge banks. (B) P. 4—6. Carmyle; Cambuslang glen; Cathkin woods; Campsie glen, most abundant; Gourrock, &c.

6. ORNITHÓGALUM. *Star of Bethlehem.*

* **O. UMBELLÁTUM**, L.—*Common Star of Bethlehem.* Stem 8—10 in. high. Le. long, linear, grooved, acuminate, weak. Fl. corymbose, with a lanceolate bract at the base of each. Peri. white, with a narrow green line on the outside of each segment.

Very rare. Meadows and pastures. P. 5—6. "Border of a field at Barncluith," *Patr.* Banks of the river Cart; an escape.

7. GÁGEA. *Gagea*.

G. LÚTEA, Ker.—*Yellow Gagea*. Scape slender, angular, about 6 in. high. Le. linear-lanceolate, flat, longer than the scape. Bracts 2, linear-lanceolate, longer than the umbellate fls. Segments of the peri. obtuse, green outside, yellow within.

Very rare. "Woods near Hamilton," *Patr.* (I) P. 3—5.

8. TÚLIPA. *Tulip*.

T. SYLVÉSTRIS, L.—*Wild Tulip*. Stem with 2—3 linear-lanceolate le., 8—12 in. high. Fl. yellow, slightly drooping in bud, erect when mature, with a slightly fragrant smell. Segments of the peri. ovato-acuminate, hairy at the apex. St. with a tuft of hairs at the base.

Very rare. Ruins of Blantyre Priory, seldom producing fl.; Orchard at Orbiston; "Field at Smiddy croft," *Patr.* P. 4.

9. TOFIÉLDIA. *Scottish-Asphodel*.

T. PALÚSTRIS, Huds.—Rhizome slightly creeping. Stem smooth, 4—6 in. high. Le. tufted, equitant, sword-shaped. Ovary 3-lobed. Seeds numerous.

Boggy places on mountains. Ben Lomond. (H) P. 7—8.

81.—JUNCACEÆ.

1. JÚNCUS. *Rush*.

A. Leaves none. Barren scapes resembling leaves, flowers all apparently lateral.

1. **J. COMMÚNIS**, Meyer.—*Common Rush*. Scapes sheathed at the base by a few brown scales, *soft, faintly striate*, shining, with an internal loosely cellular pith, 2—3 ft. high; barren scapes of the same character, but bearing no fl., fertile scapes with a lateral panicle of brown fl. St. usually 3.

Var. *effusus*.—Panicle usually diffuse, pale brown. *Cap. not mucronate*.

Var. *conglomeratus*.—Panicle mostly close and globose, dark brown. *Cap. mucronate*.

Very common. Marshy ground and undrained pastures. (B) P. 7.

2. **J. GLAÚCUS**, Ehr.—*Hard Rush*. Scapes sheathed at the base by a few brown scales, *rigid, deeply striate*, mostly glaucous, 1½—2 ft. high. Fl. in a lax, lateral panicle. *Cap. elliptic-oblong, mucronate*. St. 6.

Frequent. Damp pastures. (E) P. 7. Road to Robroyston; near Auchinearn around Baldernock; Cathkin hills; Gourrock; Cumbræ and Arran.

3. **J. MARÍTIMUS**, Sm.—*Lesser Sharp-Sea Rush*. Scapes rigid, ending in a *stiff sharp point*, 1—2 ft. high. Bract at the base of the loose panicle, dilated below, with a sharp point, mostly a little longer than the flowers. Cap. elliptical, mucronate. St. 6.

Salt marshes. Frequent in Bute, Cumbræ, and Arran. (B) P. 7—8.

B. Flowers terminal, leaves all radical.

4. **J. SQUARRÓSUS**, L.—*Heath-Rush, Goose-Corn*. Scape simple, erect, very stiff, 6—12 in. high. Le. grooved, spreading, rigid, very numerous, *not half the length of the scape*. Panicle terminal, compound, not much branched. Segments of the peri. with scariose edges. Cap. elliptical, ovate.

Very common. On all moors and heaths. (B) P. 6—7.

5. **J. TRIGLÚMIS**, L.—*Three-flowered Rush*. Scape simple, erect, 4—6 in. high. Le. linear-subulate, *channelled, bitubular*, with dilated sheathing bases, grassy-like and short. Fl. generally 3 in the capitate head. Outer bract not longer than the fl. Cap. elliptical, acute.

Rare. Boggy rills leading into the Cnocan burn, on the ascent of Goat Fell, Arran. (H) P. 7—8.

C. Stems leafy. Leaves jointed with pith.

6. **J. ACUTIFLÓRUS**, Ehr.—*Sharp-flowered Jointed Rush*. Stems 1—2 ft. high. Le. sub-compressed, sheathing at the base. Panicle compound, in repeatedly clustered knots of 5—6 flowers. Segments of the peri. *unequal*, lanceolate, nearly as long as the narrow, sub-acuminate, pale brown capsule.

Very common. In boggy meadows. (B) P. 6—8.

7. **J. LAMPROCÁRPUS**, Ehr.—*Shining-fruited Jointed Rush, Sprot*. Stems 12—18 in. high. Le. compressed, sheathing at the base. Panicle compound. Clusters large, 6—14-flowered. Segments of the peri. *equal*, *acute*, shorter than the ovate or oblong, mucronate, *shining, dark brown capsule*.

Frequent. Boggy meadows and water sides. (B) P. 7—8. Banks of Clyde at Carmyle; Bardowie loch; banks of the Kelvin; Gourrock to Arran.

8. **J. OBTUSIFLÓRUS**, Ehr.—*Blunt-flowered Jointed Rush*. Stems 1—2 ft. high. Le. round. Panicle compound. Clusters 3—6-fl. Segments of the peri. *all obtuse*. Caps. ovato-acute, trigonous, pale brown.

Rare. In a bog on the road from Greenock to Inverkip? (E) P. 8.

9. **J. ULIGINÓSUS**, Sibth.—*Lesser-Bog Jointed Rush*. A very variable plant, often found floating in water, and spreading in large masses, or small and erect, sometimes creeping. Stem often bulbous at the base. Le. setaceous, slightly grooved, internal

joints very faint. Panicle nearly simple. Peri. with the outer segments acute, inner blunt. Cap. oblong, *obtuse, mucronate*, pale brown. Anthers equalling their filaments in length.

Common. Bogs and marshy ground. (B) P. 6—8. Frankfield and Hogganfield lochs; Possil marsh; Gourrock to Arran.

D. Stem leafy. Leaves not jointed.

10. **J. TRÍFIDUS**, L.—*Three-flowered Rush*. Stems densely tufted, 2—6 in. high, erect, very slender, with 1 le. near the top, fringed on the sheath. Sheaths at the base mostly awned. Heads sessile in the centre of 2 leafy bracts, 1—3-flowered. Peri. acute, *longer than the beaked capsule*.

Very rare. Rocky places ascending Goat Fell, Arran. (H) P. 7—8.

11. **J. COMPRÉSSUS**, Jacq.—*Round-fruited Rush*. Stems erect, slender, slightly compressed at the base, 1—1½ ft. high. Le. linear, channelled. Panicle terminal, generally *shorter* than the bract. Fl. scarcely clustered. Peri. *shorter than the roundly ovate, shortly mucronate capsule*.

Rare. Damp places. "Hamilton," *Patr.* Hills above Gourrock. (B) P. 6—8.

Var. cænosus.—Panicle generally longer than the bract. Peri. *as long as the oval-oblong strongly mucronate capsule*.

Common. Salt marshes from Gourrock to Arran (E) P. 6—8.

12. **J. BUFÓNIUS**, L.—*Toad Rush*. Stems numerous, leafy, repeatedly forked, 4—8 in. high. Le. slender, filiform, setaceous, grooved. Fl. solitary, scattered, mostly sessile, unilateral. Segments of the peri. acuminate, with scariose edges, *much longer than the oblong obtuse capsule*.

Very common. Waste places and moist ditches. (B) A. 8.

2. LÚZULA. Wood-Rush.

1. **L. SYLVÁTICA**, Bich.—*Great Hairy Wood-Rush*. A large coarse plant with stems 1½—2 ft. high. Le. linear-lanceolate, striate, shining, hairy on the edges, above 12 in. long. Panicle compound, large, loose. Fl. in clusters of 2—3 each. Segments of the peri. bristle-pointed. Cap. of nearly the same length, ovate and mucronate.

Common. In woods and on sandy rocks; Kelvinside woods; Carmyle, &c. (B) P. 5—6.

2. **L. PILÓSA**, Willd.—*Small Hairy Wood-Rush*. Stems slender, erect, 6—12 in. high. Le. linear, mostly radical, fringed with long white hairs. Panicle slightly branched, spreading. Ped. 1—3-flowered, slender, *bent back when in fruit*. Cap. blunt, rather longer than the peri. Seeds with a curved crest.

Frequent. In woods and on shady banks. (B) P. 3—5. Kelvinside woods; Kenmuir bank, &c

3. **L. CAMPÉSTRIS**, Willd.—*Field Wood-Rush*. Stem erect, 4—6 in. high. Le. linear, hairy. Panicle ovate, densely flowered or in stalked clusters. Peri. acuminate, longer than the blunt apiculate capsule. Seeds with an appendage at the base. Filaments 6 times shorter than the anthers. Seeds nearly globular.

Var. *congesta*, 8—20 in. high. Filaments half as long as the anthers. Seeds twice as long as broad. Fl. in clusters.

Common. Dry pastures, moors, and woods. (B) P. 4—5.

4. **L. SPÍCATA**, D.C.—*Spiked Mountain Wood-Rush*. Stems 3—8 in. high. Le. narrow, slightly grooved, hairy on the margins of the sheaths. Bracts membranous, mucronate. Spike dense, oblong, nodding. Segments of the peri. narrow, bristle-pointed, about as long as the elliptical-pointed capsule. *Seeds with a very inconspicuous appendage.*

Very rare. High mountains. Ben Lomond. (H) P. 7.

3. NARTHÉCIUM. *Bog-Asphodel.*

N. OSSÍFRAGUM, Huds.—*Lancashire Bog-Asphodel*. Stem stiff, 6—12 in. high, with several leafy scales. Le. in tufts, clasping one another at the base (equitant), with raised parallel veins. Fl. racemose, pedicels with 2 bracts, one at the base and another above the middle. Segments of the peri. spreading, bright yellow inside, green on the back, persistent.

Common. Wet moors and on mountains. (B) P. 6—8. Possil marsh; Cathkin hills, &c.

82.—ALISMACEÆ.

1. ALÍSMA. *Water-Plantain.*

1. **A. PLANTÁGO**, L.—*Greater Water-Plantain*. Scape 1—3 ft. high. Le. on long footstalks, ovate, or narrow lanceolate, sometimes subcordate at the base. Panicle in whorls, very much branched, bracteate. Fl. pale rose-colour, outer segments green. Fruit consisting of achenes, *arranged in a circle, round a broad axis.*

Common. In ditches, lakes, and margins of rivers. (B) P. 6—8. Possil marsh; Paisley Canal, &c.

2. **A. RANUNCULOÍDES**, L.—*Lesser Water-Plantain*. Scape 8—12 in. high, with simple branches, of 1—2 whorls. Le. on long footstalks, narrow lanceolate. Fl. larger than in the last, pale purple or nearly white. Heads of fruit globose; achenes spreading in all directions, acute, 4—5-ribbed.

Not common. Turfy bogs and sides of lakes. (B) P. 5—9. "Marsh beyond Possil," *Hopk.* Bute, Cumbrae, and Arran.

2. SAGITTÁRIA. *Arrow-Head.*

S. SAGITTIFÓLIA, L.—*Common Arrow-Head.* Scape 1—2 ft. high. Le. all radical on long stalks, arrow-shaped, 6—8 in. long, basal lobes as long as the terminal one. Fl. white, in distant whorls, branches short, inner segments of the peri. twice as large as the 3 outer. St. numerous.

Rare. Margins of rivers and ditches. (E) P. 7—8. Banks of the Cart at Inchinnan bridge; Forth and Clyde Canal. A doubtful native.

3. TRIGLÓCHIN. *Arrow-Grass.*

1. **T. PALÚSTRE**, L.—*Marsh Arrow-Grass.* Scape 8—10 in. high. Le. linear, fleshy, with a slight groove, sheathing at the base. Spike slender, lax. Fl. small, yellowish green. Fruit of 3 linear carpels, combined by a central axis, when ripe resembling an arrow-head.

Frequent. Marshy places and wet meadows. (B) P. 6—8. Possil marsh; Frankfield and Hogganfield lochs; Gourock to Arran.

2. **T. MARÍTIMUM**, L.—*Sea-side Arrow-Grass.* A stronger plant than the last, differing in its fruit being composed of 6 ovate carpels, combined by a central axis.

Common. In salt marshes, from Bowling to Arran. (B) P. 5—9.

83.—TYPHACEÆ.

1. TÝPHA. *Cat's-tail, Reed-mace.*

1. **T. LATIFÓLIA**, L.—*Great Reed-mace.* Stem erect, 3—6 ft. high. Le. linear, nearly flat, very long sheathing at the base. Fl. in a continuous spike, fertile ones on the lower portion. Ovaries densely packed, cylindrical, turning nearly black when ripe, barren fl. at the apex of the spike. Anthers closely packed, with 1 or 2 membranous bracts.

Very rare. Borders of ponds and lakes. (B) P. 7—8. "In a bog on the banks of the Clyde, about 2 miles east of Hamilton," *Hopk.* In an old arm of the Kelvin at Cadder House; Lochlibo; "Lochs near Corehouse," *Mr. Dunlop.* Inchinnan bridge; "Whiting bay, Arran," *Lands.*

2. **T. ANGUSTIFÓLIA**, L.—*Lesser Reed-mace.* Smaller than the last. Le. linear, narrow, channelled below, dark green. Sterile and fertile spikes slightly separate, cylindrical, the latter reddish brown.

Very rare. Pools and ditches; near Auchmeddan," *Mr. Dunlop.* (E) P. 7—8.

2. SPARGÁNIUM. *Bur-reed.*

1. **S. RAMÓSUM**, Huds. — *Branched Bur-reed.* Stem erect,

branched on the upper part, 2—3 ft. high. Le. long, linear, triquetrous at the base, upper ones with broad sheathing bases. Fl. in spherical heads, lower ones fertile, upper barren, *forming a kind of panicle* at the apex of the stem, surrounded by leaves. Plant grass green, readily mistaken for an *Iris*.

Common. In stagnant ditches and streams. (B) P. 7. Forth and Clyde Canal; in a ditch, west of Cadder wilderness; beyond Rutherglen, &c.

2. *S. SÍMPLEX*, Huds.—*Unbranched Upright Bur-reed*. Le. weak, and often floating, triangular at the base, narrow. *Fl. stem simple*, slender. Heads of fl. distant, lower one fertile, shortly stalked, next 2 fertile and sessile; *upper 3 barren*.

Frequent. In ditches and stagnant water. (B) P. 7. Forth and Clyde Canal; Possil marsh; Frankfield and Hogganfield lochs; Paisley Canal; St. Germans loch, &c.

3. *S. MÍNIMUM*, Bauh.—*Small Bur-reed*. Le. long, narrow, linear, plain and pellucid, floating on the surface of the water. Fl. stem slender, simple. Heads of fl. few, *only 1 sterile*. Fruit sessile, with a short beak.

Frequent. Lakes and stagnant water. (B) P. 7. Forth and Clyde Canal; Frankfield loch; and from Gourrock to Arran.

84.—ARACEÆ.

1. A'RUM. *Cuckoo-pint*.

A. MACULÁTUM, L.—*Cuckoo-pint*, *Wake-Robin*, *Lords and Ladies*. Le. all radical, sagittate-hastate, lobes at the base blunt or acute, often with purple spots, footstalks very long. Spatha convolute, 6—8 in. long, tapering to a point, contracted above the base. Spadix with ovaries at the base, next the sessile st. above these probably sterile ovaries, terminating in a purple club. Berries scarlet; whole plant very acrid.

Not common. In woods and under hedges. (E) P. 4—5. "Bothwell woods; Avon at Barncluith," *Hopk.* Craignethan Castle; Crookston Castle; Cadder wilderness; Bute and Cumbrae.

2. A'CORUS. *Sweet-Flag*.

A. CÁLAMUS, L.—*Common Sweet-Flag*, *Sweet-Sedge*. Rhizome large, thick, aromatic. Le. linear, erect, sword-shaped, 2—3 ft. long. Scape two-edged, prolonged beyond into a spatha, with the spadix appearing as if lateral, sessile, and covered with fl. Stem and le. sweet-scented when bruised.

Very rare. In an old arm of the Kelvin at Cadder House; "Castle Semple loch," *H. & A.* Corehouse. (E) P. 6.

85.—LEMNACEÆ.

1. LÉMNA. *Duckweed.*

1. **L. TRISÚLCA**, L.—*Ivy-leaved Duckweed*. Fronds thin, $\frac{1}{2}$ — $\frac{3}{4}$ of an inch long; narrow, suddenly tapered at the base, blunt, and minutely toothed at the apex; young fronds springing out at right angles from the old ones, on two opposite sides at the base; root single, covered by a terminal sheath (calyptrate).

Rare. Ponds and still waters. (E) A. 6—7. Very plentiful in Possil marsh and the Forth and Clyde Canal.

2. **L. MÍNOR**, L.—*Lesser Duckweed*. Fronds broadly oval, compressed, succulent, 3 or 4 together, 1—2 lines long, with a single root covered by a sheath (calyptrate).

Very common. Stagnant water, covering the surface in large masses. (B) A. 7.

3. **L. POLYRRHÍZA**, L.—*Greater Duckweed*. Fronds nearly orbicular, flat, 3—4 lines in diameter, purple underneath, roots numerous, calyptrate. Fl. have not been found in Britain. (*For description of fl.*, see *Hook. & Arn.*, 8th ed., p. 477.)

Very rare. On the surface of stagnant water. Forth and Clyde Canal at the new and old wood basins, west from Port-Dundas. (E) A.

4. **L. GÍBBA**, L.—*Gibbous Duckweed*. Frond nearly flat above, very convex, spongy and pellucid white beneath, cells very large; root solitary, calyptrate; size a little larger than in *L. minor*.

Rare. Stagnant water. At the same stations as the former and mixed up with it. (E) A. 6—9.

86.—NAIADACEÆ.

1. POTAMOGETON. *Pondweed.*

A. Leaves all submerged.

* *Leaves opposite; stipules none.*

1. **P. DÉNSUS**, L.—*Opposite-leaved Pondweed*. Le. short, arranged in 2 rows, thin, pellucid, amplexicaul, broadly lanceolate, keeled below, with a strong midrib, and 2 parallel veins on each side. Ped. very short, reflexed after flowering, bearing 2—3 fl. Nuts rounded and smooth.

Not common. Lakes and ditches. (E) P. 6—7. "Bardowie loch," *Hopk.* "Clyde below Hamilton bridge," *Patr.* Near Blantyre mills.

** *Leaves alternate, stipulate.*

1. Leaves linear.

2. **P. PUSÍLLUS**, L.—*Small Pondweed*. Stems slender, slightly compressed, much branched. Le. very narrow, linear, acute, with

3 obscure veins. Ped. 2—3 times longer than the rather lax spike. Nuts few, oblique, keeled.

Frequent. Canals and ponds. (B) P. 6—7. Possil marsh; Paisley Canal Forth and Clyde Canal; also in many old quarry holes.

3. **P. GRAMÍNEUS**, L. — *Grassy Pondweed*. A stronger plant than the last, with broader le., linear, obtuse, with a small point, 3-veined and connected by small obscure *elongated reticulations*. Ped. scarcely longer than the ovate or oblong dense spike. Nuts obovate, with a blunt keel.

Rare. Canals and ponds. (E) P. 7—8. Bardowie loch; "In the Clyde," Ure; Possil marsh; Forth and Clyde Canal.

2. Leaves ovate or lanceolate.

4. **P. CRÍSPUS**, L. — *Curly Pondweed*. Stem compressed, often 2—3 ft. long. Le. lanceolate, *waved and serrate*, $1\frac{1}{2}$ to 2 in. long, midrib with one slender vein on each side. Ped. elongated, bearing 3—6 small fl. Nut with a long beak.

Frequent. Lakes and rivers. (B) P. 6—7. River Clyde; Forth and Clyde Canal; very plentiful in the Paisley Canal.

5. **P. PERFOLIÁTUS**, L. — *Perfoliate Pondweed*. Stem round, 3—4 ft. long. Le. ovate, amplexicaul, pellucid. Ped. rather thick and short. Nut rounded on the back when fresh.

Frequent. Lakes and rivers. (B) P. 7. Paisley Canal; rivers Clyde and Cart; Hogganfield loch; Forth and Clyde Canal, &c.

6. **P. LÚCENS**, L. — *Shining Pondweed*. A large plant. Le. 4—6 in. long, elliptic-lanceolate, suddenly contracted at the apex into an acute or cuspidate point, *margin rough* or denticulate. Stipules large, with 2 *dorsal wings*. Ped. elongated, swelling upwards. Spikes cylindrical, densely flowered.

Common. Lakes and rivers. (E) P. 6—7. Plentiful in Clyde.

7. **P. NÍTENS**, Weber. — *Bright Pondweed*. Stems round, slender, branched. Le. $1\frac{1}{2}$ in. long, crowded on the stem, lanceolate, $\frac{1}{2}$ amplexicaul, pellucid, margin wavy; the upper ones broader and blunt, petiole short. Stipules membranous, $\frac{1}{3}$ the length of the le. Ped. short and stout, thickened upwards. Fruit when dry with 3 ridges on the back. (*Journal of Bot.*, vol. ii., p. 325.)

"Loch Ascog, Bute," Mr. G. E. Hunt. P. 8.

B. Upper leaves floating, petiolate.

8. **P. HETEROPHÝLLUS**, Schreb. — *Various-leaved Pondweed*. Floating le. elliptical, petioles longer than the blade. Lower le. sessile, lanceolate, tapering at both ends, denticulate, with a short apiculus. Stipules strongly ribbed. Ped. thickened upwards. Nut blunt on the back.

Frequent. Ponds and ditches. (B) P. 6—7. "In Bardowie loch, east side," Hopk. Rivers Clyde and Cart; Forth and Clyde Canal, &c.

9. **P. RUFÉSCENS**, Schrad.—*Reddish Pondweed*. Floating le. on short stalks, coriaceous, oblong or lanceolate, lower or submerged le. lanceolate, tapering at both ends, not apiculate, with chain-like network at the midrib. Stipules *not winged*. Ped. not thickened upwards. A much larger plant than the last, with the upper le. tinged with red.

Not common. Canals and ditches. (B) P. 7. Possil marsh; Forth and Clyde Canal, &c.

10. **P. NÁTANS**, L.—*Broad-leaved Pondweed*. Floating le. *elliptical*, 4—5 in. long, coriaceous with numerous veins, on long stalks, submerged le. linear, thin, often wanting. Stipules closely sheathing, very large. Ped. thick. Spike cylindrical, dense. Nuts large, keeled when dry. The le. become elongated and narrow in rapid streams.

Common. In rivers and stagnant water. (B) P. 6—7. Frankfield, Hogganfield, Bardowie, and St. Germans lochs; Cumbræ and Arran.

11. **P. OBLÓNGUS**, Viv.—*Oblong-leaved Pondweed*. Known better from the last by its size than by any characters that can be given to it, being always small. Upper le. oblong-elliptical, lower le. linear, often absent. Ped. equal. Spike dense. Nut small, faintly keeled when dry.

Common. In ditches nearly dry in summer, and on the surface of peat bogs. (B) P. 7. Possil marsh; Cathkin hills; Frankfield and Hogganfield lochs; Gourrock to Arran.

2. ZANNICHÉLLIA. *Horned Pondweed*.

Z. PALÚSTRIS, L.—Stems long, slender, branched, and floating. Le. opposite, linear, entire, with a small membranous sheathing stipule. Fl. axillary from a membranous bract. Fertile ones shortly stalked. St. with a long white filament. Nut when ripe ten with a toothed keel.

Rare. Rivers and ditches. (B) A. 5—8. "In the Clyde near the ford, Bogie's hole," *Hopk.* "Below Hamilton bridge," *Patr.* Forth and Clyde Canal beyond Kilsyth.

3. ZOSTÉRA. *Grass-wrack, "Alva-marina."*

1. **Z. MARÍNA**, L.—*Broad-leaved Grass-wrack*. Rhizome creeping. Le. flat, long, linear, 3—5-veined, sheathing at the base. Flower-bearing le. with a sheathing spatha covering the fl. and spadix. "Ped. of the spatha thick, shorter than the spadix." Fl. in 2 rows. St. and pistils alternate. *Fruit striate*.

Var. *angustifolia*, le. narrow, short, 1—3-veined. "Ped. of the spatha slender, as long as, or longer than, the spadix," *H. & A.*

Very common. In the sea, and on banks at low water. (B) P. 7—8. The fibre of the le. has been proposed as a substitute for cotton. The narrow form on mud banks and in salt water ditches.

2. **Z. NÁNA**, Roth.—*Dwarf Grass-wrack*. Much smaller than the last. Le. narrow, short, 1-veined. Spadix short, few-flowered, with a transverse band to each ovary. *Fruit smooth*.

"Between Fairlie and Hunterston Point, covering hundreds of acres," *Dr. W. Arnott*. On the opposite shores of Cumbrae not so common. (E) P. 4—8.

Sub-Class 2.—GLUMACEÆ.

Ord. 87. CYPERACEÆ.—Flowers perfect or unisexual, enclosed in the axil of a bract or glume, arranged in spikelets. *Perianth* none or replaced by scales or bristles. *Stamens* 3, seldom 2. *Style* deeply divided into 2 or 3 stigmas. *Ovary* simple, 1-celled, lenticular, when the style has 2 stigmas; triangular when it has 3. *Stems* solid. Leaves with the sheaths closed.

GRAMINEÆ. See Order 88.

GENERA OF CYPERACEÆ.

A. Flowers perfect.

1. **SCHŒNUS**.—Spikelet 1—4-flowered. Glumes 6—9, lower ones empty. Style 3-cleft. Spikelets sessile, in compact terminal heads.
2. **RHYNCHÓSPORA**.—Spikelets few-flowered. Glumes 6—7, imbricated on all sides. *Bristles* 10, or sometimes 12. Nut compressed.
3. **BLYSMUS**.—Spikelets on a zigzag rachis, *closely arranged in 2 rows*, with bracts. Glumes imbricated on all sides. *Bristles* 3—6. Nut plano-convex.
4. **ELEOCHARIS**.—Spikelets solitary, terminal, many-flowered. One or two of the lowest glumes empty, forming bracts. *Nut crowned with the broad base of the style*. *Bristles* 3—6.
5. **ISOLEPIS**.—Spikelets many-flowered, solitary, or clustered. Glumes closely imbricated on all sides. Style deciduous. *Bristles none*.
6. **SCIRPUS**.—Spikelets solitary or fascicled. Glumes imbricated all round, equal, or the lowest larger, nearly all fertile. *Bristles about 6*, sometimes with recurved teeth. Style deciduous.
7. **ERIOPHORUM**.—Spikelets many-flowered. Glumes imbricated all round. *Bristles becoming long and silky*. Nut triquetrous.

B. Flowers imperfect.

8. **CAREX**.—Flowers unisexual, on the same or on different spikelets. Glumes imbricated on all sides of a many-flowered spikelet. Achene or nut enclosed in the urceolate perigynium, the style protruding at the top.

SPECIES OF CYPERACEÆ.

1. SCHÆ'NUS. *Bog-rush.*

S. NÍGRICANS, L.—*Black Bog-rush.* Stems tufted, wiry, 10—12 in. high. Le. setaceous, stiff, with shining dark brown sheaths at the base. Bracts of 2—3 brown scales, the outer one with a setaceous leafy point. Spikelets collected into a head, shorter than the bracts. Gl. dark brown, with a prominent rough keel.

Common. On wet moors, from Gourrock all round the Firth. (B) P. 6—7.

2. RHYNCHÓSPORA. *Beak-rush.*

R. ÁLBA, Vahl.—*White Beak-rush.* Stems slender, forming dense grassy tufts, 6—12 in. high. Le. narrow, short and subulate. Spikelets whitish, in a compact corymb, with 2 or 3 smaller ones on long ped. from the axils of leafy bracts. Bristles with declining teeth. Stamens 2, filaments slender.

Not common. (B) P. 6—8. "Lochrigg Shotts," *Patr.* Above Rashfield, Kilmun; hills above Gareloch; bogs on the hills above Gourrock; Arran.

3. BLÝSMUS. *Blysmus.*

1. **B. COMPRÉSSUS**, Panz.—*Broad-leaved Blysmus.* Stems 4—8 in. high. Le. linear, narrow, flat, *rough on the edges and keel.* Spike terminal, consisting of 10—12 shining brown spikelets, with a long leafy bract at the base. Gl. reddish brown, striate. Nut orbicular, flat, with a long persistent style, shining.

Frequent. Marshy sea shores of the Firth. (E) P. 6—7. Below Greenock; near Largs and Fairlie.

2. **B. RÚFUS**, Link.—*Narrow-leaved Blysmus.* Stems slender, rigid, 6—10 in. high. Le. short, very narrow, grooved, *not keeled, smooth.* Spike terminal, of about 8 spikelets. Bracts membranous, dark shining brown, outer one not so long as the spike. Gl. dark brown, not striate. Nut ovate, larger than in the last, opaque.

Frequent. Marshy sea shores of the Firth. (S) P. 7. Boggy place on the banks of the Clyde at Kilpatrick and Bowling bay; marshy shore above Kilmun.

4. ELEÓCHARIS. *Spike-rush.*

1. **E. PALÚSTRIS**, Br.—*Creeping Spike-rush.* Rhizome creeping. Stems erect, nearly round, 6—12 in. high, with short sheathing scales at the base, leafless. Spikelets terminal, solitary. Gl. brown, with scarious edges, green on the midrib, outer one largest. Nut crowned with the ovate, persistent base of the style, appearing as a small tubercle on the top. Bristles usually 4.

Very common. Banks of rivers, lakes, and ditches. (B) P. 6—7. Banks of Clyde at Dalmarnock bridge; Cart; Kelvin, &c.

2. **E. MULTICAÚLIS**, Sm.—*Many-stalked Spike-rush*. Smaller than the last, and densely tufted, some of the stems barren, resembling leaves. Spikelets smaller. Nut triquetrous, crowned with the *triquetrous* base of the style. Bristles usually 6.

Frequent. In marshes. (B) P. 7. Near Largs; Cumbrae, Bute, and Arran.

3. **E. ACICULÁRIS**, Br.—*Least Spike-rush*. Very small and slender, 2—3 in. high. Stems setaceous. Spikes very small, ovate, acute. Nut obovate-oblong, compressed, ribbed and striate, crowned by the almost *globose* base of the style. Bristles 3—4.

Not common. Sides of lakes in moorish and damp sandy places. (E) P. 7—8. "Plentifully about Bardowie loch," *Hopk.* Brother loch, Mearns; Island of Arran.

5. ISÓLEPIS. *Mud-rush.*

1. **I. FLÚITANS**, R. Br.—*Floating Isólepis*. Stems compressed, either floating in pools or forming matted masses on the margin, branched and jointed. Le. linear, sheathing at the base. Spikelet terminal, oval, with few fl. Bract with no leafy point. Gl. obtuse, keeled. *Stigmas* 2. Nut compressed obovate.

Not common. Pools of water and still lakes. (B) P. 6—7. "In Frankfield and Bardowie lochs," *Hopk.* Gourock, Cumbrae, Bute, and Arran.

2. **I. SETÁCEA**, R. Br.—*Bristle-stalked Mud-rush*. Stems slender, 2—3 in. high, densely tufted. Le. short, setaceous. Spikelets 2—3, apparently lateral, from the leaf-like bract forming a continuation of the stem, 3—4 times longer than the spikes. Gl. dark brown, with a green midrib. Nut ribbed and furrowed.

Frequent. On the edges of muddy pools and gravelly places. (B) P. 7—8. Possil marsh; banks of Clyde from Gourock to Arran.

3. **I. SÁVII**, Schultes.—*Savi's Mud-rush*. Very like the preceding but still more slender, 4—6 in. high, glaucous, outer bract *seldom exceeding in length* the 2—3 small spikelets. Nut with very minute rough points.

Rare. Wet bogs in the island of Arran. (A) P. 7.

Var. *monostachys*, with one small spikelet, longer than the bract.—Island of Arran.

6. SCÍRPUS. *Club-rush, Bulrush.*

A. Stem round. Spikelets lateral.

1. **S. LACÚSTRIS**, L.—*Lake Club-rush, Bulrush*. Stems erect, 2—8 ft. high, thick below, gradually tapering upwards. Spikelets numerous, in a compound panicle. Bract appearing as a continuation of the stem. Gl. *smooth*, notched at the top, fringed at the base. Anthers bearded at the end. Nut obovate, bluntly trigonous. Style trifid.

Frequent. In lakes and rivers. (B) P. 7—8. Possil marsh; river Kelvin at Bamulie bridge.

2. **S. TABERNÆMONTÁNI**, Gmel. *Glaucous Club-rush*. Very near the former in its general character. Panicle shorter. Gl. *rough with raised dots*, fringed. Anthers not bearded. Styles bifid. Nut convex on one side, roundish oblong.

Very abundant. On both sides of the Clyde, between Renfrew and Bowling bay. (E) P. 6—8.

B. Stem triangular. Spikelets terminal.

3. **S. MARÍTIMUS**, L.—*Salt-marsh Club-rush*. Rhizomes sometimes tuberous, mostly creeping. Stems acutely triangular, 1—3 ft. high. Le. long, flat, acuminate. Spikelets clustered, with several leafy bracts. Gl. *notched, with a fine point between*. Stigmas usually 3. Nut trigonous, smooth.

Frequent. In salt marshes. (B) P. 7—8. Bowling; Dumbarton; shore from Wemyss to Largs; Cumbrae and Arran.

4. **S. SYLVÁTICUS**, L.—*Wood Club-rush*. Stems 2—3 ft. high, with broad linear le. Spikelets small, ovate, in compound terminal cymes. Bracts several, lower ones large, leafy. Gl. *blunt, with a small point*, being a continuation of the keel. Stigmas 3.

Frequent. In moist woods. (B) P. 7. "Bothwell woods and Hamilton," Hopk. "Kenmulr bank; Kelvinside wood; banks of the Cart at Inchinnan; Busby," Dr. Ross.

C. Stem round. Spikelets terminal.

5. **S. PAUCIFLÓRUS**, Lightf.—*Chocolate-headed Club-rush*. Stems tufted, 6—8 in. high, slender, striate, sheaths at the base tight, *leafless*; barren stems numerous. Spikelets few-flowered. Gl. keeled, edges membranous, 2 outer ones enclosing the spike, only half its length. *Nut longer than the hispid bristles*, finely reticulated, terminated by the longish base of the style.

Frequent. Moors and boggy heaths. (B) P. 7—8. "Moors above Dumbarton," Hopk. Hills above Greenock; Gourrock; Largs; Cumbrae and Arran.

6. **S. CÆSPÍTÓRUS**, L.—*Scaly Club-rush, Deer's-hair*. Stems densely tufted, 3—9 in. high, slender, striate, sheaths at the base *with subulate le*. Spikelets small. Gl. membranous, pointed 2 outer ones about as long as the spikelet, ending in leaf-like points. *Nut shorter than the bristles*, oblong, smooth, acute.

Very common. On all our heaths. (B) P. 6—7.

7. ERIÓPHORUM. Cotton-grass, Cotton-sedge.

A. Spike solitary.

1. **E. VAGINÁTUM**, L.—*Hare's-tail, Cotton-grass*. Stems tufted, 10—15 in. high, round at the base, angular at the top. Le. long, setaceous, upper sheath inflated. Spike ovate, olive green, bristles numerous, at length appearing as long cottony tufts, forming an oblong, white silky head.

Frequent. In bogs and on moors. (B) P. 3—5. Frankfield loch; "Mearns moor," Dr. Ross; hills above Gourrock; Inverkip; Kilmun to Arran.

B. Spikes more than one.

2. **E. LATIFÓLIUM**, Hoppe.—*Broad-leaved Cotton-grass*. Stem 1—1½ ft. high, triangular in its upper half. Le. linear, nearly flat, contracted above the middle into a triangular point. Spikelets several, rising from leafy bracts, usually with long rough peduncles. Bristles 2 or 3 times as long as the spikelets, forming white silky tufts.

Rare. "Bonnington woods," Dr. Arnott. (B) P. 5—6.

3. **E. ANGUSTIFÓLIUM**, Roth.—*Narrow-leaved Cotton-Grass*. Stems 10—15 in. high, bluntly angular. Le. linear, channelled, triangular above the middle. Spikelets several. Ped. smooth, bristles 3—4 times as long as the spikes, forming white silky tufts.

Very common. In bogs and wet moors. (B) P. 5—6. Cathkin hills; Possil marsh, &c.

8. **CÁREX**: *Carex*, *Sedge*.

SYNOPSIS OF THE SPECIES.

A. Spikelets solitary, terminal. Stigmas 2. Sp. 1—2.

B. Spikelet solitary, terminal. Stigmas 3. Sp. 3.

C. Spikelets several, androgynous. Stigmas 2. Sp. 4—12.

* Base of the Spikelets barren. Sp. 4—7.

** Apex of the Spikelets barren. Sp. 8—12.

D. Terminal spikelets barren, lower fertile. Stigmas 2.
Sp. 13—17.

E. Terminal spikelet barren, mostly solitary. Stigmas 3.
Sp. 18—33.

† Fruit hairy, downy, or scabrous. Sp. 18—22.

†† Fruit smooth; beak entire. Sp. 23—25.

††† Fruit smooth; beak bifid. Sp. 26—33.

1. Fertile spikelets erect. Sp. 26—29.

2. Fertile spikelets drooping or pendulous. Sp. 30—33.

F. Terminal spikelets 2 or more barren. Stigmas 3. Sp. 34—37.

A. Spikelet solitary, terminal. Stigmas 2.

1. **C. DIOICA**, L.—*Creeping separate-headed Carex*. Dioecious. Rhizome creeping. Stems erect, 6—8 in. high. Le. very narrow, rough. Spikelets brown, barren ones linear, fertile, ovate. Fruit slightly spreading, contracted into a short point, rough on the margin near the top.

Not common. In spongy bogs. (S) P. 5—6. Gourock hills; Inverkip; Cumbræ and Arran.

2. **C. PULICÁRIS**, L.—*Flea Carex*. Androgynous. Stems tufted, 3—6 in. high. Le. slender. Spike with the barren fl. on the top.

Fruit horizontally spreading when ripe, shining, dark brown, tapering at the base and apex, *compressed*. Glumes deciduous.

Frequent. In bogs. (B) P. 5—6. Cathkin hills; Possil marsh; Gourrock; Cumbræ and Arran.

B. Spikelet solitary, terminal. Stigmas 3.

3. **C. PAUCIFLÓRA**, Lightf.—*Few-flowered Carex*. Androgynous. Stems decumbent at the base, 5—6 in. high, with long creeping runners. Le. narrow, the upper ones sheathing the stem. Spikelets few-fl., the upper mostly barren. Fruit pale, spreading or reflexed, narrow, *round*, striate, and pointed. Glumes deciduous.

Not common. On moors. (H) P. 6—7. Discovered on the ascent of Goat Fell in Arran, by *Lightfoot*; "Ben Lomond," *Dr. Walker*; "Near Glasgow," *Hudson*.

C. Spikelets several. Androgynous. Stigmas 2.

* *Base of the spikelet barren.*

4. **C. OVÁLIS**, Gooden.—*Oval-spiked Carex*. Stems tufted, 12—18 in. high, triangular. Spikelets 4—6, close together, oval. Bracts small. Glumes acute, brown, margins pale. Fruit flat, with a *broad, rough, membranous margin*; beak bifid.

Common. In moist meadows. (B) P. 6.

5. **C. STELLULÁTA**, Gooden.—*Little-prickly Carex*. Stems tufted, 6—12 in. high, triquetrous. Le. slightly shorter than the stem. Spikelets about 4, the uppermost ones contiguous, when ripe spreading like a small star. Fruit ovate, larger than the glumes; beak long, bifid, *serrate on the margin*.

Common. In marshy places. (B) P. 5—6.

6. **C. CÚRTA**, Gooden.—*White Carex*. Stems forming large tufts, 10—12 in. high, angular. Le. long. Spikelets 4—8, the uppermost approximate. Bracts small. Glumes ovate, membranous. Fruit erect, ovate, plano-convex, with a *small point*, longer than the glume. Plant having a white appearance, especially the spikelets.

Very common. In most of our bogs. (B) P. 6. Possil marsh; Frankfield and Hogganfield lochs, &c.

7. **C. REMÓTA**, L.—*Distant-spiked Carex*. Stems slender, pale green, bluntly angular, 1—2 ft. high. Le. slender, long, narrow, channelled. Bracts leafy, long and narrow. Spikelets very small, distant below, upper ones close. Gl. *oblong*, membranous. Fruit ovate-acuminate, tapering into a bifid point, *rough on the upper part*, longer than the glumes.

Frequent. In moist shady woods. (B) P. 6. Gairbraid glen and banks of the Kelvin; Kenmuir bank; Gourrock; Cumbræ and Arran.

* *Apex of the spikelets barren.*

8. **C. PANICULÁTA**, L.—*Great-panicled Carex*. Root forming large tufts. Stems stout, 2—5 feet high, triangular, rough. Le.

broad, very long. Bracts short, ovate, acute. Spikelets numerous, paniced; branches long, diverging. Fruit ovate, flat on the front, swollen on the back, with a *deeply bifid*, fringed beak.

Not common. In marshes and bogs. (B) P. 6. "Kenmuir and banks of the Clyde at New Kilpatrick," *Hopk.*; Cumbrae and Arran.

9. *C. TERETIÚSCULA*, Gooden.—*Lesser-paniced Carex*. A smaller plant than the last, 1—2 ft. high, with the spikelets compound and contracted. Stem bluntly angular (*trigonous*), slender, rough above. Le. narrow, glaucous. Bracts small, membranous, ovate, acute. Fruit ovate, convex on the back, faintly nerved. Beak *shortly bifid*, *winged*, and serrulate on the edge.

Rare. In boggy meadows. (B) P. 6. "In a bog on the banks of the Clyde, 2 miles beyond Hamilton," *Hopk.* Little Cumbrae; Arran.

10. *C. VULPÍNA*, L.—*Great Carex*. Stem 2—3 ft. high, sharply *triquetrous*, rough. Le. broad, margin scabrous. Spikelets simple, crowded, large, green. Outer bracts with fine leafy points. Glumes shorter than the fruit, mucronate. Fr. plano-convex, ovate-acuminate. Beak bifid, finely serrate. When ripe the fruit *spreads considerably*.

Frequent. Wet shady places. (B) P. 6. "Banks of the Clyde," *Ure*; Bute; Cumbrae and Arran.

11. *C. MURICÁTA*, L.—*Greater-prickly Carex*. Stems 1—2 ft. high, with rough angles. Le. narrow, shorter than the stem. Bracts small, setaceous. Spikelets 4—6, mostly crowded in a terminal spike, or with the lower ones rather distant. Gl. mucronate, brown. Fruit ovate-acuminate, plano-convex; beak broad, *flat*, with *sharp edges*, finely serrate, bifid; spreading when ripe; yellowish brown.

Not common. Gravelly and marshy pastures. (B) P. 5—6. "Rock below Cathcart Castle," *D. Don*. Near Inverkip; Cumbrae and Arran.

12. *C. ARENÁRIA*, L.—*Sea Carex*. Rhizome creeping, often 10—12 ft. long; sending up stems at intervals of 4—8 in. Stems triangular, rough, 6—10 in. high. Le. slightly keeled. Spikelets clustered, sessile, upper ones barren, lower fertile, intermediate ones barren at the end. Lower bract leaf-pointed, slender, the upper resembling glumes. Fruit flattened, ovate, bifid, with a *winged* serrulate margin, shorter than the acuminate glume.

Common. On the sandy sea shores. (B) P. 6. Near Helensburgh; Dunoon; Cumbrae and Arran.

D. Terminal spikelets barren, lower fertile. Stigmas 2.

13. *C. VULGÁRIS*, Fries.—*Common Carex*. Rhizome slightly creeping. Stems laxly tufted, weak, and acutely triangular, 10—12 in. high, *rough towards the top*. Le. narrow, rolled inwards when dry. Barren spikelets 1—2, fertile 3—4, compact, sub-sessile, cylindrical. Lower bract leafy, not sheathing, with a

small *dark auricle* at its base. Gl. elliptical, obtuse, shorter than the fruit, dark purple, with a slender green keel. Fr. elliptic, plano-convex, nerved nearly to the apex; beak short, entire.

Common. In wet pastures. (B) P. 5—6. Possil marsh.

14. *C. RÍGIDA*, Gooden.—*Rigid Carex*. Stems 4—6 in. high, triangular, rough at the top. Le. short, flat, rigid, revolute when dry. Barren spikelets 1, fertile 2—4, nearly close together, subsessile, cylindrical, compact. *Bracts small, leafy*, with a small black subrotund auricle. Gl. purple, with a green keel. Fr. elliptical, obtuse, plano-convex, without veins. Beak obsolete.

Frequent. On the tops of our highest mountains. (H) P. 6—8. Ben Lomond; Goat Fell, Arran, &c.

15. *C. ACÚTA*, L.—*Slender-spiked Carex*. Stems tufted, 2—3 ft. high, triquetrous, rough at the top. Le. long, broad, flat, sheathing, becoming revolute on the edge. Barren spikelets 1—3, fertile 3—4, slender, long and acute, sometimes barren at the top, lower one stalked, attenuate at the base. *Bracts leafy*, lower one often longer than the stem, *with long auricles*. Gl. narrow-lanceolate, as long as the fr., dark with a green keel. Fruit oblong, lenticular, veined, pale green, with rusty stains. Beak short, entire.

Frequent. Marshes and borders of rivers. (B) P. 5. Banks of Clyde above Carmyle; Kenmuir bank; Gourock; Cumbrae and Arran.

16. *C. AQUÁTILIS*, Wah.—Var. *Watsoni*, Syme.—*Water Carex*. Stems tufted 1½—3 ft. high, trigonous. Le. very long, flat. *Bracts leafy*, much longer than the stem. Barren spikelets mostly 2, fertile 3—4, densely flowered, lower ones slightly tapering below, pale. Glumes short, with a greenish midrib. Fruit adpressed, broadly oval, lenticular, not ribbed. Nut obovate, with a short beak, narrowed below.

Banks of Clyde; several stations from Dalmarnock bridge to Hamilton; long known, but considered a state of *C. cæspitosa* or *stricta*.

17. *C. SAXÁTILIS*, L.—*Russet Carex*. Rhizome creeping. Stems 6—8 in. high. Le. keeled, triangular at the apex. Barren spikelets mostly solitary, fertile ones ovate, lower one stalked. *Bracts leafy*, sheaths none. Gl. dark purple, *tipped with white*. Fruit ovate, inflated, obscurely veined, dark purple, longer than the glume. Beak short bifid.

Frequent. Near springs on our highest mountains. (H) P. 6—7. Ben Lomond.

E. Terminal spikelets barren, mostly solitary. Stigmas 3.
(Sometimes 2 in 20 and 21.)

† *Fruit hairy, downy, or scabrous.*

18. *C. PILULÍFERA*, L.—*Round-headed Carex*. Stems tufted, slender, 6—12 in. high. Le. short, weak. Barren spikelets solitary, fertile about 3, approximate, subglobose, almost sessile.

Bracts short, sheaths none. Gl. ovate-acuminate, brown. Fruit with a raised rib at the apex, nearly *globular*, downy. Beak minute, bifid.

Frequent. In heathy pastures. (B) P. 6. "Moors, Kilbride," *Ure*. Cathkin hills; Craigmaddie moor; hills above Gourrock; Kilmun; Cumbræ and Arran.

19. *C. PRÆCOX*, Jacq.—*Vernal Carex*. Rhizomes creeping. Stems stiff, 3—12 in. high. Le. short, harsh, and broad. Barren spikelet solitary, fertile 1—3, close together, oblong, lowest shortly stalked. Bracts small, leafy, with a short sheath. Gl. broadly ovate-acuminate. Fruit small, shortly beaked, trigonous, covered with *minute down*.

Common. Dry pastures and heaths. (B) P. 4—5. Amongst whins in a pasture at Buttery-burn loch; Cathkin hills; from Gourrock to Arran.

20. *C. FILIFÓRMIS*, L.—*Slender-leaved Carex*. Rhizome creeping. Stems 12—18 in. high. Le. slender, margins involute when dry. Barren spikelets 2, fertile 2—4 distant, shortly stalked, upper nearly sessile. Bracts leafy, long, narrow, and shortly sheathing. Gl. of the fertile spikelets oblong-ovate, cuspidate. Fruit downy, oblong-ovate, tapering into a deeply-divided beak.

Very rare. Boggy marshes. (S) P. 5. Dunloskin loch, near Dunoon.

21. *C. HÍRTA*, L.—*Hairy Carex*. Rhizome creeping. Stems leafy, 1—2 ft. high, more or less hairy in all its parts. Le. flat, hairy. Barren spikelets 2—3, fertile 2—3, remote, stalked. Bracts long, leafy, lowest one with sheaths, equal to the peduncles of the lowest spikelet. Gl. elliptic-lanceolate at the ciliate point. Fruit ovate-oblong, tapering into a long deeply-bifid beak, tawny, covered with *short spreading hairs*.

Frequent. Wet pastures and damp woods. (B) P. 5—6. Baldernock; Kenmuir bank; Bowling; Gourrock; Cumbræ and Arran.

A variety is found "near Innellan, with the lower sheaths scarcely half as long as the stalks, fertile spikelets loose-flowered, compound at the base," *H. & A.*

22. *C. GLAÚCA*, Scop.—*Glaucous Heath Carex*. Rhizome creeping. Stems 8—12 in. high. Le. short, curved, glaucous. Barren spikelet 1—3, fertile 2—3, erect, at length slightly drooping. Bracts leafy, scarcely sheathing. Glumes ovate, acute, dark brown. Fruit obtuse, with a very short beak, rough, *caused by depressed points*.

Common. Marshy places and wet moors. (B) P. 6. Possil marsh; Cathkin hills, &c.

†† *Fruit smooth. Beak entire.*

23. *C. PANÍCEA*, L.—*Pink-leaved Carex*. Stems tufted, erect, smooth, 12—18 in. high. Le. short, broad, glaucous, edges rough. Barren spikelet solitary; fertile mostly 2, distant, erect, stalks longer than the sheath, loosely flowered. Bracts leafy, sheathing at the base. Gl. oblong, dark brown, with a green keel.

Fruit swollen, obtuse, *without veins*, greenish brown. Beak very short.

Common. In bogs and marshes. (B) P. 6. Possil marsh; Frankfield loch, &c.

24. *C. PALLÉSCENS*, L.—*Pale Carex*. Stems tufted, leafy at the base, triquetrous, rough above, 12—18 in. high. Le. slightly downy. Barren spikelet single, sessile, light brown; fertile 2, rarely 3, ovate, stalks longer than the sheaths, *approximate*. Bracts leafy, shortly sheathing, Gl. *mucronate*. Fruit ovate-oblong, *swollen*, veined, obtuse with no beak, or very short.

Not common. Marshy places. (B) P. 6. Crossbasket; marsh near Milngavie.

25. *C. LÍMOSA*, L.—*Mud Carex*. Rhizome creeping, 8—12 in. high. Le. narrow, channelled, rough on the edge. Fertile spikelets 2, on long peduncles, slightly drooping. Lower bract leafy, without a sheath, or with a scarious auricle. Gl. ovate-acuminate, dark brown. Fruit *compressed*, elliptical, strongly ribbed, not distinctly beaked.

Rare. Marshes at Bowling, the late Wm. Gourlie, Esq. (S) P. 6.

Var. *irrigua*, Hoppe.—Le. broader, flat, short, rough at the triquetrous point. Lower glumes long and narrow, upper broader and shorter, midrib pale brown. Fr. faintly ribbed.

“Bogs and marshes, near Lanark,” Mr. Dunlop.

+++ *Fruit smooth. Beak bifid.*

1. Fertile spikelets erect.

26. *C. EXTÉNSA*, Gooden.—*Long-bracteate Carex*. Stems tufted, smooth, about 12 in. high. Le. long, stiff, erect, convolute. Barren spikelet 1, fertile 3—4, nearly sessile, almost close together. Bracts leafy, lowest one *nearly horizontal*, often 4—5 in. long, convolute. Glumes slightly mucronate. Fruit swollen, ovate, ribbed, tapering into a smooth, bifid, conical beak.

Frequent. In marshes on the sea coast. (B) P. 6. Skelmorlie; near Largs; Cumbræ and Arran.

27. *C. FLÁVA*.—*Yellow Carex*. Stems densely tufted, 6—12 in. high, obtuse-angled. Le. broad, flat. Barren spikelet 1, fertile 1—3, sub-sessile, globose or oval. Bracts leafy, scarcely sheathing, at length spreading or deflexed. Glumes blunt. Fruit ovate, swollen, ribbed; beak deflexed and tapering, rough-edged. *Nut minutely punctate*.

Frequent. In turfy bogs and pastures. (B) P. 5—6. Cathkin hills; Possil marsh; Gourrock; Cumbræ and Arran.

Var. *Æderi*.—Spikelets close together. Beak long, rough-edged, straight. Fruit smaller than in the species.

28. *C. FÚLVA*, Gooden.—*Tawny Carex*. Stems slightly tufted, about 12 in. high, acutely triangular, scabrous. Le. narrow, flat.

Barren spikelet 1, fertile mostly 2, not close together, lower one on a long peduncle exceeding the sheath. Bracts leafy, with long sheaths. Gl. *acute*. Fr. swollen, ovate, ribbed, smooth; beak long, rough-edged, bifid.

Frequent. In boggy places. (B) P. 6. Craigmaddie moor; hills above Bowling; Gourrock to Arran.

Var. *spirostachya*.—St. trigonous, rough at the top; fertile spikelets on long peduncles; fruit more strongly ribbed.

Frequent. On the hills above Inverkip; Cumbræ and Arran.

29. *C. DISTANS*, L.—*Loose Carex*. Stems smooth, 8–15 in. high. Le. flat, narrow. Barren spikelets 1–2, with obtuse glumes; fertile ones 2–3, remote, erect, oblong; lowest peduncle longer than the sheath, upper ones included. Bracts sheathing, leafy, lowest sheath enclosing *about half of the peduncle*. Gl. mucronate; brownish. Fruit ovate, trigonous, faintly ribbed, pellucidly punctate. Beak rough, bifid.

Very rare. In muddy marshes near the sea; Cumbræ and Arran. (B) P. 6.

2. Fertile spikelets drooping, or pendulous.

30. *C. BINÉRVIS*, Sm.—*Green-ribbed Carex*. Stems rigid, triangular, 12–18 in. high. Le. short, hard. Barren spikelet 1, fertile mostly 3, lower one distant, on a long peduncle. Bracts leafy, lowest one with a long sheath, enclosing the peduncle *to within three-fourths of the top*. Glumes of the barren spikelet obtuse, of the fertile ones mucronate, and rough at the point, with a greenish midrib. Fruit ovate, *triquetrous*, with 2 sub-marginal green ribs. Beak long, rough, and deeply bifid. Nut brown, rough.

Common. On dry heaths. (B) P. 6. Steps station beyond Millerston; Cathkin hills; moors above Kilpatrick. From Gourrock to Arran.

31. *C. LÆVIGÁTA*, Sm.—*Smooth-stalked beaked Carex*. Stems smooth, 2–3 ft. high. Le. broad, flat. Barren spikelets mostly solitary. Fertile ones remote, on long peduncles, slightly drooping, cylindrical. Bracts leafy, with elongated sheaths. Glumes *acute* on the barren triquetrous spikelet; on the others acute and purple, with a pale centre. Fruit ovate, *triangular*, tapering into a long, rough, deeply-bifid beak, nut yellowish, smooth.

Rare. Marshes and moist woods. (B) P. 6. "Arran," *Lands*; and in Cumbræ.

32. *C. SYLVÁTICA*, Huds.—*Pendulous Wood Carex*. Stems tufted, weak, very leafy, 1–2 ft. high. Le. flaccid. Barren spikelet solitary; fertile 3–4, slender, loose-flowered, drooping. Bracts leafy, sheathing. Glumes ovate, acute, *membranous*, with a green keel. Fruit smooth, elliptic, tapering into a long beak.

Frequent. In moist woods. (B) P. 5–6. Langside wood; near Cambuslang; Blantyre Priory; Kilmum; Gourrock to Arran.

33. *C. PÉNDULA*, Huds.—*Great Pendulous Carex*. Our tallest species, 3—6 ft. high. Stem stout, triangular. Le. very long, about half an inch broad. Barren spikelet solitary, fertile 4—6, cylindrical, 4—5 in. long, pendulous, densely flowered. Bracts leafy, lower one sheathing. Gl. ovate, *mucronate*, brown, with a green keel. Fruit small, elliptic, with a short trigonous emarginate beak.

Rare. Wet woods and moist shady places. (B) P. 5—6. "By the Clyde above Blantyre Priory, and above Barncluith," *Patr.* Kenmuir bank, near the Marriage-well; Gourrock.

F. Terminal spikelets 2 or more barren. Stigmas 3.

34. *C. AMPULLÁCEA*, Gooden.—*Slender-beaked Carex*. Stems tufted, 1—2 ft. high, *angles blunt*. Le. long, *channelled*, *glaucous*. Barren spikelets 2—3, fertile 2—4, distant, cylindrical, with short peduncles. Bracts leafy. Gl. lanceolate. Fruit subglobose, inflated, *suddenly contracted* into a long, narrow, bifid beak.

Frequent. Wet bogs and marshes. (B) P. 6. Possil marsh; Bardowie loch; Gourrock hills; Cumbræ and Arran.

35. *C. VESICÁRIA*, L.—*Short-beaked Bladder Carex*. Stems nearly 2 ft. high, *acutely triangular*, rough near the top. Le. broad, green. Barren spikelets 2—3, fertile 2—3, remote, cylindrical. Bracts long, leafy. Gl. lanceolate. Fruit ovate, inflated, *gradually narrowing* into a subulate beak.

Frequent. Wet bogs and marshes. (B) P. 5—6. Possil marsh; Bardowie loch; "Busby," *Dr. Ross*.

36. *C. PALUDÓSA*, Gooden.—*Lesser Common Carex*. Stems 2—3 ft. high, with rough angles. Le. broad, rough, keeled, green. Barren spikelets 2—3, fertile 3, cylindrical. Bracts long, leafy. Gl. narrow, pointed. Fruit compressed, *not inflated*, ovate or oblong, striate; beak short, spreading, 2-lobed.

Common. Banks of rivers and marshes. (B) P. 5—6. Banks of Clyde, Cart, and Kelvin.

37. *C. RIPÁRIA*, Curt.—*Great Common Carex*. Stem 3—4 ft. high, *angles rough*. Le. very broad. Barren spikelets 3—5, *with awned anthers*; fertile 3—4, long, cylindrical, acute. Bracts leafy, very long. Gl. acute. Fruit oblong-ovate, convex, with a very short emarginate beak.

Frequent. Sides of rivers and ditches. (B) P. 5. "Banks of Clyde at Carmyle and Kenmuir," *Hopk.* Banks of Cart, &c.

Ord. 88.—GRAMINEÆ.

Stems usually hollow, jointed; nodes solid, with one leaf to each. *Leaves* alternate, with sheaths split on one side, having in the axil at the base of the linear blade a small membranous *ligule*. *Flowers* in *spikelets*, arranged on a *rachis*, in spikes,

racemes or panicles. Each *spikelet* is usually composed of 2 (or 1, rarely none) outer imbricated empty *glumes*; these contain 1—2 or more perfect florets; sometimes imperfect, often rudimentary or neuter ones are produced. Each *floret* is composed of 2 chaffy *glumellas*, enclosing the essential organs (usually 3 stamens, 1 style, and 2 stigmas); the lower or outer one with a central midrib or keel; the inner (supposed to be 2-united) having 2 lateral ones. *Ovary* 1-celled, with 2 minute scales (sometimes 1 or none) at the base, called *lodicules*. *Fruit* 1-seeded (a *caryopsis*), closely covered by the pericarp, sometimes the glumellas adhere to the seed.

KEY TO THE GENERA OF GRAMINEÆ.

- A. Style and stigma 1. Glumes none. Gen. 1.
- B. Styles or stigmas 2. Stamens 3 (rarely 1). Gen. 2—30.
 - 1. Spikelets with 1 perfect floret. Gen. 2—10.
 - * Inflorescence dense, panicle close and spike-like. Gen. 2—6.
 - ** Inflorescence a loose branched panicle. Gen. 7—10.
 - 2. Spikelets with 2 perfect florets. Gen. 11—18.
 - † Glumellas without awns. Gen. 11—13.
 - †† Glumellas awned. Gen. 14—18.
 - 3. Spikelets with 3—4 perfect florets. Gen. 19—26.
 - 4. Spikelets with numerous florets, mostly sessile, upon opposite sides of the rachis. Gen. 27—30.

GENERA.

- A. Style and stigma 1. Glumes none.
- 1. *NARDUS*.—Spikelets sessile, unilateral, with 1-floret. Spike simple.
- B. Styles or stigmas 2. Stamens 3 (rarely 1). Gen. 2—30.
 - 1. Spikelets with 1 perfect floret.
 - * Inflorescence dense, panicle close and spike-like.
 - 2. *ALOPECURUS*.—Glumes without awns. Glumella one, with a long dorsal awn from below the centre.
 - 3. *PHLEUM*.—Glumes with a short terminal awn. Glumellas membranous, awnless.
 - 4. *ANTHOXANTHUM*.—Glumes very unequal. Glumellas equal, awned at the back. Stamens 2.
 - 5. *PSAMMA*.—Glumes and glumellas awnless, hairy at the base.
 - 6. *PHALARIS*.—Glumes awnless, keel expanded into a wing. Glumellas awnless.
 - ** Inflorescence a loose branched panicle.
 - 7. *DIGRAPHIS*.—Glumes and glumellas awnless, the latter with two hairy scales at the base.

8. *AGROSTIS*.—Glumes awnless, outer one largest. Glumellas membranous, very unequal, or the inner wanting, occasionally with a small tuft of hairs at the base. Awn dorsal, sometimes none.
9. *MILIUM*.—Glumes nearly equal, smooth on the keel, flattish on the back. Glumellas nearly as long as the glumes, awnless, smooth, hard and shining when enclosing the mature fruit.
10. *MELICA*.—Glumes broad, with several nerves. Glumellas awnless, smooth, outer one 7-ribbed. Sometimes 2-flowered.

2. Spikelets with 2 perfect florets.

† Glumellas without awns.

11. *MOLINIA*.—Glumes shorter than the glumellas, acute, lowest 1-nerved; second floret on a bristle-like peduncle.
12. *CATABROSA*.—Glumes obtuse, shorter than the florets, outer one very small. Glumellas truncate, margin scariose.
13. *KÆLERIA*.—Panicle close, spike-like. Glumes unequal. Outer glumella entire, acute, 3-ribbed.

†† Glumellas awned.

14. *HOLCUS*.—Glumes nearly equal. Glumellas enclosed within the glumes. Lower floret with a long footstalk.
15. *AIRA*.—Glumes nearly equal. Glumellas hairy at the base, outer one awned at the back, seldom protruding beyond the glumes.
16. *ARRHENATHERUM*.—Glumes unequal. Lower glumella with a long twisted geniculated awn from near the base, with stamens only; glumella of the upper perfect floret with a very short awn from a little beneath the summit.
17. *AVENA*.—Glumes membranous, many-ribbed. Glumellas cartilaginous, hairy at the base, outer one awned from a little beneath the centre. Awn twisted at the base and bent. Sometimes 3-flowered.
18. *SESLERIA*.—Glumes nearly equal, outer one with a very short awn from the summit. Outer glumella with 3—5 teeth, middle one bristle-like and rough. Often more than 2-flowered.

3. Spikelets with 3—4 perfect florets.

19. *CYNOSURUS*.—Inflorescence a unilateral spike-like raceme, with a pectinated bract at the base of each spikelet.
20. *DACTYLUS*.—Panicle in several dense, subsecund tufts. Glumes unequal, hairy. Glumella with a minute awn from below the summit, ciliate on the back.
21. *PHRAGMITES*.—Panicle large and spreading. Florets enveloped in long silky hairs. Inner glumella half the length of the outer.
22. *TRIODIA*.—Glumes and glumellas nearly equal, the latter hairy at the base, awnless, outer glumella 3-toothed.

23. **BRIZA**.—Glumes and glumellas obtuse, awnless, outer glumella boat-shaped, 3-ribbed. Panicle lax and spreading.
24. **POA**.—Spikelets compressed, awnless, ovate or linear, sometimes cylindrical. Glumes unequal. Lower glumella 3—7, veined, compressed, scariose at the apex, bluntish, rarely pointed.
25. **FESTUCA**.—Panicle lax or coarctate. Spikelets many-flowered. Glumes unequal. Outer glumella-lanceolate, acute or awned from a little below the tip; lateral veins converging and vanishing below the apex; inner glumella minutely ciliate on the ribs.
26. **BROMUS**.—Spikelets compressed, many-flowered. Glumellas rounded on the back, membranous at the summit, 2 of the lateral nerves uniting, and forming a long dorsal awn from a little below the bifid point.
4. Spikelets with numerous florets, mostly sessile, upon opposite sides of the rachis.
27. **ELYMUS**.—Spikelets in pairs from the same joint of the rachis. Glumes 2, both on one side of the spikelet, outer glumella ciliate on the midrib.
28. **TRITICUM**.—Spikelet with its side next the rachis. Glumes 2, nearly equal. Glumella minutely ciliate on the ribs.
29. **BRACHYPODIUM**.—Spikelet with its side next the rachis, very shortly stalked, distant. Glumes opposite, unequal. Upper glumella coarsely fringed on the ribs.
30. **LOLIUM**.—Spikelet with its back to the rachis. Glume 1, opposite the rachis, or if 2, the inner small.

SPECIES OF GRAMINEÆ.

1. NÁRDUS. *Mat-grass.*

N. STRICTA, L.—Stems densely tufted, wiry, erect, 6—12 in. high. Le. involute, setaceous, stiff and bristle-like, suddenly bent from their sheaths. Spike long, slender. Spikelets unilateral, in 2 rows. Glumella narrow with a long point.

Very common. On moors and heaths. (B) P. 6. Possil marsh; Cathkin hills; from Gourock to Arran.

2. ALOPECÚRUS. *Fox-tail-grass.*

1. **A. PRATÉNSIS**, L.—*Meadow Fox-tail-grass.* Stem erect, smooth, 1—2 ft. high. Sheaths of the upper le. somewhat inflated. Spike 2—3 in. long, cylindrical. Outer glumes with short hairs on the keel and lateral ribs. Awn projecting *more than half its own length* beyond the apex of the glumella.

Very common. Meadows and pastures. (B) P. 5—6.

* 2. **A. AGRÉSTIS**, L.—*Slender Fox-tail-grass*. Stem erect, 12—18 in. high, rough above. Sheaths not loose. Spike slender, of a purplish colour, attenuated at the apex. Glumes almost smooth, united to the middle. Awn upwards of *twice the length* of the glumella.

Occasionally introduced with grass seed. Banks of Clyde below Govan. (E) A. 5—11.

3. **A. GENICULÁTUS**, L.—*Floating Fox-tail-grass*. Stems procumbent at the base, *bent* at a few joints (*geniculated*), smooth. Sheaths smooth and striated, upper one inflated. Spike 1—2 in. long, compact. Glumes united at the base, outer ones hairy on the keel. Awn projecting half its length beyond the glumella.

Very common. Pools and marshes, or on dry places. (B) P. 5—8.

3. **PHLÉUM**. *Cat's-tail-grass*.

P. PRATÉNSE, L.—*Common Cat's-tail-grass*, *Timothy-grass*. Stem erect, 1—3 ft. high. Le. soft. Spike cylindrical, *compact*, 1—4 in. long. Gl. truncate, with a bristle-like awn terminating the ciliate mid-nerve or keel. Readily known by the spike being harsh to the touch.

Common. In meadows and pastures. (B) P. 6—10.

4. **ANTHOXÁNTHUM**. *Vernal-grass*.

A. ODORÁTUM, L.—*Sweet-scented Vernal-grass*. Stem slender, round and polished, 8—12 in. high. Le. hairy at the base. Spike-like panicle closely-flowered, interrupted below. Gl. acute, more or less hairy, especially on the keels, large one 3-ribbed. Glumellas of the perfect floret awnless; odorous when drying.

Very common. Woods and pastures. (B) P. 6—10.

5. **PSÁMMA**. *Sea-Reed*.

P. ARENÁRIA, R. & S.—*Common Sea-Reed*, *Marram*, *Mat-weed*. Rhizome creeping. Stem stiff, erect, 2—3 ft. high. Le. narrow, involute, sharply pointed, stiff and glaucous. Panicle spike-like, 5—6 in. long, tapering to each end. Gl. compressed, stiff and chaffy. Glumellas, each with a tuft of hairs at the base.

Frequent. Sandy sea shores. (B) P. 7. Cumbræ, Bute, and Arran.

6. **PHÁLARIS**. *Canary-grass*.

* **P. CANARIÉNSIS**, L.—*Cultivated Canary-grass*. Stem erect, leafy, 1—2 ft. high. Panicle ovoid or globular, variegated with green and white. Gl. remarkable for their winged keel. Glumellas hardened and shining on the caryopsis when mature.

• About manure heaps. Not native. A. 7.

7. DÍGRAPHIS. *Reed-grass.*

D. ARUNDINÁCEA, Trin.—*Common Reed-grass*. Rhizome creeping, tufted. Stems 2—4 ft. high. Le. broad and long. Panicle large, 6—8 in. long, of numerous spikelets, at first close and spike-like, spreading when in flower, often tinged with purple. *Gl. keeled*, but not winged. Glumellas with 2 linear tufts of hairs at the base. (The *ribbon-grass*, or *gardener's garters* of the gardens, is a variegated state of this grass.)

Very common. Sides of rivers and marshes. (B) P. 7—8.

8. AGRÓSTIS. *Bent-grass.*

1. **A. CANÍNA**, L.—*Brown Bent-grass*. Rhizome creeping. Stem slender, slightly decumbent at the base, then erect, 10—15 in. high. Le. linear, with smooth sheaths; ligule long, acute. Panicle close, spreading when in flower. Outer glumella jagged or toothed at the summit; inner minute or wanting. *Awn twisted*, slightly exceeding the glumella.

Very common. Moist heaths and peaty pastures. (B) P. 6—7.

2. **A. VULGÁRIS**, With.—*Fine Bent-grass*. Rhizome slightly creeping, tufted. Stem erect, 12—18 in. high. Le. rather short; sheaths smooth; ligule very short, obtuse. Panicle spreading, purplish brown; branches smoothish. Pedicels minutely toothed. Gl. nearly equal, shining, *lower one toothed on the upper part of the keel*. Glumellas 2, thin and pellucid, without an awn.

Var. *aristata*, with an awn.

Var. *pumila*, 2—3 in. high, often awned.

Very common. Banks and pastures. (B) P. 6—7. The dwarf state is very common on the hills in Bute; Cumbrae and Arran.

3. **A. ÁLBA**, L.—*Marsh Bent-grass, Fiorin*. Rhizome, slightly creeping, tufted. Stem ascending, 1—2 feet high. Le. rather short; ligule long and acute; sheaths rough when rubbed downwards. Panicle contracted; branches hispid, erect after flowering. *Large gl. toothed to the base*. Outer glumella 5-nerved, seldom awned.

Very common. Marshy places and roadsides. (B) P. 7—8.

Var. *stolonifera* is the *Fiorin-grass*, creeping and rooting at the base, common on roadsides.

Var. *maritima*.—Stems procumbent, rooting at the joints, panicle lobed.

On sand by the sea shore. Frequent in Cumbrae and Arran.

9. MÍLIUM. *Millet-grass.*

M. EFFÚSUM, L.—*Spreading Millet-grass*. Root fibrous. Stems tufted, erect, smooth, and glossy, 3—4 ft. high. Le. with striated

sheaths; ligule obtuse. Panicle large, loose, subverticillate; *lower branches deflexed*. Glumellas concave, hard and shining when covering the ripe fruit.

Frequent. In moist shady woods. (B) P. 5—6. "Woods, Hamilton and Lanark," *Hopk.* Gairbraid glen; banks of the Kelvin; Langside wood, &c.

10. MÉLICA. *Melic-grass.*

1. *M. UNIFLÓRA*, Retz.—*Wood Melic-Grass*. Rhizome creeping, tufted. Stems erect, slender, 12—18 in. high. Le. soft, flat and broad, acute, sheath rough, striated, bearing a few slender hairs on the upper part. Panicle of few spikelets, slightly drooping; spikelets containing 1 perfect floret, and an inner neuter one on a short stalk.

Frequent. In shady woods. (E) P. 5—7. Kelvin on the bank above the grinding mill; Kenmuir bank; Cambuslang glen; from Gourock to Arran.

2. *M. NÚTANS*, L.—*Mountain Melic-grass*. Stem slender, erect, 1—2 ft. high. Le. flat, erect; ligule short, obtuse. Raceme *one-sided*, with 10—15 drooping 2-flowered spikelets; neuter florets stalked. Gl. ovate, nerved, brown or purple, with scarious pale edges.

Rare. In woods. (S) P. 5—6. Bonnington Falls and Cartlane crags. "In a plantation opposite Bushy mills," *Dr. Ross.*

11. MOLÍNIA. *Purple-Molinia.*

M. CÆRÚLEA, Mœnch.—Rhizome tufted, very hard. Stems erect, *with one joint near the base*, 1—2 ft. high. Le. mostly radical, long, flat, acute, with hairs on the upper or inner surface, Panicle erect, long, when in woods often 10 in. high, narrow and close, bluish purple. Outer glumella 3-ribbed; seldom more than 2, sometimes 1-flowered.

Common. On all our moors. (B) P. 7—8. Cathkin hills; Cadder wilderness; from Gourock to Arran.

12. CATABRÓSA. *Whorl-grass.*

C. AQUÁTICA, Beauv.—*Water Whorl-grass*. Rhizome creeping, or often floating, and sending up erect flowering stems. Le. short, flat, obtuse, soft and light green. Panicle *whorled*, spreading. Glumellas scariose, or slightly toothed at the apex.

Rare. Pools and river banks. (B) P. 5—6. "In a wet field to the east of Gilbertfield Castle," *Hopk.* In a wet ditch near Crossbasket.

Var. *littoralis*, small, spikelets 1-flowered.

On the sea shore in moist shady places. Cumbrae, Bute, and Arran.

13. KÆLÉRIA. *Crested Hair-grass.*

K. CRISTÁTA, Pers.—Root fibrous. Stem 6—8 in. high. Le. tufted, smooth or downy, margins more or less hairy. Panicle

very close, interrupted below, 1—2 in. long. Inner glumellas white and silvery, with a green keel, outer ones shining on the edge.

Rare. Dry pastures. (B) P. 6—7. "Abundant at Jerviston," *Patr.* On a grassy bank by the sea shore below Fairlie.

14. HÓLCUS. *Soft-grass.*

1. **H. LANÁTUS**, L.—*Meadow Soft-grass.* Rhizome creeping. Stems 1—2 ft. high, clothed as well as the le. with a soft down, giving the plant a pale appearance. Panicle erect when young, spreading in flower, tinged with purple. *Gl. obtuse*, sometimes with a short point below the apex. Awn of the barren floret curved when ripe, in the form of a fish-hook, concealed by the glumes.

Very common. Pastures and woods. (B) P. 6—7.

2. **H. MÓLLIS**, L.—*Creeping Soft-grass.* This comes very near the last, not so downy, but with long hairs on the nodes, pointing downwards. Awn of the barren floret projecting beyond the *acute glumes*, geniculated.

Frequent. Pastures and hedges. (B) P. 7. Langside wood; near Cambuslang; from Gourrock to Arran.

15. AÍRA. *Hair-grass.*

A. Lower glumella truncate, jagged.

1. **A. CÆSPITÓSA**, L.—*Tufted Hair-grass.* Root fibrous. Stems tufted, erect, 2—4 ft. high. Le. linear, acuminate, rough on the margin and upper surface. Sheaths rough; ligule long. Panicle much branched, close and drooping at first, afterwards spreading and erect, silvery-grey, 6—8 or 10 in. long, branches rough. Outer glumellas with the awn inserted at the base, and of the same length.

Very common. Moist places and sides of ditches. (B) P. 6—7.

2. **A. ALPÍNA**, L.—*Smooth Alpine Hair-grass.* This is by many considered a variety of the former, with short le., sheaths smooth. Awns arising from above the middle of the glumellas, and not extending beyond the apex; often viviparous, 6—12 in. high.

On the tops of our highest mountains. (H) P. 6—7. Ben Lomond.

3. **A. FLEXUÓSA**, L.—*Waved Hair-grass.* Stems slender, 12—18 in. high. Le. convolute; ligule truncate. Panicle loose; lower branches waved; spikelets shining. *Gl.* rough on the midrib. Awn twisted, arising from near the base, and extending considerably beyond the apex of the glumella.

Common. Heaths and hilly woods. (B) P. 7. Banks of the Forth and Clyde Canal; Cathkin; and all the hills around.

B. Lower glumella bifid.

4. **A. CARYOPHYLLEA**, L.—*Silvery Hair-grass*.—Stems tufted, erect, 6—8 in. high. Le. very slender, short and narrow. Panicle erect, loose, spreading; branches 3-forked; spikelets clustering towards the apex, silvery grey. Awn longer than the glumella, arising from a little beneath the middle.

Frequent. Gravelly places and pastures. (B) A. 6—7. Possil road; Paisley Canal bank; sand hills, Tollcross; Bowling, &c.

5. **A. PRÆ'COX**, L.—*Early Hair-grass*. Stems tufted, 2—4 in. high, erect. Le. short, very fine, setaceous; sheaths slightly inflated. Panicle very small, close, seldom more than an inch long; spikelets few, acute at the base, pale silvery green. Awn arising from a little above the base, longer than the glumes.

Frequent. Sandy hills and gravelly places. (B) A. 5—6. Tollcross and Gourrock.

16. **ARRHENATHERUM**. *False Oat-grass*.

A. AVENÁCEUM, Beauv.—Root fibrous and slightly knotted. Stem erect, 2—3 ft. high, nodes smooth. Le. few, flat, roughish. Panicle loose, 6—8 in. long, lower branches rising from the rachis in fives. Awn long, twisted and geniculate, from a little above the base of the outer glumella.

Var. *bulbosum*. Stem with large bulbs at the base, nodes downy.

Common. In hedges and pastures. (B) P. 6—7. Banks of the Kelvin; Langside wood, &c.

17. **AVÉNA**. *Oat, Oat-grass*.

1. **A. FÁTUA**, L.—*Wild-Oat Haver*. Stem erect, 2—3 ft. high. Le. flat, linear, lanceolate; ligule obtuse or emarginate. Panicle erect, few-flowered; spikelets pendulous. Gl. membranous, many-ribbed. Glumellas acute, outer one with several reddish brown hairs at the base. Awns long and twisted, abruptly bent, about the middle.

Very rare. Corn fields. (B) A. 6—8. Near Uddingston.

2. **A. STRIGÓSA**, Schreb.—*Bristle-pointed Oat*. Very like the common oat. Branches of the panicle secund; glumellas ending in bristles or short awns; considered by many as a degenerate form of the common oat.

Frequent. In corn fields. A. 6—7. Tollcross; Cadder; Cathcart; plentiful in Bute, Cumbrae, and Arran.

3. **A. PRATÉNSIS**, L.—*Narrow-leaved Oat*. Rhizome tufted. Le. often scabrous on the surface, involute. Spikelets 3—5, fl. Panicle slightly compound, often simple and lax. Glumes with few nerves; lower floret not so long as the large glume.

Dry pastures and heathy mountainous places; hills above Largs and Fairlie; Arran. (B) P. 6—7.

4. **A. PLANICÚLMIS**, Schrad.—*Flat-stemmed Oat*. “Panicle erect, compound, interrupted, spikelets erect, nearly cylindrical, linear-oblong of 5—7 florets, lower floret longer than the longest glume, le. scabrous, broadly linear, suddenly acute, minutely serrate, sheaths flat, sharply carinate, scabrous, lower part of the culm slightly compressed, two-edged.”

“Glen Sannox, on the ascent of Goat Fell from Loch Rannoch, Isle of Arran,” Mr. Stewart Murray, 1826, late curator of the Glas. Bot. Garden, *H. & A.*, p. 566. P. 7. In the “Manual of British Botany” this is given as a variety of *A. pratensis*.

5. **A. PUBÉSCENS**, L.—*Downy-Oat*. Rhizome slightly creeping. Stem erect, 1—2 ft. high. Lower le. flat, downy on the edge; sheaths covered with long soft hairs. Panicle erect, with rough branches, nearly simple, spikelets erect, glumellas scarcely exceeding the glumes.

Very rare. Dry pastures. (B) P. 6—7. Cathkin hills; “Banks of the Cart opposite the mill,” *Hopk.*

6. **A. FLAVÉSCENS**, L.—*Yellow-Oat*. Stem erect, about 1 ft. high, nodes with a circle of deflexed hairs. Lower le. and sheaths hairy; ligule very short, obtuse. Panicle much branched, the lower-ones rising in fives; spikelets yellowish, small. Gl. unequal. Glumellas with downy pedicels, outer one ending in 2 terminal bristles. Awn twisted and bent.

Very rare. Dry pastures. (E) P. 7. Below Fairlie on the sandy pastures; Island of Arran; sometimes introduced with seed.

18. SESLÉRIA. *Blue Moor-grass.*

S. CÆRÚLEA, Scop.—Rhizome creeping, densely tufted. Stem 6—18 in. high, slender, light green. Le. very short, linear, obtuse, *terminating in a minute rough point*. Panicle ovate, shining, bluish grey. Outer glumella with the midrib rough, and terminating in a short point. Anthers prominent, of a bleached yellow, with purple tips.

Very rare. On mountains. (H) P. 4—6. Ben Lomond plentiful.

19. CYNOSÚRUS. *Crested Dog's-tail-grass.*

C. CRISTÁTUS, L.—Root fibrous. Stems tufted, erect, wiry and very tough. Le. narrow, acute, rough on the upper surface, smooth and glossy below. Panicle spike-like; spikelets secund, with *pectinated bracts* at the base of each. Glumellas shortly awned. Often viviparous on mountains.

Very common. Dry pastures. (B) P. 7.

20. DÁCTYLIS. *Rough Cock's-foot-grass.*

D. GLOMERÁTA, L.—Root fibrous. Stems tufted, erect, rough, about 2 ft. high. Le. broad, linear, acuminate, rough, edges

minutely toothed. Panicle in one or several tufts, dense, spreading and divaricate; rachis and branches rough; spikelets thickly clustered. Outer gl. and glumella *strongly keeled*, the latter ciliate on the back.

Very common. Woods and pastures. (B) P. 6—7.

21. PHRAGMÍTES. *Common Reed.*

P. COMMÚNIS, Trin.—Rhizome long and creeping. Stem thick, 4—8 ft. high, round and smooth, bearing numerous, broad, linear-lanceolate le. Panicle very large, when young of a chocolate colour, at length light brown, from the mingling of silky hairs. Spikelets several-flowered. Perfect ones *enveloped in long silky hairs*.

Frequent. Margins of rivers and ditches. (B) P. 7—8. Abundant on the banks of Clyde, from Renfrew to Dumbarton; Bute and Arran.

22. TRIÓDIA. *Decumbent Heath-grass.*

T. DECÚMBENS, Beauv.—Stems tufted, slightly procumbent, 5—12 in. high. Le. narrow, rough towards the points; sheaths hairy; ligule a tuft of hairs. Raceme few-flowered. Pedicels smooth, erect. Spikelets large, about 4-flowered. Gl. smooth, very firm, membranous at the edge. Glumellas ending in 3 teeth outer one prominent.

Frequent. On dry heaths and pastures. (B) P. 7. Dry portions of Possil marsh; near Cambuslang; Cathkin hills; from Gourrock to Arran.

23. BRÍZA. *Quaking-grass.*

B. MÉDIA, L.—*Common Quaking-grass*. Root fibrous, tufted. Stem erect, slender, 12—18 in. high. Le. short, flat, acute, roughish on the inner surface; ligule truncate, short. Panicle loose and spreading; branches slender, divaricate. Spikelets pendulous, purplish with green or white edges, very smooth, broadly ovate, with about 7 swollen florets.

Not common. Meadows and pastures. (B) P. 6. "About the ponds, Dougalston; abundantly at the entrance to the Falls of Clyde; about Airdrie," *Hopk*. "Barncluith," *Patr*. Baldernock.

24. PÓA. *Meadow-grass.*

A. Spikelets linear or oblong.

1. P. AQUÁTICA, L.—*Reed Meadow-grass*. Rhizome creeping. Stems slightly compressed, thick, 4—8 ft. high. Le. broad, linear, rough on the edges and keel. Panicle large, much branched and spreading, often 12 in. long, branches rough

Spikelets very numerous, 5—10-flowered, linear-oblong. Gl. small, unequal, thin and 1-nerved. Glumellas with 5—7 ribs, scariose on the margin.

Frequent. Sides of rivers, ponds, and ditches, (E) P. 7—8. Banks of the Forth and Clyde Canal; Possil marsh; river Cart, near the bridge beyond Shawlands.

2. **P. FLÚITANS**, Scop.—*Floating Meadow-grass, Manna Croup-grass*. Rhizome creeping. Stems decumbent, weak but rather thick and succulent, 1—3 ft. high. Le. linear-lanceolate, more or less folded when young, older ones floating on the surface of the water; sheath striate nearly smooth. Panicle erect, slender, very long; branches few. Spikelets linear, leaning all to one side of the rachis, 8—20-flowered, from $\frac{1}{2}$ to 1 in. long. Glumellas with 5—7 ribs.

Very common. Ditches and stagnant pools. (B) P. 7—8.

3. **P. MARÍTIMA**, Huds.—*Sea Meadow-grass*. Rhizome creeping. Stems decumbent at the base, very rigid, round and smooth, 8—12 in. high. Le. involute, short-pointed, glaucous. Panicle nearly simple, erect. Spikelets linear, mostly turned to one side of the branches, 6—8-flowered. Lower glumella faintly 5-nerved, apiculate, purplish, slightly silky at the base.

Common. Sea coast, in damp places. (B) P. 7. From Dumbarton, all round the Firth.

—4. **P. COMPRESSA**, L.—*Flat-stemmed Meadow-grass*. Rhizome creeping. Stems decumbent at the base, 8—12 in. high, compressed, bearing 4—5 le.; uppermost node about the *middle of the stem*; upper le. the same length as its sheath. Panicle slightly spreading; branches generally in pairs. Spikelets oblong, of 5—7 obtuse florets, slightly webbed, with silky hairs on the keel of the outer glumella, 3-nerved, or in a variety called **P. polymoda**, 5-nerved.

Very rare. On walls and barren places. (B) P. 6—7. "Walls about the old oaks," *Patr.* On the top of a dry wall, Possil road; Corrieburn.

B. Spikelets ovate.

5. **P. PRATÉNSIS**, L.—*Smooth-stalked Meadow-grass*. Rhizome creeping. Stem erect, round and smooth, 12—18 in. high. Le. flat, acute, roughish on the edges and inner surface; upper sheath much longer than its le.; *ligule obtuse; sheaths smooth striated*. Panicle spreading; spikelets ovate, with 3—4 webbed-florets. Glumella with 5 nerves, more or less hairy on the keel and lateral nerves.

Very common. Meadows and pastures. (B) P. 6—7.

6. **P. TRIVIÁLIS**, L.—*Roughish Meadow-grass*. Stem 1—2 ft. high. Ligule long and acute; *sheaths rough*. Marginal nerves of the outer glumella without hairs; excepting these characters, very like the former species, and as common.

Very common. Meadows and pastures. (B) P. 6—7.

7. **P. ALPÍNA**, L.—*Alpine Meadow-grass*. Root fibrous. Stems tufted, slightly swollen at the base. Le. short, broadly linear, obtuse, upper le. “folded, compressed, and rounded behind the point,” ligule oblong, obtuse, of the lower ones short, blunt. Panicle erect, spreading when in flower; branches short and slender. Spikelets broadly ovate, of 3–5 acute florets, not webbed; outer glumella with the lower half of the 3 ribs silky, mostly viviparous.

Common. On the highest mountains. (H) P. 6–7. Ben Lomond and Arran?

8. **P. NEMORÁLIS**, L.—*Wood Meadow-grass*. Rhizome slightly creeping. Stems weak, erect, $1\frac{1}{2}$ –2 ft. high. Le. with smooth striated sheaths, upper one not longer than its le.; ligule short, obtuse. Panicle slender, slightly drooping, branches roughish; spikelets of 3–4 florets, slightly webbed. Outer glumes with the dorsal and marginal ribs hairy, the intermediate ones smooth. For an analysis of the numerous species and varieties made out of this variable grass see *H & A.*, p. 553.

Common. Woods and shady rocks. (B) P. 6–7.

9. **P. ÁNNUA**, L.—*Annual Meadow-grass*. Root fibrous. Stems tufted, procumbent at the base, compressed. Le. bright green, soft, blunt and often wavy; the uppermost sheath longer than its le., smooth, compressed; ligule oblong, acute. Panicle loose and spreading. Spikelets oblong-ovate, of 5–7 florets. Gl. rough on the keel. Glumellas not webbed, 5-ribbed, all more or less silky.

Very common. Cultivated and waste places. (B) A. 4–9.

25. FESTÚCA. *Fescue-grass*.

A. Lower leaves very narrow.

1. **F. BROMOÍDES**, L.—*Barren Fescue-grass*. Root fibrous. Stem tufted, erect, slender, smooth and bare of le. on the upper half. Le. narrow, convolute. Panicle slender, unilateral, contracted. Spikelets of 5-awned florets. Gl. very unequal, rough on the keel. Glumellas 5-ribbed, lower one rough on the upper part, terminating in a long, slender, roughish awn, often twice as long as the floret. Monandrous.

Not common. Dry pastures and walls. (B) A. 6. Dry places in Possil marsh; sand hills at Tollcross; banks of a railway at Wellshot; Gourrock to Arran.

2. **F. OVÍNA**, L.—*Sheep's Fescue-grass*. Root fibrous. Stems tufted, erect, 4–10 in. high, slightly angular, rough below the panicle. Le. short, rigid, involute. Panicle narrow, nearly secund, branches rough. Spikelets of 4–7 florets. Awn short. Triandrous.

Very common. Dry hilly pastures. (B) A. 6.

Var. *vivipara* is merely the viviparous state found on high mountains.

Common. Bute, Cumbræ, and Arran.

Var. *duriuscula*.—Tufted or slightly creeping. Stems 1—2 ft. high, with a few of its le. flat, angled and somewhat glabrous below the panicle.

Common. In moist pastures and rich soil.

Var. *rubra*.—Stems often nearly 2 ft. high, from an extensively creeping rhizome, many-angled, and smooth below the broad panicle. Le. of the stem broader and flat when dry, becoming somewhat involute.

Frequent. In light sandy soils. (B) P. 6. Common. In Bute, Cumbræ, and Arran.

B. Leaves broader than the stem.

3. **F. SYLVÁTICA**, Vill.—*Reed Fescue-grass*. Rhizome creeping. Stems tufted, erect, 2—3 ft. high, round, furnished at the base with large, broad, acute, more or less polished scales. Radical le. broader than the upper stem one. Ligule prominent, obtuse. Panicle subsecund, much branched, 4—6 in. long. Spikelets of 3—5 acute, awnless florets. Gl. very narrow, unequal, outer glumella 3-ribbed, rough; *the dorsal rib serrated its whole length*.

Very rare. In mountainous woods. (S) P. 7. "On Kenmuir bank," *Dr. Brown*.

4. **F. PRATÉNSIS**, Huds.—*Meadow Fescue-grass*. Root fibrous. Stems erect, round, smooth, and striated. Le. linear-lanceolate, flat, rough at the point. Panicle close, subsecund, *never divaricate*. Branches in pairs from the rachis, the principal one composed of several spikelets, with an axillary branch of seldom more than one spikelet, the lower ones *joined to the principal branch*. Spikelets 5—10-flowered; outer glumella 5-ribbed, central one often forming a very short awn from a little below the membranous extremity.

Common. In wet meadows and on river banks. (B) P. 6—7.

Var. *loliacea*.—Branches reduced to a solitary spikelet placed alternately on the rachis, sessile or shortly stalked, *having the back of the spikelet to the rachis with 2 glumes*.

Not common. Banks of rivers; plentiful on the banks of Clyde at Dalbeth.

5. **F. ELÁTIOR**, L.—*Tall Fescue-grass*. Stems forming large tufts, 3—5 ft. high. Le. broad. Panicle diffuse, much branched, mostly in pairs, each with several spikelets, divaricate in flowering, *sending its lower branches to one side*, afterwards erect. Spikelets 5—6-flowered. Outer glumella with its dorsal rib ending in a small awn from a little below the apex.

Very common. Banks of rivers and moist pastures. (B) P. 6—7. Banks of the Kelvin, Cart, and Clyde.

6. **F. GIGANTÉA**, Vill.—*Tall-bearded Fescue-grass*. Root fibrous. Stem erect, 3—4 ft. high. Le. broad; ligule unequal,

auricled, reddish brown. Panicle large, loose, inclining to one side. Spikelets lanceolate, 3—6-flowered. Gl. very unequal, outer one 3-ribbed. Lower glumella 5-ribbed, dorsal one terminating in a long awn, which passes behind the membranous apex, inner one with 2 marginal ribs minutely fringed.

Frequent. Shady woods and moist hedges. (B) P. 7—8. Clyde Iron-works; Carmyle and Kenmuir woods; Kelvin woods; Gourrock to Arran.

26. BROMUS. *Brome-grass.*

A. Lower glume 1-veined, upper 3—5-veined.

1. **B. ÁSPER**, L.—*Hairy Wood Brome-grass*. Root fibrous. Stem erect, round, 3—6 ft. high. Le. broad, the lower ones hairy; sheaths striated, with hairs pointing downwards; ligule obtuse and torn. Panicle drooping, with long branches, slightly divided. Spikelets linear-lanceolate, of 6—10 distant florets, hairy. Lower glumella 5—7-ribbed, longer than its awn, *outer one* of the lowermost floret about twice the length of the smallest glume.

Frequent. In woods and hedges. (B) A. B. 6—7.

2. **B. STÉRILIS**, L.—*Barren Brome-grass*. Stems erect, 1—2 ft. high. Le. broad, flat, downy. Sheaths striated, slightly pubescent. Panicle drooping, branches long, slightly divided. Spikelets linear-lanceolate, of 6—8 distant, rough florets. Outer glumella 7-ribbed, shorter than the long awn, spreading during and after flowering.

Frequent. Waste ground and hedges. (B) A. 6. In hedges when entering Old Cathcart; Rutherglen; roadside at Shawfield Toll; Cambuslang; from Gourrock to Cumbræ.

B. Lower glume 3—5-veined, upper 7—9-veined,

* 3. **B. SECÁLINUS**, L.—*Smooth Rye Brome-grass*. Stems erect. Le. hairy. Panicle loose, nearly simple, spreading when in fruit, slightly nodding. Spikelets oblong, with about 10 distant florets. The glumellas not overlapping by their edges the florets above; when in fruit, rolled in at the margin. “The apex of the large glume, midway between its base, and the summit of the second floret” on the same side. Outer glumella *roundly bidentate at the apex*. Awns flexuose, shorter than the florets.

Rare. In corn fields, introduced with seed. (B) A. 6—7. Possil road; Toll-cross; grass fields beyond Pollokshields.

4. **B. COMMUTÁTUS**, Schrad.—*Tumid Field Brome-grass*. Stem erect. Le. and sheaths hairy. Panicle at first erect, loose, and slightly drooping in fruit. Spikelets oblong-lanceolate, rough, loosely-flowered. “Apex of the large glume midway between its base and the summit of the second floret on the same side.”

Lower glumella, only *slightly overlapping the next when in fruit*, 9-veined, of the same length as its straight awn. Plant greyish green.

Not common. Corn fields and waste places. (B) B. 6—7. New Kilmarnock road beyond Shawlands; banks of the railway at Eastfield.

5. **B. RACEMÓSUS**, L.—*Smooth Brome-grass*. Stem erect, 8—16 in. high. Le. downy. Raceme smooth, erect in fruit, seldom panicle. Spikelets smooth, ovate, somewhat polished, of a light green, rough to the touch. Apex of the large glume midway between its base and the summit of the second floret on the same side; *central ribs distinctly toothed on the upper half*.

Frequent. Pastures and roadsides. (B) A. B. 6. Keppoch hill; Cathcart; Paisley Canal bank; from Gourrock to Arran.

6. **B. MÓLLIS**, L.—*Soft Brome-grass*. Stems erect, 6—18 in. high, whole plant downy, hairs on the stem *pointing downwards*. Panicle erect, sometimes racemose. Spikelets ovate, darkish green. The summit of the large glume midway between its base and the apex of the third floret on the same side. Gl. and florets hairy, *not toothed on the central rib*.

Very common. Fields and waysides. (B) A. B. 6.

*7. **B. ARVÉNSIS**, L.—*Taper Field Brome-grass*. Stems erect. Le. more or less downy. Panicle spreading, slightly nodding in fruit; a few of the lower peduncles elongated, slightly branched. Spikelets linear-lanceolate, of a purplish tinge. Apex of the large glume scarcely midway between its base and the summit of the second floret on the same side. *Awns spreading, larger than the glumellas*.

Very rare. A rubbish plant in this locality. A. 7—8. Possil road and beyond Tradeston.

27. ELÝMUS. *Lyme-grass*.

E. ARENÁRIUS, L.—Rhizome creeping extensively and binding the sandy soil. Stems 3—4 ft. high, smooth. Le. glaucous, involute. Glumes downy. Glumellas of the same length as the glumes, inner one bifid at the apex.

Not common. Sandy sea shores; Brodick Bay, *Dr. Syme*; coast by Kildonan. (B) P. 6—7.

28. TRÍTICUM. *Wheat, Wheat-grass*.

1. **T. RÉPENS**, L.—*Couch-grass, Creeping Wheat-grass*. Rhizome creeping extensively, throwing up stems from nearly each node, 1—4 ft. high. Le. mostly flat, with short hairs on the ribs of the upper surface, not covering the hollows between. Spike elongated, *rachis rough*. Spikelets arranged on a zigzag rachis,

4—8-flowered. Glumes 5—7-ribbed, awned or awnless. Outer glumella acuminate, or with a short awn, 5-ribbed; whole plant often glaucous.

Very common. Hedges and fields. (B) P. 6—8.

Var. *littorale*, with involute le. and the rachis of the spike smooth on the edge; glumellas acute or awned; plant glaucous.

Common. On the sea shore; Cumbræ and Arran.

2. **T. JÚNCEUM**, L.—*Rushy Sea Wheat-grass*. Rhizome creeping. Stems decumbent at the base, 12—18 in. high. Le. involute, linear, acute; hairs on the ribs of the upper surface covering the hollows between. Spike long, *rachis smooth*, very brittle. Spikelets distant, 4—6-flowered. Glumes smooth, obtuse or with an apiculus, many ribbed, the central one running to one side. Glumellas obtuse, smooth and polished, 5-ribbed; the middle one sometimes forming a small blunt point. Whole plant glaucous.

Frequent. On sandy sea shores. (B) P. 7—8.

Var. *laxum*.—Le. flat, with involute edges, ribs on the upper surface, rough with minute sharp points. Spikelets rather close, 5—8-flowered; *rachis not brittle*, smooth, or minutely toothed. Glumes obtuse or mucronate, about 7-ribbed.

Common. On the sea shore; Cumbræ and Arran.

3. **T. CANÍNUM**, Huds.—*Fibrous-rooted Wheat-grass*. *Root fibrous*. Stems tufted, erect, smooth. Le. broad, rough on both sides. Spike elongated, rachis rough on the edges. Spikelets sessile, close, 4—5-flowered. Glumes nearly equal, roughish, *awned*, 3—5-ribbed. Outer glumella of the lowermost floret equal in length to the glume, 5-ribbed, acuminate, furnished with a long slender awn.

Frequent. Woods and banks. (B) P. 7. Partick in an old quarry; Carmyle and Kenmuir woods; hedges near Cathcart; Cambuslang glen, &c.

29. BRACHYPÓDIUM. *False Brome-grass*.

B. SYLVÁTICUM, Beauv.—*Slender False Brome-grass*. Root fibrous. Stem erect, 2—3 ft. high. Le. flat, broad, and linear; hairy on the upper surface. Sheaths hairy; ligule blunt. Spike drooping, spikelets distant, long, nearly round when young, compressed when old. Gl. 7-ribbed. Outer glumella somewhat hairy, 7-ribbed. Awns of the upper florets longer than their glumellas.

Frequent. In woods and hedges. (B) P. 6—7. Kelvinside; Carmyle and Kenmuir woods; Cambuslang glen; from Gourrock to Arran.

30. LÓLIUM. *Rye-grass*.

1. **L. PERÉNNE**, L.—*Perennial or Beardless Rye-grass*. Root

fibrous, producing leafy barren shoots. Stems erect, 1—2 ft. high, leafy below. Spike 6 inches, sometimes 1 foot long, spikelets distant, when growing in rich soil compound, or with the spikelet, very closely set. Florets 3—10, with a large solitary glume as the base. Glumellas usually *awnless*.

Very common. Meadows, pastures, and waysides. (B) P. B. 6—7.

* 2. **L. ITÁLICUM**, A. Braun.—*Italian Rye-grass*. Roots with leafy barren shoots. Spikelets 6—14-flowered. Lowest glumella with a long *slender awn*.

Never found except near where it has been cultivated, as at Carmyle.

3. **L. TEMULÉNTUM**, L.—*Darnel*. Roots fibrous, *without barren shoots*. Stems tufted. Le. flat, rough. Spike erect. Spikelets of 4—5-awned florets. *Gl. about the same length as the spikelets*. Glumellas short, swollen, with the *tumid fruit*, mostly awned. Poisonous.

Very rare. Corn fields. (B) A. 6—9. Waste corner of a field at Shettleston.

CRYPTOGAMOUS OR FLOWERLESS PLANTS.

CLASS III.

ACOTYLEDONS OR ACROGENS.

Sub-Class 1.—FILICES.

Flowerless plants bearing seeds or *spores*, inclosed in spore cases or *capsules*, arranged in clusters (*sori*), on the back of the leaves or *fronds*; sometimes on the margin or in the axil; in others radical or in terminal spikes.

ORD. 89.—POLYPODIACEÆ.

Capsules arranged in clusters on the back or edge of the frond, surrounded by an elastic ring. Fronds circinate when young.

GENERA OF FILICES.

A. Sori dorsal or within the dorsal margin.

Tribe 1. POLYPODIEÆ.—Sori without an indusium, circular or nearly so.

1. POLYPODIUM.—Sori large circular, golden yellow.
2. CRYPTOGRAMME.—Sori. marginal, at length uniting, and covered by the reflexed margin of the frond. Barren and fertile fronds distinct.

Tribe 2. ASPIDIEÆ.—Sori nearly circular, covered by an indusium.

3. ASPIDIUM.—Sori circular or reniform, covered by an indusium.
4. CYSTOPTERIS.—Indusium springing from beneath the sori.

Tribe 3. ASPLENIEÆ.—Sori linear or oblong, covered by an indusium.

5. ASPLENIUM.—Indusium opening on one side.
6. SCOLOPENDRIUM.—Indusium opening by a slit along the centre.
7. CETERACH.—Indusium erect, concealed by scales.

Tribe 4. PTERIDEÆ.—Sori covered by a marginal indusium or cuticle of the frond.

8. PTERIS.—Sori linear, continuous on the margin of the frond.
9. BLECHNUM.—Sori distant from the margin. Barren and fertile fronds distinct.

B. Sori in marginal involucre.

Tribe 5. HYMENOPHYLLEÆ.—Sori in a marginal cup or involucre.

- 10.—TRICHOMANES.—Sori within a cup-shaped involucre.
11. HYMENOPHYLLUM.—Sori within a 2-valved involucre.

ORD. 90.—OSMUNDACEÆ.

Capsules arranged in clusters at the extremity of the frond; ring obscure. Fronds circinate when young.

1. OSMUNDA.—Capsules in branching spikes.

ORD. 91.—OPHIOGLOSSACEÆ.

Capsules arranged on a separate branch of the frond; ring obsolete. Fronds straight when young.

1. OPHIOGLOSSUM.—Capsules on a single spike.
2. BOTRYCHIUM.—Capsules on a branched spike.

ORD. 92.—LYCOPODIACEÆ.

Capsules sessile in the axils of terminal leaves, arranged as spikes, or in a cavity at the base of the leaves; ring obsolete. Fronds straight when young.

1. LYCOPODIUM.—Stems leafy. Capsules in terminal spikes.
2. ISOETES.—Leaves all radical. Capsules in the thickened base of the leaves.

ORD. 93.—MARSILEACEÆ.

Capsules globose, seated in the axils of the leaves at the root; ring obsolete. Fronds circinate when young.

1. PILULARIA.—Character same as the order.

ORD. 94.—EQUISETACEÆ.

Fructification in terminal spikes consisting of peltate scales, under each of which are several capsules, containing spores surrounded by four elastic filaments.

1. EQUISETUM.—Character same as the order.

SPECIES OF FILICES.

89.—POLYPODIACEÆ.

1. POLYPODIUM. *Polypody.*

1. *P. VULGARE*, L.—*Common Polypody.* Rhizome thick, woody, covered with scales. Stipes smooth. Frond 6—12 in. high, deeply pinnatifid; segments linear-oblong, toothed or plain. Sori round, orange-coloured when ripe, green when young.

Very common. Walls and trunks of trees. (B) P. 6—9. Kelvinside wood; Carmyle, &c.

2. *P. PHEGÓPTERIS*, L.—*Mountain Polypody. Beech-fern.* Rhizome creeping. Stipes long. Fronds 8—16 in. high, pinnate, pinnae narrow, lanceolate, deeply pinnatifid, acuminate, lowest pair, pointing forwards and downwards, gradually diminishing from near the base to the apex, segments denticulate, ciliate; veins and midrib hairy. Sori inserted near the margin of the segments.

Frequent. In damp woods. (S) P. 6—8. Frequent near Hamilton; Calderwood glen; Dougalston woods; from Gourock to Arran.

3. *P. DRYÓPTERIS*, L.—*Tender three-branched Polypody, Oak-fern.* Rhizome extensively creeping, black and wiry. Stipes long, with large scales at the base. Fronds 6—10 in. high, quite

smooth, tender bright green, ternate, divisions pinnate, the two lateral and lower portions not so large as the terminal one, on slender stalks; segments obtuse; slightly crenate. Sori near the margin.

Frequent. On dry shady banks. (S) P. 7. Cadzow, on the banks of the Avon, plentiful; near Cambuslang; banks of the Calder; banks of the Kelvin; Dougalston; Gourrock to Arran.

2. CRYPTOGRÁMME. *Rock-brake.*

C. CRÍSPA, Br.—*Parsley-fern, Curled Rock-brake.* Rhizome densely tufted. Stipes long, brittle. Fronds 6—12 in. high. Barren ones bi-tripinnate, segments wedge-shaped, deeply-toothed at the apex. Fertile fronds linear-oblong, obtuse, entire, margin recurved. Sori circular, covered by the margin of the frond. Plant resembling a tuft of parsley.

Not common. Amongst rocks in mountainous countries. (H) P. 7. Ben Lomond; Neilston pad; 10 miles along the Drymen road; "hills above Kilmun," Wm. Simpson; Glen Sannox, Arran; Campsie hills.

3. ASPÍDIUM. *Shield-fern.*

§ **A. POLÝSTICUM**.—Indusium orbicular, attached by the centre (peltate).

1. P. ACULEÁTUM, Sw.—*Common Prickly Shield-fern.* Rhizome short, thick, covered with the remains of former years' stipes. Fronds with short chaffy stipes, broadly lanceolate, bipinnate; pinnules obliquely curved, tapering to a wedge-shaped base, forming an acute angle, very shortly stalked, lower one on the upper side next the main rachis longer than the others, upper base enlarged into an auricle; margins serrate, spinulose; rachis chaffy.

Frequent. Woods and hedge banks. (E) P. 7. Calderwood glen; below Gourrock; Bute and Arran.

Var. lobátum.—Frond narrower than the last, more rigid, with scarcely any footstalk to the pinnules, "when starved pinnate," often with the margin strongly spinose.

Common. Moist woods and shady banks. (B) P. 7. Hamilton; Calderwood glen; Cambuslang glen; Cathcart; Crofthead; Kelvindock; from Gourrock to Arran.

2. P. ANGULÁRE, Willd.—*Angular-leaved Shield-fern.* Rhizome short, thick. Stipes short and chaffy. Fronds 2—3 ft. high, flexible, distinctly bipinnate; pinules next the main rachis scarcely larger than the rest, all lobed on the upper side, obtuse or acute, deeply serrate, spinulose; base forming an obtuse angle, distinctly stalked, lying more at right angles to the rachis than the former; altogether a more luxuriant plant.

Not common. Woods and hedge banks. (E) P. 7. Helensburgh; Woods at Skelmorlie very plentiful; several glens below and towards Largs; Cumbræ; Bute and Arran.

§ B. LÁSTREA.—Indusium orbicular-reniform, attached by the sinus.

3. **L. OREÓPTERIS**, Sw.—*Heath Shield-fern*, *Mountain-fern*. Rhizome tufted. Stipes short. Fronds erect, 2—3 ft. high, pinnate; pinnae linear-lanceolate, pinnatifid, becoming gradually smaller from the middle of the frond to the base; segments entire, obtuse, glandular beneath. Sori confined to the margin of the segments. Indusium very small. Colour yellowish green; fragrant when bruised.

Very common. Heaths and mountain pastures. (B) P. 7. Cathkin hills; Calderwood glen; on all the hills bordering the Firth.

4. **L. FÍLIX-MAS**, Sw.—*Male-fern*. Rhizome slightly decumbent or nearly erect. Stipes densely scaly. Fronds growing in circular tufts, bipinnate; pinnae linear-lanceolate; pinnules obtuse, with a broad base, serrated or incised and toothed, but not spinulose; rachis covered with brown scariose scales. Sori confined to the upper half of the frond.

Very common. Shady banks and woods. (B) P. 6—7.

Var. *incisa*, Moore.—Pinnules wide apart from each other, oblong-lanceolate, rather deeply incised, with a slight auricle at the base, fronds taller and of more erect growth than the former.

Frequent. In the woods around Glasgow.

Var. *producta*, Moore.—Fronds upwards of 3 ft. high. Pinnules elongated, gradually tapering to a point, deeply pinnatifid and lobed, the lobes serrated; basal pinnules cut more than half way down to the midrib, attached by a short stalk; altogether a finer and more completely developed state of *incisa*.

Frequent in woods; Garscube; Cadder wilderness; Gourock; Bute and Arran.

Var. *paleacea*, Moore; *Borreri*, Newm.—Very rigid, and densely scaly on the stipes, rachis, and veins of the pinnules. Indusia with the edges incurved.

Frequent. In Cumbræ and Arran.

5. **L. CRISTÁTA**, Sw.—*Crested Shield-fern*. Stipes scaly. Fronds erect, glabrous, 1—2 ft. high, linear-lanceolate, pinnate; pinnae elongato-triangular, pinnatifid, segments curved towards the apex of the pinna, crenate, with mucronate teeth. Sori large; indusium flat, entire.

Very rare. In boggy heaths. (E) P. 8. Bog beyond Crofthead.

6. **L. DILÁTATA**, Sw.—*Broad Prickly Shield-fern*. Stipes long, covered with lanceolate, acuminate scales, brown in the centre. Fronds 2—5 ft. high, ovate-lanceolate or subdeltoid, bi- or tri-pinnate, lowest pinnae sub-deltoid, unequally pinnate, this inequality gradually disappearing until about the middle of the

frond where they become equal sided; the stipes, rachis and under side of the fronds often covered with glands; pinnules mostly deeply pinnatifid, divisions ending in a sharp tooth. Indusium fringed with marginal stalked glands.

Common. Moist woods and moors. (B) P. 8—9. Langside wood; Cadder wilderness. Very fine.

Var. *spinulosa*, Presl.—Stipes 9—12 in. long, with pale acute scales, not dark in the centre. Fronds lanceolate, bipinnate, lower pinnæ subdeltoid; pinnules ovate-oblong, deeply cut, serrations spinulose; under surface glandless. *Indusium with no marginal glands*.

Frequent. Lochlibo; banks of Loch Lomond, near Tarbert; Mugdock woods, Mr. George Thomson. (E) 8—9.

Var. *recurva*, Newm.; *œmula*, Brack.—A smaller plant than the last, about 12 in. high, rigid, with a curled look. Frond triangular in outline; pinnules concave above, glandular below, spinoso-serrate; scales of the stipe long, narrow, and lacinate. Indusium with a few long teeth.

Frequent. On the face of the old sea cliffs all round the Firth; plentiful between Brodick and Corrie, also below Lamlash. (A) P. 8—9.

Var. *glandulosa*, Newm.—A very glandular plant is found agreeing in most particulars with this variety. Rhizome decumbent. Fronds upwards of 2 ft. high, oblong-lanceolate; the lowest pinnæ are twisted into nearly a horizontal plane, pointing forward, forming an acute angle with the rachis. Stipes, rachis, and under surface of the frond, densely covered with stalked glands; scales dark in the centre; lowest pinnæ broad and unequally deltoid, pinnules ovate-lanceolate, pinnatifid almost to the midrib. Indusia fringed with glands.

Cadder wilderness; Bute and Arran.

Var. *nana*, Newm.—A smaller plant than the last, slightly glandular, 12 to 18 in. high, 6 in. wide. Fronds ovate or broadest at the base, bipinnate, pinnæ often of equal length to above the middle, then suddenly tapering to a point, spreading, slightly acuminate, lowest unequal-sided, the next nearly equal. Pinnules somewhat convex, basal ones stalked, next decurrent. Sori small, nearer the midrib than margin. Indusia with stalked glands. Stipes thickly clothed at the base with scales having a dark centre, very few on the rachis.

Frequent. Cadder wilderness; Bute and Arran.

Var. *collina*, Newm.—Stipes green above, tinged with purple at the base. Fronds 1—2 ft. high, dark green, nearly erect, ovato-lanceolate, mostly glandular below. Pinnæ distant below, close above, spreading, the lowest pair shorter than the next above, and unequally deltoid, all the rest equal sided, not acute at the

apex; pinnules convex, deeply pinnatifid, *terminating in 3 equal teeth*, giving the pinnule an obtuse appearance. Indusia fringed with glands.

Frequent. In Bute and Arran; glen at Colintraive.

Var. *pumila*, Moore.—A dwarf plant with subdeltoid or ovato-deltoid fronds, bipinnate, pinnules blunt, slightly glandular beneath; scales pale but often two-coloured.

Colintraive; Bute and Arran.

Var. *dumetorum*, Sm.—Fronde 12—18 in. long, oblong-ovate or elongate-triangular; glandular underneath especially on the veins; lowest pinnae pointing forward; pinnules oblong-ovate, sometimes convex, with broad incurved coarse teeth, tipped with a bristle. Scales few except at the base of the stipes, pale brown, centre scarcely darker in colour, edge often fringed with small points. Sori large, generally covering the under surface of the frond. Indusia fringed with stalked glands.

Cadder wilderness; Colintraive glen; Bute and Arran, *Thomas Moore*.

4. CYSTÓPTERIS. *Bladder-fern*.

C. FRÁGILIS, Bernh.—*Brittle Bladder-fern*. Rhizome shortly creeping. Fronds tufted, 8—12 in. high, lanceolate, bipinnate; pinnules slightly stalked, oblong-ovate, cuneate at the base, pinnatifid or deeply serrate; segments toothed; rachis winged. Sori *distant from the margin*. Spores covered with sharp teeth.

Frequent. Clefts of rocks and walls. (B) P. 7. Barncluith garden, Hamilton; Cadzow; Falls of Clyde; Campsie glen; Calderwood and Cambuslang glens; banks of the Kittoch burn; from Gourrock to Arran.

Var. *dentata*. Scarcely bipinnate; pinnules broad below, sessile, ovate or oblong, bluntly toothed. Sori *near the margin*. Spores covered with warts.

Rare. "Tarbert, by Loch Lomond," *H. & A.* Hills above Rashfield on the Holy Loch. P. 7.

5. ASPLÉNÍUM. *Spleenwort*.

ATHÝRIUM.—Sori oblong, curved. Indusium fringed.

1. A. FÍLIX-FŒMÍNA, Bernh.—*Lady-fern*. Rhizome erect. Fronds growing in a circular tuft, 1—3 ft. high, lanceolate, bipinnate; pinnae linear-lanceolate; pinnules distinct, oblong-lanceolate, deeply pinnatifid or cleft; segments 2 or 3-toothed; secondary rachis scarcely winged. Plant soft to the touch, light green, and tender, very liable to sport. Of varieties there are 32 described in "Nature-Printed Ferns," besides 33 of the abnormal series.

Very common. Woods and damp shady places most luxuriant; attaining a great size in Cadder wilderness, being upwards of 5 feet high; when exposed, becoming more stunted in growth. (B) P. 6—7.

Var. *irriguum*, or *Rhæticum*, Roth.—Fronds rigid, nearly erect, tufted, scarcely bipinnate; pinnæ distant, deflexed; pinnules narrow, linear-lanceolate, deeply cut, marginal lobes incurved.

Common. On exposed boggy moors. Mearns moor; above Rashfield on the Holy Loch; Cumbræ; Bute and Arran.

Var. *molle*, Roth.—Stipes short. Frond pinnate, pinnules flat, toothed shallow, combined below by a narrow wing on the secondary rachis, not growing to a large size, leafy looking from the short broad pinnules, very tender.

Shady places, not common. Hamilton; Cumbræ; Bute and Arran.

Var. *marinum*, Moore.—This seems a state of the last with fronds 12—18 in. high, spreading or decumbent, scarcely bipinnate, pinnæ longest in the centre of the frond, narrowing to the base and apex; pinnules very close, with rounded points; lobes scarcely developed, the cutting being shallow.

Not common. Below Inverkip; Cumbræ; Bute and Arran.

Var. *incisum*, Hoff.—Fronds large and broad, forming tufts often 5 ft. high, tripinnate; pinnules deeply pinnatifid, often upwards of an inch long, flat, teeth often narrow and long, giving the plant a plumose elegant appearance.

Common. In most of our woods. Cadder wilderness; Garscube woods; Gourock; Cumbræ and Arran; very fine in Mountstewart woods, Bute.

Var. *laxum*, Schu.—Pinnæ and pinnules wide apart, more lax in growth than *incisum*, not incurved, lowest pinnule having a large anterior basal lobe, prolonged into an auricle, forming an apparent continuous line along the rachis of the pinnæ, pinnules narrow and flat.

Frequent. Hamilton; Ardencape wood, Helensburgh; Bute and Arran.

Var. *odontomanes*, Moore.—Fronds broadly lanceolate, pinnæ acuminate, pinnules rather distant, decurrent, deeply pinnatifid with long incurved irregular teeth.

Frequent. Cambuslang; Kilmun; Rothesay, *Thomas Moore*; Arran, near Lamblash.

ASPLÉNÍUM.—Sori linear oblong, straight.

* *Fronds bipinnate; lowest pinnæ longer than the others.*

2. **A.** ADIÁNTUM-NÍGRUM, L.—*Black Spleenwort*. Rhizome tufted. Fronds 6—12 in. high. Stipes long, dark brown or black at the base. Fronds triangular, acuminate, bipinnate, the lowest part tripinnate; pinnules varying from obovate to ovate and lanceolate. Sori narrow, oblong, at length covering the whole back of the frond. Plant of a harsh texture, shining dark green above, pale beneath.

Frequent. On rocks, walls, and banks. (B) P. 6—10. Cathcart; Cambuslang and Calderwood glens; Crossbasket; Falls of Clyde; Cadzow; Bowling; Dumbarton rock; from Gourock to Arran.

3. **A. RÚTA-MURÁRIA**, L.—*Wall-Rue*, *Tentwort*. Fronds densely tufted, 2—4 in. high, bipinnate below, of but few deltoid segments, toothed at the apex, with no distinct mid-vein. Sori few, linear. Indusium wavy or crenulate on the margin. Plant harsh, smooth, dull green above, purple at the base of the stipes.

Frequent. Fissures of rocks and walls. (B) P. 6—10. "Calderwood," Ure. Old bridge at Cathcart, also on the wall of the Churchyard; Bowling; Dumbarton rock; from Gourock to Arran.

** *Leaves pinnate, with a mid-vein.*

4. **A. TRICHÓMANES**, L.—*Maiden-Hair Spleenwort*. Stipes and rachis black, 3—10 in. long. Fronds pinnate; pinnæ orbicular or broadly oblong, more or less toothed. Sori oblong-linear, often confluent when old. Plant of a thickish texture, deep green in the shade.

Common. Rocks and walls. (B) P. 5—11. Falls of Clyde; Calderwood and Cambuslang glens; banks of the Kittoch burn; Blantyre Priory; Cathcart; Bowling; Dumbarton rock; from Gourock to Arran.

5. **A. VÍRIDE**, Huds.—*Green Spleenwort*. Stipes dark brown at the base; rachis green. Fronds 3—10 in. long, pinnate; pinnæ roundish-ovate, cuneate at the base, crenate. Sori principally on the upper portion of the frond. Indusium narrow, crenate on the margin. Plant delicate, pale green.

Frequent. Crevices of moist rocks in mountainous districts. (H) P. 6—9. Falls of Clyde; Puck's glen above Rashfield, on the Holy Loch; Glen Messen; glen at Dunoon, and in Arran.

6. **A. MARÍNUM**, L.—*Sea Spleenwort*. Fronds tufted, 3—12 in. long, pinnate; pinnæ oblong or oblong-ovate, oblique, obtuse, crenate, the lowest pinnæ with a lobe on the anterior base, more or less developed, stalked or sessile. Rachis winged. Sori linear. Indusium entire.

Not common. Maritime rocks and caves. (A) P. 6—10. Wemyss bay; Bute; both islands of Cumbræ and Arran.

6. SCOLOPÉNDRIUM. *Hart's-tongue.*

S. VULGÁRE, Sym.—*Common Hart's-tongue Fern*. Fronds tufted. Stipes from $\frac{1}{3}$ the length of the frond to $\frac{1}{2}$, clothed with tawny scales, continued along the midrib on the under side. Fronds broadly linear, narrow lanceolate or oblong, often forked at the apex, but generally acute, heart-shaped at the base. Sori linear. Indusium double, opening in the middle.

Frequent. Shady banks and under rocks. (B) P. 7—8. Falls of Clyde; Barncluith, Hamilton; Calderwood glen; bridge at Crossbasket; Cambuslang glen; glens around the Holy Loch; from Gourock to Arran.

7. CÉTERACH. *Ceterach.*

C. OFFICINÁRUM, Willd.—*Common Ceterach*. *Scale-fern*. Fronds tufted, spreading, 2—4 in. high, pinnatifid; segments

blunt, completely covered on the back with brown membranous scales concealing the sori.

Very rare. On old walls. (E) 4—10. Near Paisley.

8. PTÉRIS. *Brake.*

P. AQUÍLINA, L.—*The Common Brake. Bracken.* Rhizome extensively creeping, hard and black. Fronds 1—3 ft. high, in rich soils reaching 8 ft., bi-tripinnate, decreasing in successive branchings, downy beneath; secondary pinnæ linear-lanceolate, lower ones pinnatifid, upper entire; fertile pinnules broad. Indusium double, marginal. Plant very hard and harsh to the touch.

Very common. Woods, thickets, and heaths. (B) P. 7—8.

9. BLÉCHNUM. *Hard-fern.*

B. BOREÁLE, Sw.—*Northern Hard-fern.* Fronds tufted, 12—18 in. high. Barren ones exterior and spreading, pinnatifid, segments lanceolate, obtuse. Fertile fronds central, erect, widely-pinnate, segments linear, acute, margin rolled back; sometimes a few intermediate fronds are found, with 2 apparently fertile lines between the midrib and the edge of the segments.

Common. Woods and heaths. (B) P. 7—8. Cathkin hills; Cadder wilderness; woods at Garscube, &c.

10. TRICHÓMANES. *Bristle-fern.*

T. RADÍCANS, Sw.—*Rooting Bristle-fern.* Rhizome creeping over rocks in the spray of cascades in mountainous countries. Fronds 6—8 in. high, broadly ovate in outline, 3—4 times pinnatifid, segments linear, membranous, quite smooth, more or less toothed, narrowed at the base. The rachis everywhere winged with a narrow membranous margin. Fructification marginal, solitary, in the axils of the small ultimate lobes, cylindrical, with a protruded bristle receptacle. Plant pellucid.

This very elegant fern was discovered in Arran by Mr. George Combe in 1863. A very questionable native. (P) 6—9.

11. HYMENOPHYLLUM. *Filmy-fern.*

1. H. TUNBRIDGENSE, Sm.—*Tunbridge Filmy-fern.* Rhizome creeping, filiform, branched, forming entangled masses, clinging to the surface of rocks. Fronds slender, delicate, membranous, and pellucid, 3—4 in. high, usually oblong or ovate-lanceolate, pinnate; *pinnæ flat*; segments linear, decurrent on all parts of the frond, forming a wing to the rachis, spinosely serrate. Involucre sessile in the axils of the pinnæ, obtuse, *spinoso-serrate*.

Frequent. Moist shady rocks. (A) P. 6—7. "Near Milngavie," Mr. George Thomson; below Gourock; Inverkip glen; banks of Loch Lomond at Luss and Tarbet; Puck's glen above Rashfield on the Holy Loch; Dunoon; Bute and Arran.

2. **H. WILSONI**, Hook.—*Scottish Filmy-fern*. Resembling the last, but easily known by the pinnæ not being on the same plane as the rachis, recurved, with the *involucres projecting forward* in opposition to the segments of the frond. Involucres inflated, more or less stalked, quite entire on the upper edges.

Very frequent. Wet rocks and banks, under heath. (H) P. 6—7. "Bowling hills," the late *Wm. Gourlie*; Pillar craigs; Gourock; Inverkip glen; banks of Loch Lomond; glens above Kilmun; Glen Messen; Tigh-na-Bruich; Bute; Fairlie glen; Cumbræ and Arran.

90.—OSMUNDACEÆ.

1. OSMÚNDA. *Osmund*.

O. REGÁLIS, L.—*Royal Osmund, Flowering-fern*. Rhizome very hard, stout, forming a swollen trunk, covered by blackish wiry fibres. Fronds erect or arching, 2—12 ft. high. Barren ones bipinnate; pinnules oblong, nearly entire, obtuse, somewhat auricled at the base. Fertile fronds with clusters of spore cases, in panicles, on the terminal branches.

Frequent. Boggy places and margins of woods. (B) P. 6—8. Between Inverkip and Gourock; banks of Loch Lomond in several places; Kilmun; Dunoon; below Wemyss bay; Cumbræ; Bute and Arran. Owing to the rapacity of dealers, who are more alive to regal impress than royal beauty, this fern is rapidly disappearing from localities to which it lent a charm.

91.—OPHIOGLOSSACEÆ.

1. OPHIOGLÓSSUM. *Adder's-tongue*.

O. VULGÁTUM, L.—*Common Adder's-tongue*. Rhizome or caudex thickened, descending deeply into the soil, producing a lateral bud, from which is developed next year's stem. Frond solitary, 2—8 in. high, ovate or oblong, entire, narrowed below, sheathing yellowish green. Fertile branch narrow, erect, with spore cases along the two edges, opening transversely.

Not common. Moist pastures. (B) P. 5—6. "In the pastures about Woodhall," *Hopk*. "Pastures at Possil, near the porter's lodge," *Fl. Sc.*; "Paisley Canal bank," *James Ramsay*; Cambuslang glen; Craigenglen; Gourock; Cumbræ and Arran.

2. BOTRÝCHIUM. *Moon-wort*.

B. LUNÁRIA, Sw.—*Common Moon-wort*. Rhizome branched, with root-like processes from its crown. Frond erect, 2—6 in. high. Barren branch solitary, pinnate; pinnæ lunate or fan-shaped, crenate, or toothed, somewhat fleshy. Fertile branch bearing rows of spore cases on the edges of a pinnate rachis.

Not common. Dry mountainous pastures. (B) P. 6. Neilston Pad; hills above Gourock near the tower; Largs; Bute; Cumbræ and Arran.

92.—LYCOPODIACEÆ.

1. LYCOPÓDIUM.

Club-moss.

1. **L. CLAVÁTUM**, L.—*Common Club-moss*. Stems prostrate, 1—3 ft. long, throwing down wiry roots from the under side; branches ascending. Le. stiff, closely covering the stem and branches, linear, with hair-like points. Spikes stalked, in pairs, an inch long, cylindrical; bracts ovate, acuminate, inciso-serrate. Evergreen.

Frequent. On moors and heathy pastures. (B) P. 7—8. Paisley Canal bank, probably now extinct; Craigmaddie moor; heath at the Stepps station on the Caledonian railway; near Milngavie; hills above Gourrock; Kilmun and Dunoon; Bute; Cumbræ and Arran.

2. **L. SELAGINOÍDES**, L.—*Lesser Alpine Club-moss*. Stems prostrate, branched, rooting, slender, 3—4 in. long. Le. spreading, scattered, lanceolate, ciliate. Spikes erect, terminal, about an inch long, solitary; bracts fully larger than the le., bearing in the lower axils large capsules (macrogonidia), and in the upper small, sub-reniform bodies (microgonidia) or 2-valved capsules.

Common. Boggy places on the mountains at the entrance to the Clyde. (H) P. 8. Gourrock in the marshes by the sea, and on the hills; Kilmun; Kilpatrick hills; Dunoon; Bute; Cumbræ and Arran.

3. **L. ALPÍNUM**, L.—*Savin-leaved Club-moss*. Stems prostrate, long and rooting, repeatedly branched in a dichotomous manner, and fascicled, 8—12 in. long. Le. in 4 rows, imbricated, oblong, acute, keeled, giving the branch a squarish look. Spikes terminal, solitary, sessile, short, cylindrical.

Frequent. On mountains. (H) P. 8. On Paisley Canal bank, perhaps now extinct; on the hills above the Holy Loch; Gourrock; Inverkip; Largs; Bute; Cumbræ and Arran.

4. **L. SELÁGO**, L.—*Fir Club-moss*. Stems slightly decumbent at the base, 6—8 in. high, branches forked, fastigiate. Le. crowded, rigid, in 8 rows, lanceolate, acute, smooth on the margin. Fructification in the axis of the upper le. consisting of large capsules, replaced sometimes by a few leafy buds.

Frequent. Heathy and stony places. (B) P. 6—8. Craigmaddie moor; Cathkin hills; moss at the Stepps station on the Caledonian railway; Gourrock; Kilmun; Dunoon; Bute; Cumbræ and Arran.

2. ISÓETES.

Quill-wort.

I. LACÚSTRIS, L.—*European Quill-wort*.—Le. springing from a corn-like base, 4—6 in. high, all radical, rush-like, forming tufts at the bottom of our mountain lakes, bright green, dilated at the base, narrow and tapering to the point, with 4 internal-jointed tubes.

Rare. Bottoms of lakes. (H) P. 5—7. Loch Lomond and the island of Bute.

93.—MARSILEACEÆ.

1. PILULÁRIA.

Pill-wort.

P. GLOBULÍFERA, L.—*Creeping Pill-wort, Pepper-grass.* Rhizomes creeping, rooting at the joints. Le. very fine, setaceous, erect, 4—5 in. high, circinate when young. Involucre at the base of the le. like a small pea, covered with hairs.

Rare. Margins of lakes and pools. (B) P. 6—8. Frankfield loch; Loch Lomond, and Bishop loch, near Gartcosh station.

94.—EQUISETACEÆ.

1. EQUISÉTUM.

Horse-tail.

A. *Fertile stems appearing in early spring before the barren ones, unbranched, with long sheaths.*

1. **E. TELMATÉIA**, Ehr.—*Great Water Horse-tail.* Fruiting stems simple, 8—10 in. high. Barren ones 3—4 ft. high, nearly smooth, with about 30 striæ, teeth of the sheath long, subulate; branches rough, simple, 4-angled with 4 small 2-ribbed teeth; the whorls crowded towards the apex of the stem.

Rare. In marshy places, shady banks, and muddy ditches. (E) P. 4. St. Germans loch; island of Arran.

2. **E. ARVÉNSE**, L.—*Corn Horse-tail.* Fertile stems simple, 3—6 in. high. Barren ones erect or decumbent, 1—2 ft. high, with 12—14 striæ. Branches simple, 3—4 angled, teeth of the sheaths long, acute, 1-ribbed to the apex. Outline of frond tapering to the top.

Common. Roadsides and fields. (B) P. 4.

3. **E. UMBRÓSUM**, Willd.—*Blunt-topped Horse-tail.* Fertile stems of 2 kinds, one short and quite simple, the other resembling the barren stem, with a cone of small size. Stems 12—18 in. high, with about 20 striæ, rough; branches long at the top, getting gradually smaller below, simple 3—4 angled, with as many teeth, *not ribbed to the apex.*

Very rare. Banks of Clyde, near Newton; Campsie glen; Bonnington woods. (S) P. 4.

B. *Fertile and barren stems nearly similar and appearing at the same time.*

4. **E. SYLVÁTICUM**, L.—*Branched Wood Horse-tail.* Fertile stems blunt at the apex. Barren ones tapering to the top, 12—18 in. high. Sheaths with 3—4 membranous lobes or teeth; striæ of the stem about 12. Branches compound, 10—16 in a whorl, spreading or deflexed; these branches are again whorled, producing an extremely elegant and graceful fairy-like tree.

Common. In moist woods and on hedge banks. (B) P. 4—5. Old quarry beyond Possil, &c.

5. *E. LIMÓSUM*, L.—*Smooth Naked Horse-tail*. Barren and fertile stems nearly smooth. Striæ 16—18. Sheaths with *short, rigid, distinct teeth*. Branches often abortive or few, simple and imperfect, confined to the upper portion of the stem. Spike obtuse.

Very common. In stagnant water and lakes. (B) P. 6—7. Possil marsh; Hogganfield loch, &c.

6. *E. PALÚSTRE*, L.—*Marsh Horse-tail*. Stems 12—18 in. high, slightly roughened, with 4—8 deep furrows. Sheaths loose, pale, with *acute wedge-shaped teeth*, brown at the apex, membranous on the edge. Branches few in a whorl, simple. Spike terminal, obtuse.

Frequent. In bogs and marshes. (B) P. 6—7. Paisley Canal bank; Frankfield loch, &c.

Var. *polystachion*.—Branches terminating in fertile spikes.

Hills above Gourrock in stony marshes.

7. *E. HYEMÁLE*, L.—*Rough Horse-tail, Dutch Rushes*. Stems 1—2 ft. high, branched from the base, very rough, with 15—20 striæ; sheaths close, black at the base and apex, white in the middle, with *bristle-pointed deciduous teeth*. Spike terminal, with a small point.

Not common. Boggy places in woods. (S) P. 7—8. Kelvinside wood, by the bank of a small rivulet; below Carmyle; Kenmuir bank, near the marriage well.

8. *E. VARIEGÁTUM*, Schl. — *Variegated Rough Horse-tail*. Stems 6—8 in. high, very slender, rough, naked, branched at the base, with 4—10 furrows. Sheaths black above with white teeth.

Rare. On wet banks of lakes. (S) P. 7—8. "Frankfield loch," Hopk.

GLOSSARY OF BOTANICAL TERMS.

- A, in composition, signifies without, as *aphyllus*, without leaves.
- ABNORMAL, differing from the usual form.
- ABORTIVE, an imperfect development of an organ.
- ABRUPT, suddenly narrowing to a short point, not continuous.
- ACCESSORY, something added to the usual number of organs, as *Tendrils, Prickles, Glands, &c.*
- ACCUMBENT, lying upon; employed in *Cruciferae*, to signify that the radicle lies upon the edge of the cotyledons.
- ACEROSE, needle-pointed, tapering and sharp, as in the leaves of many of the firs.
- ACHENE, a small, dry, hard, one-seeded fruit, closely invested with its pericarp, but separable.
- ACHLAMYDEOUS, without floral envelopes.
- ACICULAR, needle-shaped.
- ACOTYLEDONOUS, plants without cotyledons.
- ACROGENOUS, growing only at the summit, without increasing in diameter, as in *Ferns and Mosses*.
- ACULEATE, bearing prickles.
- ACUMINATE, having a long tapering point.
- ACUTE, sharp, ending with an acute angle.
- ADHERING, parts uniting, as a calyx to an ovary.
- ADNATE, growing to or upon, as the anthers combining their whole length with the filament.
- ADRESSED, objects closely pressed to anything.
- ADVENTITIOUS, not following the usual course of development.
- ÆSTIVATION, the folding of the calyx and corolla while in the bud, before expansion.
- AGGLOMERATED, collected in a head.
- AGGREGATED, gathered closely together.
- ALÆ, wings, as the two side petals of a papilionaceous corolla.
- ALBUMEN, the substance surrounding the embryo to support the young plant; often absent, then the seed is said to be *ex-albuminous*.
- ALBURNUM, the young wood before arriving at maturity; sap-wood.
- ALTERNATE, when placed opposite the intermediate space, as in leaves on a stem.
- AMENTUM, a closely-combined spike of male or female flowers, as in the willows; a catkin.
- AMPLEXICAUL, clasping the stem in the greater part of its circumference.
- ANATROPOUS or ANATROPAL, an ovule where the hilum and micropyle are close together, and the chalaza at the opposite end.
- ANASTOMOSING, veins uniting at their ends.

- ANDRIA, male; Monandria with one stamen, &c.
ANDRÆCIUM, the male organs of a flower.
ANDROGYNOUS, producing male and female flowers on the same head and on one plant.
ANGIOSPERMOUS, seeds enclosed in a distinct seed vessel or pericarp.
ANISOMEROUS, when any one of the whorls of the flower has a different number from the others.
ANNUALS, plants sown from seed, producing flowers and fruit, then dying in the same year.
ANTERIOR, in front; the part of a flower next the bract.
ANTHER, the portion of the stamen on the top of the filament which bears the fecundating pollen.
ANTHERIDIUM, the male organ in *Cryptogamic* plants, analogous to the anther.
ANTHESIS, the period when flowers open.
ANTHOS, a Greek word signifying a flower.
APETALOUS, having no petals, as in the *Willows*.
APICULATE, terminating in a small short hard point.
APOCARPOUS, carpels not united.
APPRESSED. See ADPRESSED.
APPROXIMATE, near together.
ARBORESCENT, like a tree.
ARCHEGONIUM, the germ cell in *Cryptogamous* plants, analogous to the pistil.
ARCHING, ARCUATE, curved in the form of an arch.
ARILLUS, an aftergrowth from the placenta covering the seed, as in the *Passion-flower*.
ARILLODE, an aftergrowth from the micropyle turning over the seed; the mace of the *Nutmeg* is composed of this growth.
ARISTATE, having a beard or awn, as in barley.
ARTICULATE, furnished with joints, separating freely.
ASCENDING, curving upwards, then erect.
ASPEROUS, rough with short hairs.
ATTENUATE, gradually narrowing to a slender point.
AURICLES, appendages or ear-like lobes at the base of leaves.
AWNED, terminating in a long stiff bristle point.
AXILLARY, rising from the axil of a leaf.
AXIS, the centre around which development takes place; the stem is the ascending axis, and in opposition to it the root is the descending axis.
BACCATE, a soft pulpy berry, as the *Gooseberry*, indehiscent.
BARK, the exterior covering of the stem in trees.
BEAK, a long point resembling the beak of a bird, hard and sharp.
BI or BIS, twice, used in compound words, as bidentate, twice dentate.
BIENNIAL, a plant which produces neither flowers nor fruit during its first year, but does so its second, then dies away.
BIFARIOUS, placed in two opposite rows.

BIFID, cleft to near the middle.

BINATE, in pairs.

BIPARTITE, divided to near the base.

BIPINNATE, twice pinnate, divisions first pinnate, and these again pinnate a second time.

BIPINNATIFID, divisions first pinnatifid, these segments again pinnatifid.

BOTHRENCHYMA, dotted or pitted vessels.

BRACCT, a small leaf usually different from the others, seated on or at the base of a pedicel; floral leaves.

BRACCTEOL, small bracts, situated between the true bracts and the flowers.

BRISTLES, stiff hairs.

BUD, the flower or leaves before expansion.

BULBS, underground buds with fleshy scales.

BULB-LIKE, resembling bulbs, but solid, as in the *Crocus*.

BULBOUS-HAIRS, hairs with a round swelling at their base.

CADUCOUS, falling off soon.

CÆRULEUS, of a blue colour.

CÆSIOUS, with a pale blue bloom, bluish grey.

CÆSPITOSE, growing in tufts.

CALCARATE, furnished with a spur.

CALYX, the outer covering of the flower, usually green and leaf-like, sometimes coloured, the segments are called *sepals*.

CAMBIIUM, a layer of vitally active delicate cells, lying between the bark and the wood, from which the succeeding woody structures are developed, formative matter.

CAMPANULATE, in the form of a small bell.

CAMPYLOTROPAL, when the ovule is curved so that the micropyle, hilum, and chalaza are nearly close together.

CANALICULATE, furrowed or grooved into a small channel.

CAPILLARY, having the form of a hair, finer than filiform.

CAPITATE, flowers growing in close clusters; having a knob as in a pin.

CAPITULUM, a head of sessile flowers, as in the *Compositæ*.

CAPREOLATE, having climbing organs.

CAPSULE, a dry dehiscent seed vessel, one or several celled.

CARINA, a keel; shaped like a boat.

CARPEL, the divisions of the ovary; each cell is formed of a modified leaf folded inwards, so that its edges meet, forming either one carpel, as in the pea, or several united, as in the blue-bell of our woods.

CARPOPHORE, the prolonged portion of the axis above the base of the flower or fruit to which the ovaries are united.

CARTILAGINOUS, like cartile or gristle.

CARYOPSIS, a dry one-seeded fruit, with its covering closely incorporated, consisting of a thin pericarp, as in the *Grasses*.

CATKIN. See AMENTUM.

CAUDATE, having a process like a tail.

CAUDEX, applied to the stems of palms and tree-ferns.

CAULICULE, a small stem in the embryo uniting the cotyledons with the radicle.

CAULIS, caulescent; plants with a stem.

CELL, CELLULE, UTRICLE, a minute closed sac or bag usually filled with fluid, a cavity.

CELLULAR TISSUE, composed of simple cells united into a web, or in a compact body as in pith.

CELLULOSE, the outer membrane of a cell, the basis of vegetable tissues.

CERNUOUS, nodding, inclined by its own weight, drooping.

CHAFFY, membranous, with chaff-like processes.

CHALAZA, the base of the ovule; the point where the nutriment enters the ovule from the vascular cords derived from the placenta.

CHANNELLED, having a small continuous hollow.

CHLOROPHYLL, the colouring matter in the cells of green leaves.

CICATRIX, a scar left as by a fallen leaf.

CILIÆ, hairs like the eyelash.

CILIATE, edged with hairs.

CIRCINATE, rolled up in the form of a crozier.

CIRRHOSE, having tendrils as in the pea.

CLAVATE, club-shaped, thickened upwards.

CLAW, the narrow end or base of a petal.

CLEFT, cut into near the middle.

COCHLEATE, shaped like a spoon.

COHERING, similar bodies uniting, as in a monopetalous corolla by the margin.

COLEORHIZA, a sheath which invests the base of the first roots, from such seeds as the grasses.

COLUMELLA, the central column of a seed vessel, when the placentation is free central.

COLUMN, where the stamens and style unite in *Orchids*.

COMMISSURE, the inner face of the carpels in *Umbelliferae*.

COMOSE, furnished with a tuft of hairs.

COMPLETE, a flower having calyx, corolla, stamens, and pistil.

COMPOUND, formed of similar parts often repeated, or leaves divided into several secondary ones called leaflets.

COMPRESSED, flattened by lateral pressure.

CONDUPLICATE, folded upon each other as in the young leaves of the *Cherry*.

CONE, a dry fruit, covered with scales as in the fir-trees.

CONJUGATE, arranged in pairs.

CONNATE, when two leaves are united at the base, with the stem in the middle.

CONNECTIVE, the part connecting the anther lobes.

CONSTRICED, contracted at some particular place.

CONTORTED, twisted, as seen in the corollas of several natural orders.

CONVERGING, gradually approaching.

CONVOLUTE, rolled up, as in the young leaves of the *Sloe*.

CORDATE, heart-shaped.

CORIACEOUS, dry and leathery-like, tough.

CORM, an underground solid bulb-like stem, as in the *Crocus*.

CORNEOUS, like horn in texture.

COROLLA, the second whorl of the flower between the calyx and stamens, usually coloured.

CORONA, a crown; applied to the cup of the *Narcissus*.

CORRUGATED, wrinkled or crumpled.

CORTEX, the bark.

CORYMB, a raceme with the flowers all on a level, caused by the lower pedicels being elongated; corymbose in the form of a corymb.

COSTA, a rib.

COSTATE, having prominent ribs.

COTYLEDONS, the first leaves of the embryo, seed leaves; the *pea* when planted, splits into its two first leaves.

CREMOCARP, the fruit in *Umbelliferae*, formed of two achenia or mericarps joined together.

CRENATE, rounded marginal teeth.

CREeping, prostrate and throwing out roots at the joints of the stem.

CRESTED, bearing a tuft of leafy or fleshy appendages.

CRISP, wavy on the margin.

CROWNED, in *Caryophyllaceae* the petals are said to be crowned when furnished with a scale at the base of the limb.

CRUCIFORM, in the form of a Maltese cross, as in the four petals of the *Cruciferae*.

CRUSTACEOUS, with a hard brittle crust.

CRYPTOGAMS, a name given by *Linnaeus* to plants having no visible flowers, as *Ferns*, *Mosses*, &c.

CUCULLATE, hooded, hollowed out to resemble a cowl.

CULM, the stem in grasses.

CUNEATE, shaped like a wedge.

CUPULE, the involucre or cup in which the nut of the *Cupuliferae* is seated.

CUSPIDATE, abruptly pointed; large at the base and suddenly ending in a point.

CUTICLE, the external skin or membrane of the epidermis.

CYATHIFORM, shaped like a drinking cup.

CYLINDRICAL, in the form of a cylinder.

CYMBIFORM, shaped like a boat.

CYME, having a terminal flower, from beneath which other branches are produced, each being a terminal flower (this is repeatedly done), until a level head of flowers is formed.

CYMOSE, in the form of a cyme.

DECIDUOUS, falling off when the function is fulfilled.

- DECLINATE, curving or pointing downwards.
- DECOMPOUND, consisting of many parts repeatedly divided.
- DECUMBENT, lying flat on the ground, and rising at the apex.
- DECURRENT, leaves adhering to the stem by their whole base and prolonged downwards, forming a wing.
- DECUSSATE, opposite leaves with the next pair crossing at right angles.
- DEFINITE, a terminal inflorescence; stamens less than twenty.
- DEFLEXED, curved downwards or bent back.
- DEHISCENCE, the manner in which fruits open to disperse their seeds, also applied to the opening of the anther.
- DELTOID, triangular in outline, as in the Greek letter Δ .
- DENTATE, toothed, the margin of a leaf, having projections resembling teeth.
- DENTICULATE, having very fine teeth.
- DEPRESSED, flattened from above downwards.
- DETERMINATE, flowering from the centre to the circumference, centrifugal.
- DIADELPHOUS, stamens united by their filaments in two bundles.
- DIALYPETALOUS, POLYPETALOUS, petals of a corolla not united.
- DIAPHANOUS, pellucid, transparent.
- DICHLAMYDEOUS, having two coverings, calyx and corolla.
- DICHOTOMOUS, dividing in pairs.
- DICLINOUS, plants with unisexual flowers.
- DICOTYLEDONOUS, an embryo with two opposite cotyledons.
- DIDYMOUS, the union of two similar organs by a small portion of their margin.
- DIDYNAMIA, DIDYNAMOUS, two stamens long and two short.
- DIFFUSE, widely spread.
- DIGITATE, fingered; cut deeply in and arranged like a fan, meeting at the top of the petiole, and all the parts distinct.
- DIMEROUS, composed of two parts.
- DIMIDIATE, split on one side.
- DIMORPHIC, two forms of flower produced by the same species.
- DIOECIOUS, male and female flowers on two distinct individuals.
- DISCOID, when in compound plants the florets are all tubular, the head is said to be discoid; with a convex face.
- DISK, a fleshy process at the base of the ovary in many flowers; the centre of a head of flowers in the *Compositæ*.
- DISSECTED, cut into a number of narrow segments.
- DISSEPIMENT, the partitions, divisions or septa in an ovary.
- DISTICHOUS, arranged in rows on the two opposite sides of an axis.
- DISTRACTILE a stamen having a long unequal connective, with a fertile cell at the one end and the other barren, as in *Salvia*.
- DIVARICATE, widely spreading.
- DIVERGENT, objects gradually separating from a centre.
- DORSAL, attached to the back; belonging to the back.
- DOUBLE, applied to flowers when the stamens or other organs are turned into petals, as in the double *Ranunculus*, *Roses*, &c.

- DRUPE**, a single-seeded fruit, fleshy, with a hard stone, as in the *cherry, plum, and peach*.
- DURAMEN**, the heart-wood or ripened portion of exogenous trees.
- ECHINATE**, spiny like a hedgehog.
- ELLIPTIC**, oval but acute at each end.
- ELONGATED**, lengthened out.
- EMARGINATE**, having a small notch at the end.
- EMBRYO**, the rudiments of the young plant as enclosed in the seed.
- EMBRYO-SAC**, the cavity in which the germinal vesicle is developed in the nucleus.
- EMERGED**, a water plant having its summit only above the surface.
- ENDOCARP**, the inner layer of the pericarp, as in the stone of the *cherry*, the core of the *apple*, &c.
- ENDOGENS**, plants having the stem composed of confused woody bundles, with cellular tissue between, both forming a cylindrical caudex.
- ENDOSMOSE**, the phenomenon of two liquids of unequal density separated by a membrane, mingling and becoming of equal density; passing inwards.
- ENDOSPERM**, the albumen of seeds.
- ENDOSTOME**, the opening through the tegmen at the micropyle.
- ENDOPHLEUM**, the inner bark or liber.
- ENSIFORM**, shaped like a sword with a straight blade.
- ENTIRE**, said of any organ not cut or divided, or of a leaf not cut or toothed, but plain on the edge.
- EPICALYX**, an outer calyx, composed of either sepals or bracts.
- EPICARP**, the outer covering of the fruit, as the skin of the *cherry, peach, and apple*.
- EPIDERMIS**, the external cellular layer covering leaves, flowers, and young branches.
- EPIGYNOUS**, organs apparently seated upon the ovary.
- EPIPETALOUS**, growing upon the petals.
- EPIPHYTES**, plants growing upon others.
- EQUITANT**, leaves folded and embracing, or clasping each other, as in the *Iris*.
- ERECT**, standing perpendicular to that from which it springs.
- EROSE**, gnawed or bitten, irregularly toothed.
- ETÆRIO**, the aggregated little drupes in the bramble.
- ETIOLATED**, blanched by being deprived of light.
- EXALBUMINOUS**, without albumen, as in the *pea*.
- EXCURRENT**, extending beyond the point.
- EXOGEN**, plants with the wood deposited in concentric rings or circles, forming a cylindrical trunk.
- EXOSMOSE**, passing outwards. See **ENDOSMOSE**.
- EXOSTOME**, the opening through the testa at the micropyle.
- EXsertED**, stamens are so when extending beyond the corolla.
- EXstIPULATE**, having no stipules.

- EXTRA-AXILLARY, buds or flowers not produced in the axils.
EXTORSE, anthers opening outwards from the pistil.
- FALCATE, bent like a sickle.
FARINOSE, having a mealy surface.
FASCICULATE, arranged in a bundle, springing from nearly the same point.
FASTIGIATE, having a pyramidal form, from the branches being nearly parallel to the stem.
FEATHER-VEINED, veins passing from the midrib to the edge of the leaf.
FEATHERY, resembling a feather.
FIBROUS, composed of many small fibres.
FILAMENT, the stalk supporting an anther.
FILIFORM, like a thread.
FIMBRIATED, fringed at the margin.
FISTULOUS, hollow as in the stems of grasses.
FLABELLIFORM, in the form of a fan.
FLAGELLUM, a creeping stem, producing rooting buds, as in the *strawberry*.
FLEXUOSE, undulating, or zigzag in direction.
FLOCCOSE, covered with woolly tufts.
FOLIACEOUS, having the colour and consistence of leaves.
FOLLICLE, a small one-celled free carpel, dehiscing by the ventral suture only.
FORAMEN, a small opening or pore, as in the ovule.
FORNICATE, arched or vaulted over.
FORKED, dividing by twos.
FOVILLA, the granular contents of the pollen grain.
FROND, the leaf in *Ferns*.
FRUCTIFICATION, all parts composing the fruit.
FRUIT, the seed vessel and contents when ripe.
FRUTICOSE, shrubby.
FUGACIOUS, soon falling off.
FUNICULUS, the cord attaching the ovule to the placenta.
FUNNEL-SHAPED or INFUNDIBULIFORM, tubular below, gradually widening upwards.
FURCATE, forked, dividing into two branches.
FUSIFORM, spindle-shaped, tapering to each end from a thick centre.
- GALEATE, arched and concave like a helmet.
GAMOSEPALOUS, a calyx of one piece. *Gamopetalous*, a corolla of one piece.
GELATINOUS, having the consistence of jelly.
GENICULATE, bent like the knee.
GERMEN, the ovary.
GIBBOUS, swollen at the base on one side.
GLABROUS, smooth, without hairs.

GLAND, a secreting organ often raised above the surface, sometimes internal.

GLANDULAR HAIRS, hairs tipped with a gland.

GLANS or NUT, the fruit of the *oak*; acorn.

GLAUCOUS, a bluish green mingled with white, as the bloom on the ripe *plum* or *grape*.

GLOBOSE, round or spherical.

GLOMERULE, a small rounded cyme in which the flowers are close together.

GLUMELLAS, the inner scales inclosing the stamens and pistil in grasses.

GLUMES, the outer scales of the spikelet in *Grasses*; the scales of the *Sedges* including the flowers.

GLUTINOUS, viscid, adhesive.

GRANULATED, having a rough surface of small projecting points or grains.

GYMNOSPERMS, plants in which the pollen comes in immediate contact with the naked ovule without the intervention of style or stigma, as in the *Coniferæ*.

GYNANDROUS, stamens and pistil united in a column.

GYNOPHORE, a stalk bearing the ovary above the calyx.

HABIT, the general bearing or aspect of a plant.

HAIRS, fine conical expansions of the epidermis.

HASTATE, halbert-shaped, furnished at the base with two divergent lobes.

HEAD, flowers collected closely together, surrounded by an involucre.

HELMET, the hooded or arching upper part of a corolla.

HERBACEOUS, the green succulent parts of plants which are not woody; usually applied to plants the stems of which die annually.

HERMAPHRODITE, stamens and pistil in the same flower.

HESPERIDIUM, the fruit of the *orange*.

HETEROCHROMOUS, when the ray is of a different colour from the disk, as in *Bellis*.

HETEROGAMOUS, when the florets of the disc are perfect, and those of the ray female or neuter.

HILUM, a scar on the base of the seed, left by the breaking away of the funiculus or podosperm.

HIRSUTE, having long distinct hairs.

HISPID, having strong stiff hairs.

HISTOLOGY, the microscopic study of tissues.

HOMOCHROMOUS, when all the florets are of one colour, as in *Leontodon*.

HOMOGAMOUS, when all the florets are perfect, as in *Leontodon*.

HOMOTROPOUS, an erect embryo.

HOODED, the arching upper part of a petal.

HYBRID, a mule, produced by the crossing of two species belonging to one genus.

HYPANTHODIUM, the expanded receptacle of the fig.

HYPOCRATERIFORM, shaped like a salver; a flower with a long tube and a flat limb.

HYPOGYNOUS, inserted beneath the ovarium.

ICOSANDRIA, having 20 or more stamens inserted on the calyx.

IMBRICATED, overlying each other as the tiles on a house.

IMMERSED, plants sunk under water.

IMPARI-PINNATE, ending in an odd leaflet.

IMPERFECT, an organ incapable of performing its functions.

INCISED, cut down to the middle.

INCLUDED, not extending beyond the corolla.

INCUMBENT, the radical applied to the back of the cotyledons.

INCURVED, bending inwards.

INDEFINITE, stamens exceeding twenty, an uncertain number, not readily counted.

INDEHISCENT, not opening, not splitting when ripe.

INDETERMINATE, flowering from the circumference to the centre, centripetal.

INDUPLICATE, when the edges of an organ are curved slightly inwards in æstivation.

INDUSIUM, the membranous covering of the clusters or sori in *Ferns*.

INFERIOR, an ovary below calyx is said to be inferior.

INFLEXED, bent inwards.

INFLORESCENCE, the disposition and arrangement of flowers.

INFUNDIBULIFORM, funnel-shaped.

INNATE, an anther inserted upon the filament.

INSERTED, growing upon an organ, as a stamen upon the calyx.

INTERNODE, the space between two joints.

INTERPETIOLAR, stipules springing from between the petioles of opposite leaves.

INTERRUPTEDLY-PINNATE, small pinnæ placed alternately with large ones.

INTINE, the inner coat of the pollen grain.

INTRORSE, when the anther opens next the pistil.

INVOLUCRE, the bracts at the base of an umbel, or surrounding the capitula in *compound* flowers, sometimes a single organ distant from a simple flower.

INVOLUCEL, the involucre of the secondary umbel.

INVOLUTE, rolled from the back inwards.

IRREGULAR, flowers in which symmetry of parts is wanting.

ISOMEROUS, when the organs of a flower are each composed of an equal number of parts.

JOINTS, the spaces between the nodes or joinings.

JUGATE, leaves joined in pairs.

KEEL, the lower petal or carina in papilionaceous flowers.

KIDNEY-SHAPED, heart-shaped, with the apex rounded.

KNEE, bent like the knee-joint.

LABELLUM, LABEL, the lower lip in *Orchids*.

LABIATE, LIPPED, flowers having two lips.

LACINIATED, irregularly cut into narrow segments.

LÆVIS, smooth, even.

LAMELLÆ, little plates.

LAMINA, the limb or blade of a leaf, petals, &c.

LANATE, woolly.

LANCEOLATE, a spear-shaped leaf, narrowly elliptical, and gradually tapering to each end.

LATERAL, placed on the side, not in the middle.

LATEX, the elaborated contents of the laticiferous vessels.

LAX, loosely arranged, not compact.

LEAFLETS, the lesser divisions of compound leaves.

LEGUME, a single one-celled carpel, seeds arranged on the ventral margin, dehiscing by the dorsal and ventral sutures.

LENTICELS, small brown rugose markings on the epidermis of some stems.

LENTICULAR, having the form of a double convex lens.

LEPIS, a scale.

LIBER, the inner layer of the bark composed of fibrous tissue.
Endophleum.

LIGNINE, the woody matter which thickens the cell-wall.

LIGULATE, strap-shaped, a floret with parallel sides, as in the
Dandelion.

LIGULE, a membrane at the top of the sheath in grasses.

LIMB, the flat part of a leaf or petal.

LINEAR, long and narrow, with parallel sides.

LOBE, the division of a leaf or other organ.

LOCULAMENT, a cavity in an ovary.

LOCULICIDAL, fruit opening through the back of a carpel.

LOMENTUM, a kind of legume or pod which, when ripe, breaks off at the joints.

LUNATE, crescent-shaped, or like the new moon.

LYRATE, a pinnatifid leaf with the terminal lobe large, and the rest successively smaller.

MARCESCENT, when withered not falling off.

MEDULLARY-RAYS, plates of muriform cellular tissue connecting the pith and the bark.

MEDULLARY-SHEATH, a ring of spiral vessels surrounding the pith or medulla.

MEMBRANOUS, thin and flexible as in a membrane.

MERICARP, the one-half of the fruit in *Umbelliferae*.

MESOCARP, the middle portion or fleshy part of the *plum*,
cherry, &c.

MESOCHILUM, the middle portion of the labellum in *Orchids*.

- MESOPHLEUM, the cellular envelope of the bark or middle layer, composed of prismatic cells.
- MESOPHYLLUM, the soft internal cells of a leaf.
- MICROPYLE, the small opening into the young ovule, the organic summit.
- MIDRIB, the large vein in the middle of a leaf.
- MONADELPHOUS, stamens united in one bundle.
- MONILIFORM, constricted at regular intervals, as in a string of beads.
- MONOCOTYLEDONS, having but one cotyledon in the embryo, if more, alternate.
- MONŒCIOUS, stamens and pistils in different flowers, but on the same plant.
- MONOS, ONE, in composition *Mon* and *Mono*.
- MONOSEPALOUS, MONOPETALOUS, calyx or corolla formed of one piece.
- MUCRONATE, terminating in a stiff point or mucro, from a broad base.
- MULTIFID, cut into many segments.
- MURICATE, covered with small raised points or excrescences.
- MURIFORM, cellular tissue, like bricks in a wall.
- NAKED, flowers without any floral envelopes; seeds apparently without any covering.
- NATANT, floating.
- NAVICULAR, hollowed in the form of a boat.
- NECTARY, a portion of the flower which secretes honey.
- NERVATION, arrangement of the veins in a leaf.
- NITIDUS, smooth and shining.
- NODE, that portion of a stem from which the leaves are developed.
- NODOSE, having many small knots.
- NUCLEUS, the body which gives origin to new cells; the central portion of the young ovule.
- NUCLEOLUS, a clear spot in the nucleus of cells.
- NUT, seeds with a dry hard coat, one-seeded, and seated in a cup-shaped involucre, also the small hard seed in *Cyperaceæ*.
- OB, a prefix meaning that an object is reversed.
- OBLONG, about 3 times longer than broad and obtuse at the ends.
- OBOVATE, reversely ovate.
- OBTUSE, blunt, having no point.
- OBVOLUTE, the half of a folded leaf receiving the half of another folded in a similar manner.
- OCHREA, a tubular stipule sheathing the stem.
- OPAQUE, not transparent.
- OPPOSITE, rising from opposite points on the same stem, or stamens facing the petals.
- ORBICULAR, a leaf nearly round.
- ORTHOTROPAL, an ovule retaining its original position without

being curved; the micropyle at the apex with the hilum and chalaza blended in one at the base, as in *polygonum*.

OVAL, an ellipse rounded at each end, broadest in the middle, and about twice as long as broad.

OVARY, that part of the pistil in which the young ovules are situated.

OVATE, shaped like an egg; broadest below the middle.

OVATO-LANCEOLATE, a compound of two terms, signifying the form as being between ovate and lanceolate.

OVULE, the young seed contained in the ovary.

PAGINA, applied to the surface of a leaf.

PALATE, the projecting part of the lower lip in a personate corolla, which closes the entrance to the tube.

PALMATE, divided about half way down and spreading like the opened hand.

PANDURIFORM, shaped like a fiddle.

PANICLE, a raceme with its pedicels branched a second time, paniculate like a panicle.

PAPILIONACEOUS, a pea-shaped flower, said to resemble a butterfly, the large posterior petal is named the *vexillum* or standard; the two side ones are the *alæ* or wings; and the lowest or inferior two joined in one piece, the *carina* or keel.

PAPILLOSE, covered with small soft excrescences.

PAPPUS, a crown of soft, silky hairs, feathers, or scales, terminating the fruit in *Compositæ*.

PARENCHYMA, the cellular tissue of plants.

PARIETAL, attached to the walls of the ovary.

PARI-PINNATE, compound pinnate leaves terminating in a pair.

PARTITE, divided into deep lobes, or cut nearly to the base of an object.

PATENT, widely spreading.

PECTINATE, split into narrow segments as in a comb.

PEDATE, palmate leaves, with the two outer lobes again deeply cut into the base.

PEDICEL, the secondary branches of a peduncle.

PEDUNCLE, the primary flower-stalk.

PELLUCID, bright, nearly transparent.

PELORIA, an irregular flower becoming regular; a phenomenon occurring in several flowers, such as *Linaria*.

PELTATE, when the petiole is attached to the disc instead of the margin.

PENDULOUS, drooping.

PENICILLATE, having the tufted appearance of a hair-pencil.

PENNI-NERVED, nerves branching regularly from the midrib to the edge of the leaf, resembling a feather.

PEPO, the fruit of the *gourd* or *melon*.

PENTANGULAR, having five angles with five flat faces.

PERENNIAL, plants flowering for several years.

- PERFECT, having stamens and pistils in the same flower, and in a perfect state for performing their functions.
- PERFOLIATE, when the stem is surrounded by the base of the leaf, so that the former appears to pass through it.
- PERI, a prefix to many words signifying around.
- PERIANTH, when the calyx and corolla are not distinguishable, or either is absent.
- PERICARP, the covering of the seeds in the form of a seed-vessel.
- PERIGONE, the covering of the seeds in the *carices*.
- PERIGYNOUS, when the corolla and stamens are inserted in the calyx.
- PERISPERM. See ALBUMEN.
- PERSISTENT, remaining, not falling off.
- PERSONATE, a corolla in the form of an ancient mask, having two lips, with a palate closing the entrance into the tube.
- PETALS, the divisions of the corolla.
- PETIOLE, the stalk or support of a leaf.
- PHANEROGAMOUS, PHANEROGAMIA, visibly furnished with stamens and pistils.
- PHYLLODIUM, a dilated petiole in the form of a leaf.
- PHYLLOTAXY, the laws which govern the arrangement of leaves on the stem.
- PHYSIOLOGY (vegetable), the study of the vital functions of plants.
- PILOSE, covered with long scattered hairs.
- PINNÆ, the leaflets of a pinnate leaf.
- PINNATE, a compound leaf, having leaflets arranged on each side of a common petiole.
- PINNATIFID, a simple leaf deeply cut into segments from the margin nearly to the midrib.
- PINNULE, the leaflets of a bipinnate leaf.
- PISTIL, the ovary, style, and stigma, occupying the centre of the flower.
- PITH or MEDULLA, the soft cellular tissue occupying the centre of the stem in *Exogens*.
- PLACENTA, the part of the ovary to which the ovules are attached.
- PLACENTATION, the arrangement of the placenta; axillary, when the carpellary leaves meet in the centre or axis; parietal, when the carpellary leaves are joined by the edges or curve inwards but do not meet in the centre; free central, when the placenta rises in the centre as a column to which the seeds are attached.
- PLICATE, folded or plated.
- PLUMOSE, resembling a feather.
- PLUMULE, the central bud lying between the cotyledons in the embryo.
- POD, a one-celled, two-valved seed-vessel.
- PODOSPERM, the small cord or stalk of the ovule by which it is attached to the placenta.
- POLLEN, the small granules contained in the anther cells : *pollen*

tube, a small tube emitted by the pollen grain when applied to the surface of the stigma, and communicating with the ovules.

POLLINIA, the pollen masses in *Orchids*.

POLYADELPHOUS, stamens united into three or more bundles.

POLYANDROUS, having twenty or more stamens.

POLYSEPALOUS, POLYPETALOUS, calyx or corolla composed of many segments.

POME, an *apple* or *pear*; a many-seeded fleshy fruit, crowned by the calyx.

POROUS, having apertures or small roundish holes.

POSTERIOR, the part of a flower next the axis.

PRICKLES, hardened sharp processes belonging to the epidermis.

PRIMORDIAL, usually applied to the first leaves or flowers.

PRIMINE, the outer coat of the ovule.

PRISMATIC, having the form of a prism.

PROCUMBENT, lying on the ground.

PROEMBRYO, the green leafy body emanating from the spores of *Ferns*.

PROLIFEROUS, producing many young plants at the base.

PROSENCHYMA, fibrous tissue with acute extremities, or woody fibre.

PROTHALLUS, the germ frond of a fern on which the fertilizing organs are produced. See PROEMBRYO.

PRUINOSE, covered with a granular secretion, giving a fine bloom to several fruits.

PUBESCENT, having closely adpressed, short, soft hairs.

PULVINATE, in the form of a cushion.

PULVERULENT, covered with fine powdery dust.

PUNCTATE, marked with minute spots or dots.

PUTAMEN, the hardened endocarp, as the stone of the *cherry*, &c.

PYRIFORM, pear-shaped.

QUADIFARIOUS, arranged in four rows.

QUATERNATE, arranged in fours from one point.

QUINARY, arranged in fives.

QUINQUEFID, divided into five.

RACEME, flowers as in a spike, but with pedicels.

RACHIS, the central stem on which the flowers are seated in *Grasses*; the petiole of a pinnate leaf bearing the leaflets; also the mid-stalk of the frond in *Ferns* on which the pinnæ are situated.

RADIATE, when the flowers of the circumference are larger than those of the disk, and spread like rays, as in the *Daisy*.

RADICAL, springing from the root.

RADICLE, the point in the embryo from which the root grows.

RAMENTA, little brown scales on ferns.

RAMULI, small twigs, or little branches.

- RAPHE, in seeds, a projecting cord covered by the testa, connecting the hilum and chalaza.
- RAPHIDES, crystalline bodies met with in the cells of many plants.
- RECEPTACLE, the enlarged extremity of the axis bearing the flowers.
- RECLINATE, the extremity curved downwards.
- RECURVED, curved backwards.
- REFLEXED, bent backwards.
- REGULAR, having all the parts equal and of similar form.
- RENIFORM, kidney-shaped, broadly cordate at the base, round at the apex.
- REPAND, with a sinuous wavy margin.
- REPENS, creeping.
- RESUPINATE, twisted so that the under becomes the upper surface.
- RETICULATED, as in the veins of a leaf when they anastomose, forming a net.
- RETROSE, directed back from the point of an organ.
- RETUSE, blunt at the point, with a shallow notch in the middle.
- REVOLUTE, margins rolled back as in some leaves.
- RHIZOME, an underground creeping stem.
- RHOMBOID, with a somewhat produced angle about the middle on each side, the petiole being attached to one of the acute angles.
- RINGENT, a two-lipped, gaping corolla.
- ROOTSTOCK, a thick short rhizome.
- ROSACEOUS, flowers having petals with very short claws, as in the *Roses*.
- ROSETTE, leaves arranged in numerous close circles.
- ROSTRATE, prolonged in the form of a beak.
- ROTATE, wheel-shaped, a monopetalous corolla with the tube scarcely longer than the flat limb.
- RUDIMENTARY, an organ imperfectly developed.
- RUGOSE, coarsely wrinkled.
- RUGULOSE, finely wrinkled.
- RUMINATED, mottled with foldings and windings as in the *Nutmeg*.
- RUNCINATE, where the lobes of a widely pinnatifid leaf are directed backwards.
- RUNNER, a shoot lying flat on the ground and rooting at the end.
- SAC, a small bag. Saccate, in the form of a small bag.
- SAGITTATE, arrow-shaped; furnished with two acute lobes pointing backwards.
- SALVER-SHAPED, a corolla with the tube longer than the flat limb.
- SAMARA, a fruit with dry membranous wings much prolonged, as in the ash.
- SARCOCARP or MESOCARP, the fleshy part of fruits, or middle layer of the pericarp.

- SARMENTOSE, producing long runners.
 SCABROUS, rough with little blunt projections.
 SCALARIFORM, tissue having bars in the form of a ladder.
 SCALES, minute leaf-like bodies.
 SCANDENT, climbing by means of supports.
 SCAPE, a radical peduncle bearing no leaves.
 SCARIOUS, thin, dry, and membranous.
 SCLEROGEN, the hard lining to woody cells.
 SCORPIOIDAL, curved as in the shell of a snail, or the tail of a scorpion.
 SECUND, turned to one side.
 SEED, the matured ovule containing an embryo.
 SEPALS, the segments of the calyx.
 SEPTA or DISSEPIMENTS, the divisions of the seed-vessel.
 SEPTICIDAL, a seed-vessel opening through the septa or partitions.
 SEPTIFRAGAL, when the outer walls of the carpels break away from the septa, and open by the dorsal sutures.
 SERRATE, toothed like a saw.
 SERRULATE, very small teeth.
 SESSILE, a leaf with no petiole.
 SETA, a bristle or slender straight prickle in *roses* and *brambles*, a bristle tipped with a gland.
 SHEATH, the lower part of a leaf or petiole that encircles the stem.
 SILICULA, a short pod, not over twice as long as broad.
 SILIQUA, a long pod, several times longer than broad.
 SIMPLE, not branched, not compound.
 SINUATED, having large blunt lobes.
 SOLITARY, growing single.
 SOROSIS, the compound fruits of the *mulberry* and *pine-apple*.
 SORUS, a cluster of capsules or sporangia on the back of *Ferns*.
 SPADIX, a fleshy spike of sessile male and female flowers.
 SPATHA, a large bract covering a spadix; a membranous envelope to flowers when in the bud.
 SPATHULATE, shaped like a spathula; a leaf enlarging from the base.
 SPERMATIZOIDS, small moving spiral bodies contained in antheridia, or the male organs of *Ferns*.
 SPIKE, an axis with numerous sessile flowers.
 SPIKELET, a small group of flowers, inclosed by one or two glumes, as in the *Grasses*.
 SPINDLE-SHAPED. See FUSIFORM.
 SPINE, or THORN, an abortive branch terminating in a sharp point, connected with the wood, hence persistent.
 SPINULOSE, covered with minute spines or prickles.
 SPIRAL VESSELS, fine membranous tubes with a spiral fibre coiled internally.
 SPONGIOLE, the cellular extremity of rootlets.
 SPORANGIUM, a capsule containing spores.
 SPORES, the reproductive bodies in *Cryptogamia*, analogous to the seeds of the higher plants.

SPUR, processes resembling horns, produced at the base of the calyx or corolla.

SQUARROSE, spreading at nearly right angles to the stem.

STAMEN, usually formed of a filament and anther; the male organ of a flower.

STAMINODIUM, a scale or barren stamen; in *Orchis* the two lateral and sterile stamens.

STANDARD, the posterior petal in papilionaceous corollas.

STIGMA, the viscid apex of the style to which the pollen adheres.

STIPE, the footstalk of the frond in *Ferns*, on which no leafy portion is produced.

STIPITATE, furnished with a stipe.

STIPULES, leafy appendages at the base of the petiole.

STOLON, STOLONIFEROUS, bearing creeping stems rooting at the joints, where young plants are produced.

STOMATA, minute openings in the epidermis of plants.

STRIE, very fine lines on the surface.

STRIGOSE, covered with small stiff hairs, often swollen at the base.

STROBILUS, a cone, the aggregated fruit in the *Conifers*.

STYLE, the stalk which supports the stigma, arising from the ovary.

STYLOPODE, a fleshy disk or thickening of the base of the styles in the *Umbelliferae*.

SUB, almost, scarcely; a prefix, as in subrotund, signifying nearly round.

SUBEROSE, corky, of the nature of cork.

SUBMERGED, a plant entirely covered with water.

SUBULATE, awl-shaped, tapering from a prismatic base to a sharp point.

SUCCULENT, filled with juice and fleshy.

SUCKER, an underground shoot rooting at the end, and then producing an aerial stem.

SULCATE, furrowed, marked with deep grooves.

SUPERIOR, above; when the calyx or corolla are seated on the ovary, they are said to be superior.

SUSPENDED, an ovule is said to be suspended when it hangs down from the top of the loculant by a small attachment near to the apex; when it hangs from the apex it is then pendulous.

SUTURE, the line formed by the cohesion of two parts.

SYCONOUS, the multiple inflorescence of the *fig*.

SYMMETRICAL, an organ when divided in equal halves by a vein or rib; equal-sided; a symmetrical flower is when all the rows are of equal numbers and alternating, or where the parts of one whorl are multiples of those of another.

TAIL, the long feathery or hairy termination of certain fruits.

TAP-ROOT, one which penetrates deep into the soil without dividing, but emitting small fibrils.

- TEGMEN or SECUNDINE, the inner covering of the ovule lying under the testa.
- TEGMENTA, the outer covering of buds during winter.
- TEGUMENTA or INTEGUMENT, the outer covering of an organ, as the cellular covering of leaves, or the covering of seed, &c.
- TENDRILS, the curling organs by which some plants climb.
- TENUIS, delicate, slender, thin.
- TERCINE, the third inner covering of the ovule.
- TERETE, nearly round on a transverse section.
- TERNARY, the arrangement by threes.
- TERNATE, a compound leaf with three leaflets from the same point.
- TESTA, the outer covering of the seed; primine.
- TESTACEOUS, of the consistence of a shell.
- TETRADYNAMOUS, having four long stamens and 2 short.
- TETRAGONAL, having four angles.
- THORN, a woody abortive branch, often bearing leaves.
- THROAT, the orifice of the tube in a calyx or corolla.
- THYRSUS, a bunch; a panicle having narrow ends, dense and broad in the middle.
- TOMENTOSE, covered with cottony felted hairs, or white down.
- TOMENTUM, dense white curled hairs.
- TORULOSE, presenting successive swellings.
- TORUS, the receptacle on the end of the peduncle.
- TRACHEÆ, trachenchyma; vessels with one or more spiral fibres wound spirally in their interior.
- TRANSVERSE, arranged across.
- TRIANGULAR, with three angles and three flat faces.
- TRICHOTOMOUS, dividing by threes.
- TRICOSTATE, three-ribbed.
- TRIFARIOUS, arranged in three rows.
- TRIFID, divided into three, but not more than halfway to the base.
- TRIFURCATE, divided into three forks.
- TRIGONOUS, having three angles with the sides convex.
- TRIPARTITE, deeply divided into three.
- TRIQUETROUS, having three angles with the sides concave.
- TRITERNATE, three times ternate.
- TRUNCATE, blunt, as if cut off.
- TUBE, a tube formed by the cohesion of calyx, corolla, or stamens.
- TUBER, an underground fleshy expansion of the stem; bearing buds; with a store of starch for their support, as in the *Potato*.
- TUBERCLES, little swellings or knobs.
- TUBULAR, hollow, nearly cylindrical.
- TUNIC, a coat, the covering of the seed.
- TUMID, swollen.
- TURBinate, shaped like a top.
- TURGID, puffed up, swollen.
- TWO-EDGED, having two sharp edges.

TYPE, a plant supposed to represent the most strongly characterized genus or species of an order or family.

UMBEL, having the peduncles rising from a common centre, as in the *Umbelliferae*.

UMBILICUS, the hilum or scar of the seed.

UMBONATE, having a protuberance in the centre as in a shield.

UNCINATE, furnished with a curved or hooked point.

UNDULATE, waved or sinuous.

UNGUIS, a claw, the narrow base of a petal.

UNILATERAL, on one side, leaning to one side.

UNISEXUAL, when flowers are either male or female.

URCEOLATE, shaped like a pitcher, contracted at the mouth.

UTRICLE, a seed with a loose bladdery covering.

VAGINA, the sheathing portion of leaves.

VALVES, the opening divisions of a seed-vessel.

VALVATE, an organ joined by its edges, opening by valves.

VEINS, the thickened branching vessels as they occur in leaves.

VERNATION, the manner in which leaves are folded in the bud.

VERSATILE, the filament attached to the back of the anther which swings freely.

VERTICIL, **VERTICILLATE**, organs arranged in a whorl.

VESICLE, in the form of a small bladder.

VESSELS, the tissue of plants composed of tubes terminating in obtuse or tapering ends.

VEXILLUM or **STANDARD**, the broad back petal in a papilionaceous corolla.

VEXILLARY, in the æstivation of papilionaceous corollas, when the vexillum covers the other parts of the flower.

VIRGATE, in the form of a small switch.

VISCID, clammy.

VITTÆ, the linear receptacles of oil in the fruit of the *Umbelliferae*.

VIVIPAROUS, bearing young plants in place of flowers or fruit.

VOLUBLE, a stem or tendril twining round other stems for support.

WARTED, covered with small protuberances.

WEDGE-SHAPED, cuneate; shaped like a wedge.

WHORL, organs arranged in a circle round an axis.

WINGED, having a leafy or membranous border.

WINGS or **ALÆ**, the two lateral petals in pea-shaped flowers.

ZONED, having stripes or belts.

ZIGZAG, bending from side to side.

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APPENDIX.

APPENDIX.

The characters of the Plants mentioned in the Appendix have been derived chiefly from Sir Joseph Hooker's "Students' Flora of the British Islands."

Ord. 1.—**RANUNCULACEÆ.**

HELEBÓRUS. *Hellebore.*

* **H. VÍRIDIS**, L.—*Green Hellebore.* Radical leaves digitate, not developed till after flowering; leaflets 5—7, narrow, serrate, sessile. Fl. few, drooping, $1\frac{1}{2}$ —2 in. diam. Sepals green, spreading. Petals 8—14, small, shorter than the stamens. Pistils 3. Style straight, subulate. Fruit a follicle.

Rare. Woods. (E) P. 2—3. Bothwell woods; Craigend; Toward.

Ord. 5.—**FUMARIACEÆ.**

FUMÁRIA. *Fumitory.*

F. PARVIFLÓRA, Lamk.—Diffuse. Leaf segments flat or slightly channelled. Sepals ovate or linear-lanceolate, toothed, $\frac{1}{10}$ — $\frac{1}{8}$ as long and not half as broad as the corolla tube, lower petal abruptly enlarged at the tip; pedicels erecto-patent, equal to or exceeding the bracts; fruit globose-rugose when dry, with 2 pits at the top.

Very rare. Roadsides. (B) A. 5—8. Ardencaple.

Ord. 6.—**CRUCIFERÆ.**

DRÁBA, L. *Whitlow-grass.*

D. RUPÉSTRIS, Br.—Rootstalk slender. Le. $\frac{1}{4}$ — $\frac{1}{3}$ in., oblong-lanceolate, ciliate, rarely toothed. Stems one or more, erect, 1—2 in., slender; their leaf sessile, stellately pubescent. Fl. $\frac{1}{5}$ in. diam., few, petals white. Pod $\frac{1}{4}$ in. oblong, obtuse; stigma subsessile.

Very rare. Alpine rocks. (S) P. 7—8. Loch Oss.

D. INCÁNA, L.—Rootstalk woody. Stem 6—14 in. Radical le. short, $\frac{3}{4}$ —1 in., densely rosulate, toothed; cauline many, sub-erect, amplexicaul. Racemes many-flowered. Fl. $\frac{1}{2}$ in. diam., white. Pod $\frac{1}{2}$ in., variable.

Rare. Alpine rocks. (B) P. 2—6. Ben Lomond; Loch Oss.

D. MURÁLIS, L.—Rootstalk slender. Stems 1—2 ft., flexuous, sub-erect. Radical le. small, obovate, stellate, hispid; cauline few, broader. Fl. $\frac{1}{2}$ in. diam., white. Raceme short, lengthening towards maturity. Pods $\frac{1}{2}$ in., flat, linear-oblong, horizontal, on pedicels longer than themselves.

Rare. Walls. (B) A. 4—5. Airdrie; Bothwell; Cumbræ; Botanic Gardens, as a weed.

COCHLEÁRIA, L. *Scurvy-grass.*

C. ALPÍNA, Wat.—Radical and cauline le. as in *C. officinalis*, pod rhomboid, oblong, and narrowed at both ends.

Rare. Summit of mountains. (H) P. 5—8. Ben Lomond; Ben Voirlich.

LEPÍDIUM. *Cress.*

* **L. LATIFÓLIUM**, L.—Rootstalk, stoloniferous. Stem 2—4 ft. branched, leafy. Leaves, long, narrow, upper ones sessile, glaucous. Flowers small, in short dense corymbes. Pod. $\frac{1}{2}$ in., on short pedicels.

Very rare. Walls. (E) P. 6—8. Bothwell Castle.

Ord. 12.—CARYOPHYLLÆ.

ARENÁRIA. *Sandwort.*

A. VÉRNA, L.—Rootstalk woody, branched, matted. Leaves $\frac{1}{4}$ in. 3-nerved. Flowering branches slender, few-flowered. Fl. $\frac{1}{3}$ in. diam., white; pedicels slender, glandular; petals, oblong, equal in length to sepals. Capsule longer than petals.

Very rare. Dry Alpine rocks. (H) P. 4—7. Ben Lomond.

SILENE. *Catchfly.*

S. NOCTIFLORA, L.—Softly pubescent, viscid above. Le. lanceolate, 3—4 in., stalked below. Fl. one or few, 2-sexual, erect. Calyx long, narrow in flower; nerves green. Petals rosy within, yellow outside, 2-fid, incurved by day. Scales truncate. Capsule as long as and often rupturing the calyx. Fl. often at night very fragrant.

Very rare. Sandy fields. (B) P. 7. Cumbræ; Largs.

SAGÍNA. *Pearl-Wort.*

S. SAXATÍLIS, Wim.—Distinguished from the 5-merous forms of *S. procumbens* only by the longer white petals, erect styles and longer capsules with appressed sepals.

Very rare. Alpine rocks. (H) P. 5—7. Ben Lomond.

CERASTÍUM. *Chickweed.*

C. ALPÍNUM, L.—Habit of *C. ARVENSE*. Leaves broader, flowers fewer and broader, $\frac{3}{4}$ —1 in., with scarcely any glands; capsule twice as long as sepals.

Very rare. Alpine rocks. (B) P. 5—7. Ben Lomond; Ben Vorlich.

Ord. 27.—ROSACEÆ.

POTENTÍLLA. *Cinque-foil.*

P. PROCÚMBENS, Cl.—Rootstalk woody, branches leafy at the top. Leaves 1—3 in., hairy, glaucous; leaflets $\frac{1}{3}$ in. obovate 3—5-toothed at the tip. Fl. $\frac{1}{4}$ in. diam., few, yellow. Sepals lanceolate, acute, bracts linear.

Frequent. Alpine rocks. (H) P. 5—7. Ben Lomond; Ben Vorlich, &c.

P. SALISBURGÉNSIS, Hae.—Stems ascending, leaves digitately 5—7 foliolate, leaflets obovate or cuneate, deeply crenate or serrate usually above the middle, fl. several yellow; achenes smooth, glabrous.

Very rare. Alpine rocks. (H) P. 5—6. Ben Lomond.

Ord. 28.—SAXIFRAGEÆ.

SAXIFRAGA. *Saxifrage.*

S. NIVÁLIS, L.—Rootstalk small. Leaves $\frac{1}{2}$ —1 in. diam., subcoriaceous, red beneath; petiole 1—2 in. Scape 3—6 in. erect, simple. Fl. $\frac{1}{4}$ in. diam. white, in capitate, 4—12-flowered cymes. Seps. connate purple. Plant with glandular hairs on the leaf margins, bracts, scape, and pedicels; elsewhere glabrous.

Very rare. Alpine rocks. (H) P. 7—8. Ben Lomond.

Ord. 32.—ONAGRACEÆ.

EPILOBIUM. *Willow-herb.*

E. ALPÍNUM, L.—Stem with 2 pubescent lines, ascending 3—9 in., slender. Le. $\frac{1}{2}$ — $\frac{3}{4}$ in., opposite, oblong, few on short stalks. Flowers 1—3, pendulous, rose-coloured, $\frac{1}{5}$ — $\frac{1}{3}$ in. diam. Capsule 1—1 $\frac{1}{2}$ in., glabrous.

Very rare. Alpine rills. (S) P. 5—7. Ben Lomond.

Ord. 38.—CAPRIFOLIACEÆ.

LONICÉRA. *Honeysuckle.*

* **L. CAPRIFÓLIUM**, L.—Stem twining. Leaves glaucous, lower ones stalked ovate, upper ones triangular connate. Bracts large connate. Calyx-limb short, persistent. Corolla as in **L. PER.** Berries scarlet.

Very rare. Woods. (I) P. 5—6. Calderwood glen.

Ord. 53.—SCROPHULARIACEÆ.

VERÓNICA. *Speedwell.*

V. SAXÁTILIS, L.—Stems woody; branches many, 2—4 in., ascending with leafy barren shoots. Le. obovate-oblong, $\frac{1}{4}$ — $\frac{1}{2}$ in., coriaceous, teeth few or none. Pedicels stiff, $\frac{1}{3}$ — $\frac{1}{2}$ in. Sepals linear, oblong, shorter than capsule. Fl. $\frac{1}{2}$ in. diam., bright blue, very beautiful. Style short, slender; capsule $\frac{1}{4}$ in., oblong; seeds flat.

Very rare. Alpine rocks. (H) P. 5—9. Ben Lomond.

MELAMPÝRUM. *Cow-wheat.*

M. SYLVÁTICUM, L.—Habit similar to **M. PRATENSE**, but flowers suberect; bracts always quite entire; calyx-teeth spreading; corolla smaller, shorter, deep yellow; its tube curved and capsule not deflexed.

Very rare. Alpine woods. (B) P. 7—8. Inversnaid.

Ord. 58.—PRIMULACEÆ

TRIENTÁLIS. *Chickweed, Winter-green.*

T. EUROPÆA, L.—Stem wiry, slender, 4—8 in., leafy at the top. Le. 1—2 in., shining, rigid, obtuse, narrowed into short petioles. Fl. erect, few; peduncles 1—3 in., filiform; sepals linear, subulate; corolla $\frac{3}{4}$ in. diam., lobes, ovate, acute; capsule size of a pea, valves deciduous.

Very rare. Alpine woods. (H) P. 5—7. Inversnaid; Arran, *Bryce*.

ORCHIDACEÆ.

GOODYÉRA.

G. RÉPENS, Br.—Rootstalk slender, matted, creeping. Stem 4—8 in., slender, glandular. Le. ovate, dark green, 1 in., nerves reticulated. Spike slender, bracts lanceolate. Flowers $\frac{1}{4}$ in., cream white.

Very rare. Fir woods. (S) P. 6—7. Near Troon.

JUNCACEÆ.

LÚZULA. *Woodrush.*

L. SPICÁTA, D.C.—Rootstalk slender, stolons, short. Stems slender, 6—12 in. Le. short, hairy on sheath, recurved, narrow channelled; cauline few, short. Cymes drooping, short, spike-like. Bracts silvery. Fl. $\frac{1}{8}$ in. shorter than bracts, but longer than the elipsoid apiculate capsule. Seeds oblong, with an obscure white basal appendage.

Very rare. Mountain heaths. (H) P. 6—7. Ben Voirlich.

ALISMACEÆ.

BÚTOMUS. *Flowering Rush.*

* **B. UMBELLÁTUS**, L.—Rootstalk stout; le. 3-quetrous, 3—4 ft. base sheathing twisted. Fl. many, umbellate, 1 in. diam., rose-colour. Stamens 9, anthers red, carpels 6, beaked, stigma sessile red, follicles 6.

Very rare. Marshes (E) P. 5—7. Possil marsh, Ingles and Hogarth.

TYPHACEÆ.

SPARGÁNIUM. *Bur-reed.*

S. NÁTANS, L.—Stem floating, 1—3 ft., suberect in flower, leafy, flaccid. Le. $\frac{1}{4}$ — $\frac{1}{8}$ in. diam., flat. Heads racemose, stigma tongue-shaped, drupe stalked, beak long.

Very rare. Ditches, lochs. (H) P. 8—9. Loch Oss.

FILICES.

ASPÍDIUM. *Holly-fern.*

A. LONCHÍTIS, Sw.—Rootstalk tufted, oblique, scaly. Fronds linear-oblong, pinnate, tufted, 6—24 in., bright green, coriaceous, glabrous except on scaly stipes, rachis and veins beneath. Pinnæ many, $\frac{1}{2}$ —1 in., ovate, base auricled and obliquely rhomboid, falcate, acuminate, spinuloso-serrate. Sori on 2—3 rows on each side of midrib.

Very rare. Alpine rocks. (H) P. 5—8. Very luxuriant on Ben Lomond. Ben Vorlich dwarf.

PTÉRIS. *Bracken.*

P. GRÁCILE, Paterson.—Rootstalk delicate, subterranean, creeping. Stipes 1—2 ft., thin, pale green at the base. Fronds very delicate, 2-pinnate, pubescent; pinnules sessile; veins free, 2-forked; sori not known. Perhaps a delicate variety of *P. AQUILINA*.

Very rare. Woods in glens. (S) P. 5—8. Glen Rosa, Arran.

LYCOPODIACEÆ.

LYCOPÓDIUM. *Club-moss.*

L. INUNDÁTUM, L.—Stems short, 2—6 in., closely appressed to the ground. Le. secund, though inserted all round the stem, lanceolate, entire, dark green, midrib indistinct. Cones 1—3 in., fusiform, on strict, erect, leafy branches, the leaves of which are erect, scales erect, subulate, longer than the leaves; base dilated, toothed.












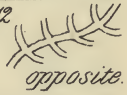
















Very rare. Heaths. (H) P. 7—8. Ben Lomond; Inversnaid.

L. ANNOTÍNUM, L.—Habit of **L. CLAVATUM**, but less branched, branches constricted here and there; le. more lax, obscurely 5-farious, sometimes spreading, linear-lanceolate. Scales of obtuse sessile cone broadly ovate, toothed, abruptly acuminate.

Very rare. Rocks and stony Alpine moors. (H) P. 6—8. Ben Voirlich; Ben Lomond.

Those plants marked thus * have been introduced, and cannot be considered natives of the district.

R. H. PATERSON.

1  <i>tap-root</i>	2  <i>moniliform</i>	3  <i>fasciculate</i>	4  <i>conical</i>
5  <i>filiform.</i>	6  <i>tuberous</i>	7  <i>annulated</i>	8  <i>Rhizome</i>
9  <i>Runner</i>	10  <i>Tunicated-bulb</i>	11  <i>articulated</i>	12  <i>opposite.</i>
14  <i>dichotomous</i>	15  <i>triangular</i>	18  <i>compressed</i>	21  <i>winged</i>
	16  <i>trigectrous</i>	19  <i>terete</i>	
	17  <i>trigonal</i>	20  <i>two-edged.</i>	
22  <i>conduplicate</i>	23  <i>involute</i>	24  <i>revolute</i>	25  <i>convolute</i>
26  <i>plicate</i>	27  <i>circinate</i>	28  <i>vahate</i>	29  <i>induplicate</i>



obovulate



equeitant



verticillate.



decussate.



imbricate.



twisted.



sessile.



perfoliate.



petiolate.



connate.



decurrent



amplexicaul



sheathing



imbricated.



distichous



fasciculate.



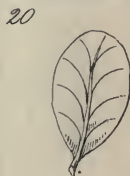
peltate.



subrotund.



ovate.



obovate.



oval.



oblong.



lanceolate.



linear.



subulate



spathulate



triangular



rhomboid



sagittate



reniform.



cordate.



obcordate.



hastate.



unequal.



auriculate.



truncate.



two-lobed



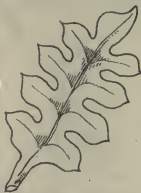
three-lobed



palmate



pedate.



pinnatifid



pectinate.

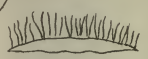
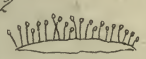


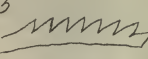
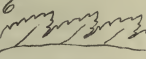

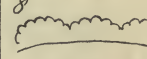

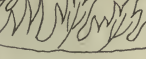









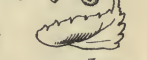
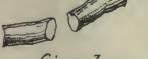
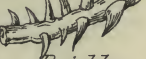
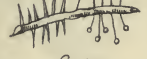
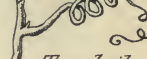
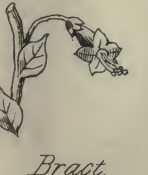



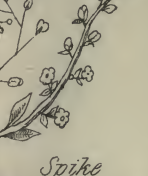


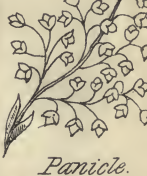


runcinate.



fiddle-shaped.

<p>1</p>  <p><i>lyrate.</i></p>	<p>2</p>  <p><i>sinuated.</i></p>	<p>3</p>  <p><i>articulated.</i></p>	<p>4</p>  <p><i>ternate</i></p>
<p>5</p>  <p><i>digitate.</i></p>	<p>6</p>  <p><i>pinnate.</i></p>	<p>7</p>  <p><i>paripinnate</i></p>	<p>8</p>  <p><i>bipinnate.</i></p>
<p>9</p>  <p><i>tripinnate.</i></p>	<p>10</p>  <p><i>decompound.</i></p>	<p>11</p>  <p><i>interruptedly pinnate.</i></p>	<p>12</p>  <p><i>biternate.</i></p>
<p>13</p>  <p><i>triternate.</i></p>	<p>14</p>  <p><i>binate.</i></p>	<p>15</p>  <p><i>Phyllodium</i></p>	<p>16</p>  <p><i>Pitcher</i></p>
<p>17</p>  <p><i>Stipule.</i></p>	<p>18</p>  <p><i>Ochrea</i></p>	<p>19</p>  <p><i>Tendril.</i></p>	<p>20</p>  <p><i>Spines.</i></p>

1  <i>fimbriated</i>	2  <i>glandular</i>	3  <i>ciliated.</i>	4  <i>spiny.</i>
5  <i>serrate.</i>	6  <i>biserrate.</i>	7  <i>crenate</i>	8  <i>bicrenate.</i>
9  <i>dentate</i>	10  <i>laciniate.</i>	11  <i>acute.</i>	12  <i>acuminate.</i>
13  <i>retuse.</i>	14  <i>apiculate</i>	15  <i>bifid.</i>	16  <i>emarginate.</i>
17  <i>mucronate.</i>	18  <i>cuspidate.</i>	19  <i>tridentate</i>	20  <i>cirrhose.</i>
21  <i>fistulose</i>	22  <i>Prickles</i>	23  <i>Setae.</i>	24  <i>Tendrils.</i>
25 BRACTS  <i>Bract.</i>	26  <i>Spatha.</i>	27  <i>Involucre.</i>	28  <i>Involucre.</i>
INFLORESCENCE.			
29  <i>Spike</i>	30  <i>Raceme</i>	31  <i>Corymb</i>	32  <i>Panicle.</i>

1.

*Cymose*

2

*Umbel*

3

*Cyme*

4

*Capitulum.*

5

*Cone.*

6

*Spadix.*

7

*Syconus*

8

*Catkin.*

9

CALYX*regular*

10

*irregular*

11

*Cleft*

15

COROLLA*rotate*

12

*parted*

13

*truncate.*

14

*Epi-calyx*

16

*salver-shaped.*

17

*tubular.*

18

*urceolate*

19

*funnel-shaped*

20

*campanulate*

21

*ringent*

22

*personate*

23

*ligulate.*



irregular.



Butterfly-shaped



cruciform.



Pink-shaped.



Rose-shaped.



Petal



spurred



gibbous.



*Ash
naked-flower*



Willow



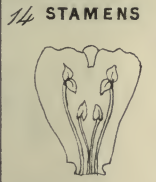
Perigynium



Spikelet.



Glumella.



Didynamous



Diadelphous



Polyadelphous.



Monadelphous



Pollinia.



terminal



lateral



basilar



apocarpous



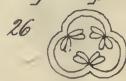
syncarpous.



free-central



axillary.



parietal.

1  <i>orthotropal.</i>	2  <i>anatropal</i>	3  <i>campylotropal</i>	4  <i>pendulous</i>
6  <i>suspended.</i>	7  <i>septifragal</i>	8  <i>loculicidal</i>	5  <i>ascending</i>
10  <i>Achæmium.</i>	11  <i>Cremocarp.</i>	12  <i>Caryopsis.</i>	9  <i>septicidal.</i>
14  <i>Drupa</i>	15  <i>Bacca.</i>	16  <i>Pomum</i>	13  <i>Glans</i>
18  <i>Legume</i>	19  <i>Samara</i>	20  <i>Siliqua Silicula</i>	17  <i>Follicle.</i>
22  <i>Pyxidium.</i>	23  <i>Embryo.</i>	24  <i>Arillode.</i>	21  <i>Capsule.</i>
			25  <i>ruminated albumen.</i>