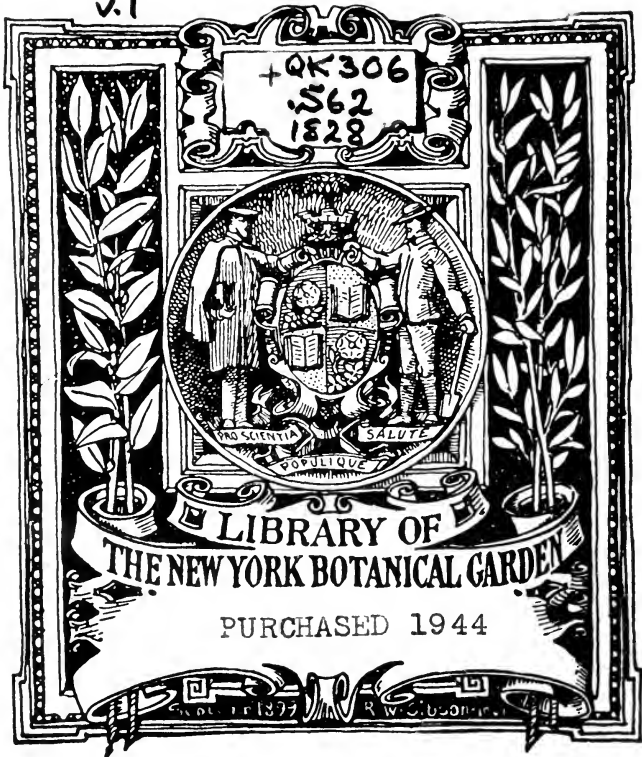


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THE
ENGLISH FLORA,

BY

SIR JAMES EDWARD SMITH, M.D. F.R.S.

MEMBER OF THE ACADEMIES OF
STOCKHOLM, UPSAL, TURIN, LISBON, PHILADELPHIA, NEW YORK, ETC. ETC.;
THE IMPERIAL ACAD. NATURÆ CURIOSORUM,
AND
THE ROYAL ACADEMY OF SCIENCES AT PARIS;
HONORARY MEMBER OF THE HORTICULTURAL SOCIETY OF LONDON;
AND
PRESIDENT OF THE LINNEAN SOCIETY.

“ Thus spring the living herbs, profusely wild,
O'er all the deep green earth;
With such a liberal hand has Nature flung
Their seeds abroad.”

THOMSON.

IN FOUR VOLUMES.
VOL. I.

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TO
SIR THOMAS GERY CULLUM, BART.,
FELLOW OF THE ROYAL, ANTIQUARIAN, LINNÆAN,
AND HORTICULTURAL SOCIETIES,
WHOSE KNOWLEDGE AND LOVE OF NATURAL SCIENCE
ENTITLE HIM TO THE RESPECT OF ALL
WHO FOLLOW THE SAME PURSUIT,
THIS WORK IS INSCRIBED,
IN GRATEFUL AND AFFECTIONATE REMEMBRANCE,
BY
THE AUTHOR.

P R E F A C E.

THE title of *Flora*, first used by Linders and Ruppianus, early in the eighteenth century, to designate an account of the native plants of some particular country, has become popular in the Linnæan school of Botany, and is now universally adopted. Books bearing this title are almost innumerable, while their scope and their merits are equally various. Some are little more than catalogues of names ; others are elaborate histories of the vegetable productions of particular districts, more or less extensive ; and many are illustrated with figures of the several species, or at least of those requiring particular elucidation. The utility of such publications has been much controverted ; but it depends, like that of other works, on the excellence of their plan and execution. A mere list of the plants of any country, if accurate and complete, has its appropriate value ; more especially when it contains the discriminative characters by which such plants may be ascertained. But a *Flora* may also be made a vehicle for the natural, medical, and economical history of a country, like the *Flora Lapponica* of Linnæus ; though such objects cannot with propriety enter into the plan of a *Flora* of any highly improved or well-known region. We now therefore expect, under this title, a work

chiefly confined to botanical illustration and description, with such remarks concerning the properties of any particular plants as may be new or important; and possibly some philosophical views arising from the nature of the subject, tending to the general elucidation of botanical science. Such only are the pretensions of this *English Flora*, the particular aim and design of which, with respect to practical use, will hereafter be explained.

Before the author enters on this explanation, he proposes to take a general view of the works which have been published on the Botany of Great Britain; in order that the student, who will meet with perpetual references to these books in the following pages, may previously become acquainted with them, and with the characters of their authors. He may thus learn which of them may be dispensed with, in the prosecution of his own studies, and which are most likely to assist him, in any difficult or doubtful subject of inquiry. They will be noticed in a chronological order, to show the progress of Botany in this country, and how far each writer has been indebted to his predecessors. Some remarks of a similar nature, by the author of the present work, were laid before the Linnæan Society, five-and-twenty years ago, and are printed in the fourth volume of its *Transactions*. They were preparatory to the publication of his Latin *Flora Britannica*, and served as an introduction to a critical history of the genus *Bromus*, whose British species had previously been little understood.

Phytologia Britannica, by William How, M.D., printed at London in 1650, without the author's

name, claims attention as the first general catalogue of our native plants. This is a duodecimo volume of 133 pages. The species are disposed alphabetically, and amount to about 1250, including several exotic plants in general cultivation, with numerous varieties of such as are truly wild. The names of many are very erroneous, even among those most easily determined, and many are, doubtless, admitted on insufficient grounds. But, on the other hand, several rare and curious species are noticed, not without some entertaining and instructive remarks and anecdotes. The same author in 1655 edited Lobel's *Illustrationes*, a work not confined to British plants, and chiefly aimed at certain errors of Parkinson. Dr. How died in 1656, aged 37. His book was the foundation of the following.

Pinax Rerum Naturalium Britannicarum, by Christopher Merrett, M.D., an octavo of 223 pages, of which 165 are allotted to the Vegetable Kingdom, appeared in 1667. The number of plants mentioned in this work is not much greater than in the preceding; for though several species or varieties are added, several are unaccountably omitted. Its plan and arrangement are the same. Ray, in one of his letters, calls this publication "Dr. Merrett's blundering *Pinax*;" an expression which appears harsh, if we judge Merrett as an original author, because few naturalists, at the time he lived, could have been expected to succeed better in a first attempt. But when it is considered how much assistance he derived, not only from the above performance of Dr. How, but likewise from the local catalogues or Itineraries of Johnson, the Catalogue of Cambridge

plants published in 1660 by Ray, as well as from various botanical friends, all which he very handsomely acknowledges, we cannot but confess that his work might have been more abundant in matter, and more correct in execution. Dr. Merrett contributed little besides this publication to the advancement of natural history. He however became a Fellow of the Royal Society, when science was eminently requisite for the attainment of that honour, and died at the age of 81 in 1695.

The above-mentioned works, whatever might be their value or their defects, were superseded in 1670 by the great Ray's *Catalogus Plantarum Angliæ et Insularum adjacentium*, an octavo of 358 pages; of which a second edition, of only 311 pages, though enriched with about 46 additional plants, and numerous observations, as well as with two, not very important, plates, appeared in 1677. The arrangement of this work is alphabetical; but with respect to accuracy, and abundance of descriptive, critical and medical remarks, it has greatly the advantage of the performances of How and Merrett.

A small *Fasciculus* of new-discovered British plants, consisting of 27 pages, and intended as a supplement to this Catalogue, was published by Ray in 1688.

This was succeeded in 1690 by the first edition of the *Synopsis Methodica Stirpium Britannicarum* of the same author, in which the plants of Britain were first classed in scientific order, according to a system of his own; an explanation of which he had already given to the world in 1682, in a small octavo volume.

A second edition of Ray's *Synopsis*, considerably enlarged, appeared in 1696, consisting of 346 pages. As this is the most accurate and most valuable work of its immortal author, the foundation of every subsequent English Flora, and scarcely equalled in any age or country for correctness of practical observation, it cannot be too frequently studied by those who wish to trace the origin and progress of our indigenous Botany; to ascertain the *aborigines* of our Flora; to become acquainted with the persons who first cultivated this department of science, in England, and with the principal scenes which they have now rendered classical; as well as with the manner in which their studies were conducted, in the closet or the field. It will be observed that neither Ray nor any other writer, at this time, attempted uniformity of nomenclature, or any regular plan of definition. Each plant is mentioned under one or more descriptive appellations, taken from various books, being probably such as Ray himself judged most likely to give, collectively, a just idea of the species in question. Even Caspar Bauhin, who had published a universal synoptical work, as an index to all the botanical knowledge then extant, is not quoted uniformly. His names are generally indicated, but they do not take the lead. New species are introduced under original definitions; and indeed there are few of the old ones which the author has not elucidated by some remark, wherever he found occasion. The pages, or figures, of preceding authors are not indicated by Ray. This was soon afterwards practised by Tournefort, and is now become indispensable. Ray appears to have examined

every plant he admitted into his *Synopsis*, and to have gathered most of them with his own hands. He studied and determined their synonyms, compared their descriptions, and, tracing their natural affinities and characters, by the parts of fructification as well as by the general habit, he disposed the whole in systematic order. He was rarely deceived in the observation of nature, and was only occasionally misled, by the imperfect figures or descriptions of preceding writers. Above 100 species are added, in this edition, to the list of British plants.

The third edition of Ray's *Synopsis* was published in 1724, nineteen years after his death, by the celebrated Dillenius, a German botanist, brought into England by William Sherard, formerly British Consul at Smyrna, who by his will founded the Botanical Professorship at Oxford, and appointed Dillenius the first Professor. The editor modestly declined prefixing his own name to this book, as being a foreigner. In a letter to Dr. Richardson, printed in the *Linneæan Correspondence**, vol. 2. 130, he acknowledges his obligations to that gentleman and to Consul Sherard, as having principally contributed to the perfection of this publication; and in the work itself he every where commemorates those who have given him particular assistance, especially with regard to the native stations of the rarer species. Twenty-four plates, drawn and engraved by the editor, are added to this edition, which is the only

* A Selection of the Correspondence of Linnæus, and other naturalists, from the original manuscripts. By Sir J. E. Smith, M.D. F.R.S. P.L.S., in two volumes, octavo, London, 1821.

one in general use, being always referred to by Linnæus, and quoted throughout by Hudson, and most subsequent writers upon British plants; particularly in the *Flora Britannica* and *English Botany*, as well as in every page of the present work. Dillenius has, very properly, distinguished all his own additions to the *Synopsis*, by marking his new species with an asterisk, and inclosing his remarks between brackets. This ought to be kept in mind, for the perfect understanding of the work; and yet we not unfrequently find his observations, and even his figures, criticized, as coming from Ray. The changes made in the synonyms of this edition are unfortunately not marked; and as they are often erroneous, those botanists who are studious of truth and precision must have recourse to the edition of 1696. Dillenius has indeed added several plants on insufficient grounds, either as species or natives, some of them being under different denominations in the original work. Such mistakes, into which very able men may readily fall, have from time to time been corrected by following writers. The subject has now passed thrice under the inspection of the author of the present *English Flora*, not altogether surely without advantage, and yet certainly without being brought to perfection.

The third edition of Ray's *Synopsis* was long the standard book of English botanists, and its nomenclature, however imperfect, was in daily use. The system of this author, indeed, scarcely served for the technical examination of plants; nor was it often adverted to by those who, from long habit, preferred his names to the more concise ones of Linnæus.

But this was far from being the case with unshackled inquirers ; and those who were led to the study of Botany by the facility of the Linnæan system, could not proceed far without perceiving the superior simplicity and accuracy of nomenclature, as well as of definition, which pervaded all the works of the same author. A small party of ingenious and learned men at Norwich, as recorded in the seventh volume of the Linnæan Society's *Transactions*, p. 295, in correspondence with Mr. Hudson and his able friend Stillingfleet, entered, with awakened zeal and improved principles, upon the cultivation of this ancient field of natural science. Several naturalists of distinguished ability, in and about the metropolis, pursued the same path. Mr. Lee of Hammersmith, at the suggestion and with the assistance of the accomplished Lady Ann Monson, published, in 1760, his *Introduction to Botany*, in which the principles of the great Swedish teacher were first fully explained to the English student. In the same year Dr. Hill put forth his *Flora Britannica*, illustrated by a reimpression of the plates of Dillenius, and five additional ones of his own. The classification and generic characters of Linnæus are here adopted, but not his system of nomenclature, nor, with any regularity, his specific definitions. The body of the work is the third edition of Ray's *Synopsis*, almost in its original form. We cannot help wondering that Hill did not take advantage of an inaugural dissertation, published under the Presidency of Linnæus at Upsal, in 1754, bearing the title of *Flora Anglica*, in which the plants of the *Synopsis*, with a reference to its pages, are disposed according to the system

of Linnæus, under the names of his *Species Plantarum*, the obscure ones being thrown into an appendix. This dissertation, however incomplete, was the first Linnæan *Flora* of our country. It was doubtless consulted by Hudson, and his coadjutor Stillingfleet, in the far more perfect work of which I shall presently speak, and which became the universal text-book of British botanists.

Several attempts had been made, before the Linnæan system came into notice, to furnish the students of English plants with a systematic manual, in our native language; and these, though now obsolete, ought not to pass unnoticed.

Professor Martyn the elder, in 1732, accommodated Tournefort's History of plants growing about Paris, to the plants of Britain, in English, with many additions. Mr. John Wilson published at Newcastle, in 1744, a Synopsis of British plants in Mr. Ray's method. The authors of these performances were practical botanists, though their books rank but as compilations, and are now obsolete. Petiver illustrated Ray's *Synopsis* with a set of seventy-two folio plates, having twelve figures in each, with English names. These, though rude, would have been highly valuable, had they, in every instance, been drawn from native specimens; but being often copied from foreign books, whose figures, in several instances, were misapplied, even by Ray himself, the engravings of Petiver sometimes serve only to perpetuate error. They are however often cited with advantage when original, and will be found, in the sequel of this work, to throw light upon many a difficult question.

The *Flora Anglica*, by Mr. William Hudson, F.R.S.,

an apothecary in Panton-street, Haymarket, published in 1762, marks the establishment of Linnæan principles of Botany in England, and their application to practical use. With this book in his hand, any one conversant with the Latin language, and with the first rudiments of systematic knowledge, might reduce a wild plant to its class, order, genus and species. By turning to the books indicated under each species, he would become acquainted with every thing relating to its characters, history, or properties, and might confirm his own determination of the plants, by the figures and descriptions of former writers. This is the use of a systematic arrangement, and therefore the more clear and easy it is the better. Hudson's work became extremely popular, and rose in process of time to near twenty times its original price. A second edition appeared in 1778, in two volumes, with many additions, and various alterations, especially among the Grasses, Mr. Hudson having pursued a train of experiments upon the different species or varieties of this family by cultivation. But his alterations are certainly not all for the better. His synonyms are often faulty, particularly those of foreign authors, from a practice, not thought reprehensible in his time, of transcribing them from other books, without examination. This is proved by various errors in the names or pages cited; and Linnæus, in whom Hudson and others have chiefly confided, is more faulty in such matters than most writers; for he often left the transcription of his synonyms to his pupils, after having written his own names in the margins of the books to be quoted.

The Rev. Mr. Lightfoot's *Flora Scotica*, in two

volumes, written in English, with a few indifferent plates, was published the year before the second edition of the *Flora Anglica*, and is a useful companion to that work. But if Hudson be censurable for blindly copying synonyms, what shall we say of Lightfoot? He translated entire descriptions from foreign writers, without any indication of the sources from whence they were borrowed, and many of them are now known to belong to different plants from ours, so that the student is led into a labyrinth of error, from which he has no means of extricating himself, nor indeed of knowing when he is in the right path.

The first edition of Hudson having become so very scarce, a Latin *Flora Anglica*, on a more compendious plan, was begun in 1774, by the present Sir Thomas Gery Cullum, Bart. But this work was suppressed on the appearance of the second edition, and goes no further than the genus *Daucus*, a few copies only having been distributed gratuitously by the highly estimable author amongst his friends.

An English work translated from the full generic, and essential specific, characters of Linnæus, as far as regards British plants, exclusive of Grasses, Trees, and all the *Cryptogamia*, except Ferns, was published at Kendal in 1775, by Mr. James Jenkinson. This might serve to initiate young beginners, ignorant of Latin, into the Linnæan mode of description.

A far more complete and valuable work, in our native tongue, appeared in 1786, from the pen of the late William Withering, M.D., an eminent physician at Birmingham, under the title of "A Botanical Arrangement of all the Vegetables naturally

growing in Great Britain." Of this a second edition, greatly improved, came forth in 1787, consisting, like the former, of two volumes. This edition is rendered peculiarly valuable by "a new set of references to figures," by Dr. Jonathan Stokes; who performed, with great judgment and accuracy, the laborious task of examining almost every figure, throughout the whole botanical library, which was referrible to any British plant, and of disposing citations of the whole in order, according to their comparative excellence. A third edition of Dr. Withering's work, greatly enlarged in its plan and execution, making four volumes, appeared in 1796. In this the classes with separated flowers, and the *Gynandria*, are, according to the scheme of Thunberg and others, abolished; an alteration which it would not become me to reject without giving my reasons, and these may be found in the *Introduction to Botany*, which the reader will of course peruse before he applies the present work to practical use. This edition of Withering, the last which its worthy author completed, is what I have always used, and the only one quoted in the ensuing pages. Two more editions with which I am not conversant, have been given to the world since his death.

The work of Dr. Withering was the only book, at the time of its publication, which could effectually serve a mere English reader, in the present advanced state of botanical knowledge, for the determination of British Plants. Its language is liable to little exception. The references to figures have, in the third edition, been revised and corrected, but not I believe by their original author Dr. Stokes. Num-

rous places of growth, of the less common plants, have been added, and several new species introduced. I know but of one essential fault in the original plan of this work, and that is much lessened in the third edition; the compilation of descriptions from foreign authors, which do not always belong to our plants. Nevertheless, as Dr. Withering invariably mentions the sources from whence he has borrowed, no reader can necessarily be misled.

An English book, to the language of which I have always been partial, is the “*Outlines of the Natural History of Great Britain and Ireland, by John Berkenhout, M.D.*,” published in 1770, in three volumes, the second comprehending the Vegetable Kingdom. It is without synonyms, but the short characters are clear and expressive. This work, however, is superseded by Withering’s. A second edition, under the title of a *Synopsis*, in two volumes, appeared in 1789.

It is scarcely necessary to mention Stephen Robson’s *British Flora*, printed at York in 1777, with three plates; the *Enchiridion Botanicum*, a concise Latin work of a similar aim, published by Arthur Broughton, M.D., at London in 1782; or the “*Plates of the Indigenous Plants of Great Britain*,” chiefly outlines and many of them diminished, given to the publick, at a very cheap rate, by Mr. John Walcot of Bath in 1778. The last publication was discontinued after *tab.* 168, and the two former have never been very popular.

A great work, illustrative of British plants, but, as Mr. Dryander has observed, “more splendid than useful,” in twelve quarto volumes, with numerous

coloured plates, was printed, I know not precisely at what period, by John Earl of Bute, a nobleman greatly devoted to botanical studies, some of whose letters to the late Mr. Peter Collinson may be seen in the "Linnæan Correspondence" above mentioned, vol. i. 26—36. His Lordship's book being intended for the use of his particular friends only, chiefly ladies, no more than twelve copies were printed, and it therefore can hardly be thought a just subject of criticism. Apelles remarked that an ordinary artist could more readily paint Helen rich than handsome; so it is easier to make a rare book than a good one.

Various partial, or local, Floras have at different times appeared in Britain, from the first promulgation of the Linnæan system to the present day. These it is not necessary to particularize here. They will be occasionally referred to in the body of the work, and their titles are given in the List of Authors at the end of this Preface.

One great national work however, by its title of *Flora Londinensis* limited to the neighbourhood of the metropolis, must nevertheless here be noticed; for though not yet completed, it has admitted the vegetable productions of several remote parts of Britain. Its author, the late Mr. William Curtis, has been extensively known by his popular and very useful Botanical Magazine. But the *Flora Londinensis*, a work of great practical observation and experience, ranks, as I have elsewhere observed*, "independent of its excellent figures, next

* Tr. of Linn. Soc. vol. iv. 280.

to Ray's *Synopsis*, in original merit and authority upon English plants." It is now continued, with great ability, by Professor Hooker of Glasgow.

In the year 1790 the late Mr. James Sowerby, an eminent botanical draughtsman and a faithful observer of nature, requested my assistance in publishing coloured figures of British plants. I readily undertook the letter-press of this work, and it came out in monthly numbers, under the title of *English Botany*. My name at first did not appear; but finding the book a fit vehicle for original information and criticism, I publickly acknowledged it by a preface to the fourth volume in 1795, and the title-page of every succeeding volume declares its real author. This publication, from which the *Fungi* are excluded, has now extended to 36 volumes, and has been closed, for the present, by general indexes to the whole. It approaches nearer to a complete set of figures of the native plants, than ever appeared in this or any country. The plates amount to 2592, and it is but just to the memory of the excellent and lamented artist, to say, that they are, on the whole, the most expressive and accurate of their kind. In the account of each species, besides corrected characters, synonyms and descriptions, I have frequently introduced whatever might recommend the study of plants, diffuse a charm over the more dry and technical parts of the subject, improve our scientific language, or direct the contemplative mind to more important and exalted views of its Creator's works. The *English Botany* has had an extensive sale, and I trust it has very widely promoted a love of plants, and a taste for correct and scientific botany. Some-

times I have doubted whether these ends have been so fully answered as its partial author might expect ; and whether the great facility with which a trivial and superficial knowledge of plants is now gained, by turning over books of coloured figures, may not be injurious to true science. The flippancy with which every body quotes "Sowerby," whom they know merely as the delineator of these plates, without adverting to the information of the work, or the name of its author, leads me to the mortifying conclusion, that all I have done is of little avail, except to the penetrating eyes of the scientific few, who stand less in need of such assistance. But with their approbation I am conscious I ought to be content.

The acquisition of the Linnæan herbarium soon discovered to the botanists of England that many of our native plants had hitherto been mistaken, and that the nomenclature of our whole Flora stood in need of revision. Hence I was led to undertake a Latin *Flora Britannica*, of which two volumes were published in 1800, and a third in 1804. This last concludes with the *Musci*, the rest of the cryptogamic orders remaining as yet unfinished. The chief merit to which this work aspires is originality. The author has examined every thing for himself, copying nothing without investigation. Every generic and specific character has been scrutinized, and, where necessary, corrected ; and the descriptions are all made from wild British specimens. Any borrowed fact or information is invariably acknowledged. The *Flora Britannica* has been favourably received, both at home and abroad. It was reprinted, word for word, by Dr. Römer at

Zurich, and a great German critic has been pleased to reckon it inferior only to the *Flora Germanica* of Schrader. The author cannot but wish so high a compliment were better deserved. The *Compendium Floræ Britannicæ* is an epitome of this work, containing the specific characters entire, with a few additional remarks. This has been reprinted, and accommodated to the German Flora, by Professor Hoffmann, at Gottingen; and the late Mr. Galpine published an English translation, at Salisbury, in 1806.

Dr. Hull of Manchester has furnished the English student with a British Flora in his native language, of which there are two editions.

Notwithstanding all these publications upon British Plants, the want of a more complete and authentic work in English, unexceptionable in phraseology, has been generally felt and acknowledged; insomuch that various applications have, from time to time, been made to me, for permission to translate the *Flora Britannica*, or to compile an English work from that and the English Botany; for it has been observed by some persons that "a British Flora can in future be no more than a compilation." Such projects, and such views of the subject, made me sensible of the necessity of my undertaking an *English Flora*; and since this intention has been announced, the calls for its accomplishment have multiplied, so that I find myself under an obligation to make, at least, a beginning, by publishing two volumes in the first place, and proceeding immediately with the remainder.

Having now, for more than thirty years, had the

botany of my native country perpetually under consideration in the progress of the *English Botany* and *Flora Britannica*; and this same subject having engaged the attention of numerous coadjutors, especially among those members of the Linnæan Society who have contributed to enrich its Transactions; I am aware of so great a progress in our general stock of knowledge, that a Flora of Britain, far from being necessarily a compilation, or a translation, must now be a new and original work. The books just mentioned may, indeed, form the basis of such an undertaking; but the science of Botany, through their means, has been progressive in an eminent degree, for twenty years past, and the accession of new-discovered species will be found no less considerable in that space of time, than the elucidation of those previously known. Two natural orders of plants in particular occur, in the present volumes, under entirely new points of view; the Linnæan *Calamariæ*, chiefly comprehended in the *Triandria Monogynia*, and the *Umbellatæ* in *Pentandria Digynia*. The genera of the former had never been well defined, till Mr. Brown, in his *Prodromus* of the Flora of New Holland, undertook this difficult task. His labours have generally been my guide, and I have ventured to differ from this great botanist chiefly in one particular. He admits, as an essential generic distinction, the absence or presence of certain bristles under the seed in the *Calamariæ*. The observation of nature, in several instances, but especially in *Scirpus caricinus* and *rufus*, pp. 58, 59, has taught me, beyond a doubt, that such bristles ought to have no place in the generic characters, though they here distin-

guish two very difficult species. I have also been obliged to correct a few mistakes of my learned friend Dr. Schrader, and of other distinguished writers, concerning these plants, and their near allies the Grasses; all which I submit, with due deference, to the reconsideration of the parties concerned. In the order of *Umbellatæ* considerable indulgence may be requisite, as my performance is almost entirely novel. No reason has been given for taking the *inflorescence* and *bracteas* into consideration, for defining the genera of this tribe, except the supposed necessity of such a measure. Several botanists have blamed Linnæus for this dereliction of his own principles, and have run into a contrary error, by fixing on the *seeds* alone for generic characters. The able Professor Sprengel has had recourse to the *seeds*, but he still adverts to the *bracteas*. Professor Hoffmann has adhered to the old principles, with many minute details. By a full investigation of all the organs of fructification, and by distinguishing the tumid bases of the *styles* from the *floral receptacle*, things hitherto confounded, I have characterized the Umbelliferous plants like the rest, by the parts of the *flower* and *fruit* alone. In doing this I have kept the exotic species in view, of which the Linnæan collection, and those of many botanists of Switzerland, with the Greek herbarium of my lamented friend Professor Sibthorp, have furnished me with almost all that are known. The principles I have adopted prove amply sufficient, being no other than those by which Linnæus was on the whole so successful, though he deserted them in the arrangement of the

tribe in question. But what affords me most satisfaction is, that I am thus enabled to keep entire almost all his own genera. He had in reality founded them by that penetrating insight into natural genera, for which he was so eminent; but he was always labouring, according to his ideas derived from the *umbels*, and *involuerums* as he called the *bracteas*, to make "the genus give a character," and this labour was often in vain. Parts that vary in the same individual species, and differ in those most closely related, can obviously never prove a safe foundation for generic distinctions. Yet prepossession often stands in the way of truth. It appears from the letters of Cusson, who devoted all his time to the study of this tribe, that he just began, towards the end of his labours, to think the *floral receptacle*, meaning principally the bases of the *styles*, had not been sufficiently attended to; but he had not resolution to begin his task anew. If what I have done should excite the attention of competent judges, I hope succeeding botanists will improve upon this attempt; for all who have looked at Umbelliferous plants, must be aware of the necessity of their better definition. When studied upon fixed principles, they will be found well worthy of attention, and not less instructive or curious than more gaudy flowers.

I must now particularly explain what I have had in view in the general plan and execution of the following work.

The reader is requested to consider that the first object of this *English Flora* is botanical discrimination; by which I mean, not only the furnishing English readers with means for the easy and accu-

rate determination of our species of native plants, but also to inculcate and exemplify principles capable of more extensive application. I wish to lead young botanists to the study of genera and species, with their true grounds of distinction and definition. Those who may take the trouble accurately to follow me, will find I have given my whole attention to these objects. I have also, for the first time in a general British Flora, introduced the Natural Orders of our plants, and have under each genus subjoined a compendious view of its natural habit, characters and qualities, after the manner first attempted by Gouan, and carried to perfection in the *Systema* of DeCandolle, a prodigy of knowledge and labour, and the greatest work of practical Botany that this age, or perhaps any other, has produced. But I have offered no natural arrangement of the British plants. A Flora can afford but a broken and partial view of a Natural System, nor can such a system answer the first purpose of a Flora, which is to enable unpractised students to investigate and determine unknown plants. Those English botanists who wish to become acquainted with the dependence of the natural orders on each other, as exemplified in the system of Jussieu, will find all they can desire in my *Grammar of Botany*, chiefly designed for that purpose. The Artificial System of Linnæus, equally applicable to any Flora or catalogue of plants, is used in the present work; that any botanist, by reducing a plant to its class and order, according to the perspicuous and easy rules of that system, may next compare it with the short essential characters of the genera, at the head of each class,

which genera are there artificially disposed according to those characters. Having determined the genus, he will then find it, amongst its allies, duly numbered, in the body of the work, where its full characters, with all needful observations, and references to figures of the fructification, are given; the natural order, according to Linnæus, Jussieu, or others, being indicated. For the history of the natural order, and a view of the other genera belonging to it, the student may then turn to the Grammar. Having become acquainted with what relates to the genus of his plant, he will next compare his specimen with all the specific characters under that genus, till he ascertains its species, and confirms his determination of its name by reading the particular description, and consulting as many of the synonyms, or authors quoted, as he may have within his reach; thus finally becoming acquainted with all that is recorded concerning the plant he has gathered.

With respect to the last mode of inquiry, I would recommend a young botanist to be very sparing, till he has settled his mind, respecting the species before him, by its characters alone. Those who are employed in instructing others, will find an advantage in keeping the attention of their pupils to characters and definitions. By this their powers of observation and discrimination will be strengthened. They will know why they apply such a name to each particular plant, and I know by experience that species thus investigated are never forgotten. The memory of the student may further be assisted by drying and preserving competent specimens, not mutilated fragments, of all his plants; which will

gradually form a valuable memorial of his labours, and a storehouse of pleasing recollections and associations. I have long ago observed, that “a plant gathered in a celebrated or delightful spot, is, like the hair of a friend, more dear to memory than even a portrait; because it excites the imagination, without presuming to fill it;” nor do I find such sentiments at all impaired by advancing age.

In the language of the present work, freed from all exceptionable allusions, I have chiefly aimed at writing common sense in plain English. Hard words have never taught wisdom, nor does truth require them. The few unavoidable technical expressions must be familiar to those who have read any introductory book, especially the *Introduction to Botany* and *Grammar*, or may be readily understood by a reference to such publications. In doubtful cases I have taken Johnson’s Dictionary for authority; but wherever a pure English word could be found, I have preferred it, as well as English terminations and construction. Happy should I be to lend any assistance to the improvement and establishment of our botanical language, or to remove from it the charges of inelegance and obscurity. Late writers have, from diffidence or inattention, not much furthered this object. I hope following ones will not overlook it, but concur with me where they find me in the right, and improve upon me where they see occasion; altering nothing for the sake of alteration, either in characters or language; such emendations, however easy, being extremely inconvenient. It is scarcely necessary to remark that *smooth*, as opposed to all hairiness and roughness,

is preferable to *glabrous*, though the latter is nearer the Latin; while *even* expresses a freedom from all inequality. The former answers exactly to the Latin *glaber*, the latter to *lævis*. *Heartshaped* is full as intelligible as *cordate*; *furrowed* is surely preferable to *sulcate*, and *triangular* to *triquetrous*. When, as in the last instance, a purely Latin word is become familiar English, it is certainly not the worse on that account. *Uniform*, *universal*, and many others, are now completely naturalized, and may justify *unilateral* as a translation, now first attempted, of *secundus*; and which is at any rate better than *secund*. The Latin has furnished us with numerous words, in common use, beginning with *ob*; and therefore *obovate* may be admitted, as more commodious than *inversely ovate*, and by this time equally intelligible. Still I prefer the English construction of *ovate-lanceolate* to the half Latin *ovato-lanceolate*. According to these examples the reader will judge of the rest. He will find in my introductory publications explanations of every useful or necessary term, perhaps of many more; though in general those which pedantry and affectation have contrived, without necessity, are purposely omitted in those works, and I hope never used in the present volumes.

The synonyms, or references to authors, given in the *Flora Britannica*, have here received considerable augmentation, as well as correction. Every one has been carefully revised; and where the same specific names as mine are used, it has been thought best not to encumber these pages with citations of every provincial or local Flora throughout; though

where our nomenclature differs, such difference is generally marked. Neither have I been desirous of assembling together every particular place of growth of the less common species. I have noted where the rarer ones are to be found, but principally when I have verified the fact by my own examination, or by seeing specimens. Common report is little to be trusted; and the English student, if desirous to know all that has been recorded upon this subject, may amply satisfy his curiosity with the *Botanist's Guide* of Turner and Dillwyn, a work whose sole object is to assist the travelling botanist in his inquiries. Many readers may think a regular indication of the Scottish plants desirable; and therefore, though Lightfoot's *Flora Scotica* is not quoted throughout, in my Latin work, I have here cited that of my friend Professor Hooker completely. The valuable *Midland Flora* of Mr. Purton, an assiduous and faithful observer, will be found worthy of frequent consultation. The general uniformity of our nomenclature and arrangement will render this work easy of access to the readers of mine, and in several places I have pointed out my obligations to its worthy author.

The room gained by omitting superfluous references has allowed of more copious citations of the old writers and their expressive cuts, as well as of many valuable modern synonyms. Old books have been too much neglected by new writers, though a student may derive great pleasure, and considerable information, by an introduction to them. I have considered it as an imperative duty to examine every synonym herein adopted, marking as quotations, be-

tween inverted commas, the few which I could not consult. I cannot too often insist on the mischief of copying synonyms from other books. The value of synonyms consists entirely in their collector being answerable for their exactness; by which he enriches his own work with the accumulated treasures of the botanical library, as far as his readers think proper to follow up the pursuit. But if he blindly transcribes them, such surreptitious references are sure to be soon discovered, by the frequent errors of the press, respecting pages or figures, which occur in most books. At a single discovery of this kind, all our respect and confidence vanish; for we know not that every thing else of the same nature is not equally fallacious; and an author who has appeared very learned and deeply read, proves a copyist of the very lowest rank, decked out with imposing but borrowed feathers. M. DeCandolle, that great practical as well as learned botanist, has not only examined critically his immense store of synonyms, but has subjoined a mark of admiration, whenever he has seen the original specimen of any author. He disposes his references chronologically, which, in a general system, has many advantages. I have followed no precise method in the arrangement of mine, except that the Linnæan and other systematic ones stand first, as agreeing mostly with the names I have adopted; and those which are most certain or important generally take the lead. I have taken great pains, from original authorities, to determine all those of Haller. The older writers are ranged according to the goodness of their figures, the value or certainty of their information, or perhaps accord-

ing to the order in which I am in the habit of consulting them, which has arisen from long practice, those which I have found most useful naturally offering themselves first to my attention. By their being generally in the same order, the reader will know where to look for each. Ray's *Synopsis* is necessarily in an English Flora, regularly quoted throughout; as likewise is much of Gerarde's Herbal by Johnson; and the noble wooden cuts of Matthioli, published by Valgrisius at Venice. But the bulk of the old herbalists, whether English or foreign, have been used merely for occasional reference, when they seemed likely to be serviceable, or when their figures appeared peculiarly good.

In the indexes I have spared neither time nor labour. An author may fail in judgment or knowledge, and for this fallibility he is entitled to indulgence; but an index requires nothing more than such a degree of care and attention as his readers have a right, on their part, to expect from him.

If those who take my various publications for their botanical guides, have half the pleasure in using these books, that I have had in composing them, I need scarcely wish them more. Innocent amusement, inducing a change of ideas, is wholesome for the mind, like air and exercise for the body. On this ground alone Botany may well be recommended; nor shall I repeat here those higher views of its importance as a science, which may be found in the preface to my *Introduction*, or in my pamphlets on the subject of the Cambridge Botanical Professorship. On those occasions it was necessary to explain, to the uninformed, the aims and pretensions

of the science about to be taught; but in the present instance I must presume that those who look to my book for information, need no persuasion to the pursuit itself, nor any recommendation of Botany, or of the study of Nature. Neither am I disposed to contend here for the superiority of these pursuits over others. A man who looks no further than the narrow bounds of his own profession or science, is sometimes inclined to depreciate those of other people, especially if any worldly advantage be concerned. Some studies seem to contract the mind; but such is not the character of natural science, which enlarges the understanding by a perpetual display of the power and wisdom of God, and encourages our best hopes by sure testimonies of his goodness. He who feeds the sparrows, and clothes the golden lily of the fields in a splendour beyond that of Solomon himself, invites us, his rational creatures, to confide in his promises of Eternal Life. The simplest blade of grass, and the grain of corn to which "he gives its own body," are sufficient to convince us that our trust cannot be in vain. Let those who hope to inherit these promises, and those who love science for its own sake, cherish the same benevolent dispositions. Envy and rivalry in one case are no less censurable, than bigotry and uncharitableness in the other. The former are as incompatible with the love of Nature, as the latter with the love of God; and they altogether unfit us for the enjoyment of happiness here or hereafter.

NORWICH,
December 2, 1823.

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ENGLISH FLORA.

Class I. MONANDRIA. *Stamen 1.*

Order I. MONOGYNIA. Pistil 1.

* *Seed one.*

1. SALICORNIA. *Calyx* tumid, undivided. *Corolla* none. *Stam.* 1 or 2. *Seed* invested with the calyx.
2. HIPPURIS. *Cal.* a slight border. *Cor.* none. *Seed* inferior, naked. *Stigma* 1.
3. ZOSTERA. *Fl.* aggregate. *Spadix* flat, many-flowered. *Drupa.* *Nut* with one kernel. *Stigmas* 2.

See *Valeriana* 1. *Alchemilla* 3.

** *Seeds several.*

4. CHARA. *Berry* with many seeds. *Style* none.
See *Salix* occasionally.

Order II. DIGYNIA. Pistils 2.

5. CALLITRICHE. *Cal.* none. *Petals* 2, inferior.
Seeds 4, naked, compressed. Some flowers separated.

MONANDRIA MONOGYNIA.

1. SALICORNIA. Jointed-glasswort.

Linn. Gen. 5. *Juss.* 86. *Fl. Br.* 2. *Br. Pr.* 410. *Tourn.* t. 485.
Lamarck t. 4.

Nat. Ord. Holeraceæ. *Linn.* 12. *Atriplices.* *Juss.* 29. *Che-
nopodeæ.* *Br. Pr.* 405. See *Grammar* 91.

Cal. inferior, of one leaf, undivided, succulent, tumid, un-
equal, permanent. *Cor.* none. *Filam.* 1 or 2, promi-
nent. *Anth.* two-lobed, erect. *Germe*n ovate, beneath
the stam. *Style* short and thick. *Stigma* in two or more
segments. *Seed* ovate, imbedded in the calyx, with a
membranous tunic.

Branched, jointed, succulent, smooth, leafless. *Fl.* in joint-
ed, terminal spikes, aggregate, inconspicuous. *Anth.*
large, yellow. *Stigmas* acute, various.

1. *S. herbacea.* Common Jointed-glasswort. Marsh Sampire.

Stem herbaceous, erect; joints compressed, notched; inter-
stices inversely conical. Spikes tapering upward.

S. herbacea. *Linn. Sp. Pl.* 5. *Willd.* v. 1. 23. *Vahl Enum.*
v. 1. 9. *Fl. Br.* 2. var. 1. *Fl. Dan.* t. 303. *Hook. Scot.* 1.

S. europæa α. *Huds.* 1.

S. annua. *Engl. Bot.* v. 6. t. 415. *Bast. Opusc.* v. 2. 105. t. 10.

Salicornia. *Raii Syn.* 136.

S. sive Kali geniculatum. *Ger. Em.* 535.f. *Lob. Ic.* v. 1. 395.f.

On muddy sea shores, overflowed by the tide, frequent.

Annual. *August, September.*

Root fibrous, small. *Stem* bushy, green, a foot high, with opposite
branches, tapering at their base, more or less subdivided, espe-
cially the first pair; abounding in salt juice; woody centre very
tough. *Spikes* of numerous short joints, each joint crowned with
about three sessile flowers at each side. *Stam.* 1. *Stigm.* 2 or 3.

Often pickled, as a substitute for the very different, strongly aro-
matic, Rock Sampire, *Crithmum maritimum.*

2. *S. procumbens.* Procumbent Jointed-glasswort.

Stem herbaceous, procumbent; interstices inversely conical;
branches simple. Spikes tapering upward. Stamens two.

S. procumbens. *Comp.* 1. *Engl. Bot.* v. 35. t. 2475.

S. herbacea. *Ehrh. Beitr.* v. 7. 178.

Common in salt marshes, that are frequently inundated.

Annual. *August*.

A span long, branched from the base; interstices obtusely quadrangular. *Stam.* always 2, one earlier than the other. *Stigma* with many irregular notches.

3. *S. radicans*. Creeping Jointed-glasswort.

Stem woody; procumbent and taking root at the base. Joints compressed, notched; interstices somewhat cylindrical. Spikes oblong. Stamens two.

S. radicans. *Comp.* 1. *Engl. Bot.* v. 24. t. 1691. *Hook. Scot.* 1.

S. herbacea β. *Fl. Br.* 2.

S. europæa β. *Huds.* 1.

S. erecta, foliis brevibus, cupressiformis. *Dill. in Raii Syn.* 137.

Woody jointed glasswort. *Petiv. H. Br.* t. 9. f. 4.

On muddy sea shores.

At Holme, Norfolk. *Rev. Dr. Sutton.* On the Sussex coast.

Mr. Borrer. Near Montrose. *Mr. D. Don.*

Perennial. *September*.

Lower part of the stem woody, slender, throwing out fibrous roots; upper erect, 6 or 8 inches high, with opposite, crossing branches, sometimes purplish, whose interstices are contracted just below the summit, and more slender than either of the foregoing. Spikes tumid, with short joints. *Stam.* always 2. *Stigma* in 2 or 3 deep segments.

4. *S. fruticosa*. Shrubby Jointed-glasswort.

Stem woody, ascending; joints and interstices cylindrical. Spikes nearly sessile, cylindrical, obtuse.

S. fruticosa. *Linn. Sp. Pl.* 5. *Willd.* v. 1. 24. *Vahl Enum.* v. 1. 11. *Fl. Br.* 1. 3.

S. europæa γ. *Huds.* 1.

Kali. *Camer. Epit.* 246. f.

K. geniculatum perenne fruticosius procumbens. *Raii Syn.* 136.

On the sea shore, very rare.

At Weymouth. *Mr. Yalden, in Mr. Lightfoot's herbarium.* In Shepey island. *Sir Hans Sloane.* Isle of Grain, in the Thames. *Dillenius. Herb. Sherard.*

Stem woody, with numerous branches, more slender and cylindrical throughout. Spikes small, short, and dense. *Stigm.* 2 only, deciduous. *Style* permanent, elongated after flowering. Possibly a variety of the last; though nobody, as yet, really knows any thing at all decisive of this question.

2. HIPPURIS. Mare's-tail.

Linn. Gen. 5. *Juss.* 18. *Fl. Br.* 4. *Lam.* t. 5. *Gærtn.* t. 84.

Nat. Ord. *Imundatae*. Linn. 15. *Naiades*. Juss. 6. Akin to *Haloragæa*. Br. Terr. Austr. 17. Very doubtful. "Most akin to *Myriophyllum*, and *Callitriche*." Br.

Cal. a border, scarcely discernible, crowning the oval *germen*. *Cor.* none. *Filam.* superior, produced as the *anther* ripens. *Anth.* of 2 round lobes; at first sessile. *Style* awl-shaped. *Stigma* simple, acute. *Seed* oval. Aquatic herbs. *Stem* simple, hollow. *Leaves* whorled. *Fl.* axillary, sessile, naked.

1. *H. vulgaris*. Common Mare's-tail.

Leaves linear, many in each whorl.

H. vulgaris. Linn. *Sp. Pl.* 6. Willd. *v.* 1. 26. *Vahl Enum.* *v.* 1. 13. *Fl. Br.* 4. *Engl. Bot.* *v.* 11. *t.* 763. *Curt. Lond. fasc.* 4. *t.* 1. *Hook. Scot.* 2. *Fl. Dan.* *t.* 87. *Bull. Fr.* *t.* 365. *Poit. et Turp. Par.* 1. *t.* 1.

Limnopeuce. *Raii Syn.* 136.

L. n. 1572. *Hall. Hist.* *v.* 2. 264.

Cauda equina fœmina. *Ger. Em.* 1114. *f.*

Polygonum fœmina. *Camer. Epit.* 689. *f.*

Equisetum palustre, linariæ scopariæ folio. *Bauh. Pin.* 15. *Prodr.* 24. *Dill. in Raii Syn.* 136.

In ditches, pools, and the borders of slow streams.

Perennial. *May, June.*

Root creeping. *Stem* a foot, or more, above the water, round, juicy, polished, reddish, with many whorls of spreading, linear, entire, smooth, single-ribbed *leaves*. *Fl.* small. *Anth.* red before it bursts.

The lower *leaves*, deep under water, are long, thick-set, pellucid, and pale; the herb in winter bearing no other. In this state it is noticed by Dillenius as a remarkable variety.

3. ZOSTERA. Grass-wrack.

Linn. Gen. 472. *Juss.* 24. *Fl. Br.* 7. *Sm. in Rees's Cycl.* *v.* 39. *Lam. t.* 737. *Gartn. t.* 19.

Nat. Ord. *Piperitæ*. Linn. 2. *Aroideæ*. Juss. 7. *Fluviales* of Richard. *Hook. Scot.* 192.

Cal. none, except an oblong sheath, formed of the base of the leaf, splitting lengthwise. *Cor.* none. *Spadix* linear, covered in front with many naked flowers. *Anther* cylindrical, tapering at each end, sessile, attached laterally, of 1 cell. *Pollen* mixed with branched fibres. *Germen* shaped and attached like the anther, and parallel to it. *Style* terminal, curved outwards, cylindrical. *Stigm.* 2,

thread-shaped, acute, curved. *Drupa* cylindrical, pointed, somewhat juicy. *Nut* 1, oval, striated. *Kernel* of the same shape, with 2 flattish, partially combined, *cotyledons*. *Embryo* central, cylindrical, curved. *Radicle* inferior, (that is, opposite to the scar of the seed). See Prof. Hooker's dissections in *Fl. Lond.* new series t. 35.

The two *cotyledons* seem to me to confirm the propriety of removing this genus from the *Aroideæ*; for this plant is surely as truly dicotyledonous as *Cyamus*. See Gærtner t. 19, *Nelumbo*.

Root creeping. *Herb* smooth, long and slender, floating under water. *Stem* roundish, branched, leafy; decumbent at the base, with tufts of fibrous radicles from each knot or joint. *Leaves* alternate, linear, flat, very long; their sheaths containing the *spadix*, and at length torn longitudinally, to let out the *seeds*.

Professor Hooker, following Schreber and Willdenow, removes this genus to *Monoecia*, because he observes the number of *anthers* and *pistils* not always to correspond; the former being sometimes about twice the most numerous. This may arise from occasional suppression of some *pistils*, often incident to plants of a simple structure, and indeed to all plants when the source of nourishment is weakened. I have found these two organs regularly corresponding in number, and placed respectively right and left alternately, as in *Engl. Bot.*, which is a strong indication of each *anther* and *pistil* making naturally one *flower*, and for this reason I persist in my original opinion, which has been adopted by Vahl.

1. *Z. marina*. Common Grass-wrack.

Leaves entire, obscurely three-ribbed. Stem slightly compressed.

Z. marina. Linn. *Sp. Pl.* 1374. *It. W. Goth.* 166. t. 4. Willd. v. 4. 179. Vahl *Enum.* v. 1. 14. *Fl. Br.* 7. *Engl. Bot.* v. 7. t. 467. Hook. *Lond.* t. 35. *Scot.* 259. *Fl. Dan.* t. 15. Tozzetti. *Cat. Mus.* 87. t. 3.

Alga. Raii *Syn.* 52, 53; the whole genus.

In creeks and ditches of salt water, or about the mouths of rivers. Perennial. *August, September*.

Variable in size. *Leaves* long, flaccid, obtuse, of a light green, bleaching very white on the shore. *Spadix* green, about 2 inches long, with 8 or 10 *anthers*, and as many *pistils*, closely applied to its flat surface. The plant is used for package; in poor countries for thatching, or bedding.

4. CHARA. Chara.

Linn. Gen. 567. *Juss.* 18. *Fl. Br.* 4. *Lam. t.* 742. *Gærtn. t.* 84. *Nat. Ord. Inundatae.* *Linn.* 15. *Naiades.* *Juss.* 6. *Characeæ.* *Hook. Scot.* p. 2. 108.

Cal. none. *Cor.* none. *Anth.* lateral, sessile, globose, tessellated, splitting into several portions. “*Pollen* mixed with spiral fibres.” *Hook.* *Germ.* ovate, spirally striated. *Style* none. *Stigma?* 5-toothed. *Berry* with many spherical seeds.

Aquatic herbs, smooth or prickly, with a cylindrical, subdivided, stem, and whorled, cylindrical, simple or compound, flowering branches; no real leaves. *Fl.* simple, naked, the anther and pistil mostly together, rarely on separate plants; so that the genus is not monoecious, though, in one or two instances, occasionally dioecious. The real nature of the fructification, or mode of impregnation, is very obscure.

1. *C. vulgaris.* Common Chara.

Striated, without prickles. Whorled branches tapering, with internal partitions. Bracteas four together.

C. vulgaris. *Linn. Sp. Pl.* 1624. *Willd. v.* 4. 183. *Fl. Br.* 5. *Engl. Bot. v.* 5. t. 336. *Hook. Scot. p.* 2. 109. *Hedw. Theor. t.* 32, 33.

C. vulgaris fœtida. *Vaill. Mem. de l'Ac. des Sc. for 1719. 17. t.* 3. f. 1. *Raii Syn.* 132.

C. n. 1681. *Hall. Hist. v.* 3. 4.

Equisetum fœtidum, sub aquâ repens. *Bauh. Pin.* 16. *Prodr.* 25. f. *Theatr.* 251. f. *Ger. Em.* 1115.

β. *Equiseti fœtidi*, sub aquis repentis, secunda species. *Preston in Raii Hist. v.* 3. 104.

In muddy stagnant ditches, common.

Annual? *July.*

Root fixed in the mud. *Herb* reaching near the surface, but always completely immersed. Main branches alternate; subordinate ones whorled, 6 or 8 in a whorl, taper-pointed, an inch long, or more, jointed internally with transverse partitions, and, towards the top of the stem, beset, on their upper side, with rows of erect, minute, awl-shaped bracteas, 4 together, in whose centre stands the pale, sessile, ovate, bluntly 5-toothed germen; and close to it, but at the outside of the bracteas, the sessile, pale reddish, slimy anther. Whole plant nauseously fetid, usually incrustated with earth, if any happens to be chemically dissolved in the water.

β. appears to be the same species, not incrustated.

2. *C. hispida*. Prickly Chara.

Furrowed. Whorled branches tapering, with internal partitions. Bracteas whorled. Prickles on the stem bristly, deflexed.

C. hispida. Linn. *Sp. Pl.* 1624. Willd. *v.* 4. 185. *Fl. Br.* 5. *Engl. Bot.* *v.* 7. *t.* 463. Hook. *Scot.* *p.* 2. 109. *Fl. Dan.* *t.* 154.

C. n. 1682. Hall. *Hist.* *v.* 3. 4.

C. major, caulibus spinosis. Vaill. *Mem. de l'Ac. des Sc. for 1719.* 18. *t.* 3. *f.* 3. Raii *Syn.* 132.

β. *C. major* subcinerea fragilis. Vaill. *ibid.* 18. Raii *Syn.* 132.

C. tomentosa. Huds. 398. Sibth. 2.

C. n. 1683. Hall. *Hist.* *v.* 3. 4.

Equisetum majus subcinereum, aquis immersum. Moris. *v.* 3. 621. *sect.* 15. *t.* 4. *f.* 9.

In ditches, pools, and clay-pits.

Annual. July, August.

Differs from the last chiefly in its prickly stem, and more numerous bracteas, which form whorls round the branches. It is often, in like manner, incrustated. β, in Bobart's herbarium at Oxford, bears prickles under the upper flowering-branches only, but has no other distinctive mark; nor is it *C. tomentosa* of Linnæus.

3. *C. flexilis*. Smooth Chara.

Smooth, transparent, without prickles. Whorled branches cylindrical, blunt, with a minute point, no internal partitions; some cloven. Bracteas none.

C. flexilis. Linn. *Sp. Pl.* 1624. Willd. *v.* 4. 187. *Fl. Br.* 6. *Engl. Bot.* *v.* 15. *t.* 1070. Hook. *Scot.* *p.* 2. 109.

C. n. 1684. Hall. *Hist.* *v.* 3. 4.

C. translucens minor flexilis. Vaill. *Mem. de l'Ac. des Sc. for 1719.* 18. *t.* 3. *f.* 9. Dill. in Raii *Syn.* 133.

C. inermis pellucida. Schmid. *Ic.* 53. *t.* 14.

In ditches, ponds, and rivers.

First observed by Buddle, in ponds at Henley, 4 miles north of Ipswich. Found since by Mr. D. Turner, near Yarmouth; the Rev. E. Williams, in Berrington pool, Shropshire; and the Rev. Dr. Abbot, in the river at Bedford.

Annual. April—August.

Slender, quite smooth, naked, green and pellucid. Whorled branches either undivided, forked, or three-cleft. *Anth.* at the forks of these branches, chiefly the upper ones, naked, solitary, dull red, with numerous minute cracks. *Germ.* either adjoining to the anther, sometimes in pairs; or in similar situations on a separate plant.

4. *C. translucens*. Great Transparent Chara.

Smooth, transparent, without prickles. Whorled branches simple, cylindrical, obtuse, with a small point, and transverse internal partitions; fertile ones axillary, compound, partly forked. Bracteas none.

C. translucens. *Engl. Bot.* v. 26. t. 1855. *Comp.* 2. *Hook. Scot.* p. 2. 109.

C. translucens major flexilis. *Vaill. Mem. de l'Ac. des Sc. for* 1719. 18. t. 3. f. 8.

In pools, rare.

Near Shrewsbury. *Rev. E. Williams*. At Browston, Suffolk. *Professor Hooker*. Found by Mr. Arnott, and Mr. D. Don, in various parts of Scotland. *Hook. Scot.*

Annual. *June, July*.

This is our largest species. Root creeping, of many branching slender fibres, with small knots. Whorled branches near two inches long, barren, all simple, spreading widely, furnished here and there with transverse, often oblique, internal partitions: fertile ones axillary, compound, tumid, ultimately forked, with a dotted *anther*, and one *germen*, occasionally two, at the division, without any proper *bracteas*.

5. *C. nidifica*. Proliferous Chara.

Smooth, transparent, without prickles. Whorled branches simple, elongated, without internal partitions; fertile ones axillary, compound. Bracteas unequal.

C. nidifica. *Fl. Dan.* t. 761. *Engl. Bot.* v. 24. t. 1703. *Comp.* 2.

In salt-water ditches.

At Shoreham harbour, Sussex, and near Cley, Norfolk. *Mr. Borrer*. Annual. *August—October*.

Firmer, and rather stouter, than *C. flexilis*, but much more slender than the last, and more divaricated than either. The axillary branches, which bear fructification, and rather numerous surround the main stem, within the long slender whorled branches, being themselves whorled and subdivided, cause the bushy or proliferous aspect, which at first sight marks this species. Three or four small, unequal, cylindrical *bracteas* accompany each flower, as in *C. vulgaris* and *hispida*. The *anther* is often stalked, especially, as it seems, when the plant is occasionally dioecious.

6. *C. gracilis*. Slender Shining Chara.

Smooth, transparent, shining, without prickles. Whorled branches acute, repeatedly forked; often fertile, as well as the axillary compound ones. Bracteas none.

C. gracilis. *Engl. Bot.* v. 30. t. 2140. *Comp.* 2.

C. n. 1684 β . *Hall. Hist.* v. 3. 4.

C. minor, caulibus et foliis tenuissimis. *Vaill. Mem. de l'Ac. des Sc.* for 1719. 18. n. 6. *Dill. in Raii Syn.* 133.

Equisetum minus, sub aquâ repens, ad genicula polyspermon. *Sher. in Raii Syn. ed.* 2. 43.

In ponds and boggy pools, rare.

In fish-ponds in Jersey. *Sherard*. St. Leonard's forest, Sussex. *Mr. Borrer*.

Annual. *September*.

Much smaller, as well as more delicate and compound, than any of the foregoing; when dry, glittering and glassy, almost colourless. Whorled *branches* very rarely simple; mostly forked or subdivided repeatedly, bearing the *flowers* in their forks. *Anth.* and *germ.* usually together, without *bracteas*. This species and *C. flexilis* first taught me to consider *Chara* as having no real *leaves*; what preceding writers have termed so, being in no respect different from the branches, in structure or economy, as they often bear the flowers.

In *Ray's Historia*, v. 3. 104, the present species is confounded with the naked state of *C. vulgaris*; and *Dillenius*, in his edition of the *Synopsis*, has fallen into the same error.



MONANDRIA DIGYNIA.

5. CALLITRICHE. Water-starwort.

Linn. Gen. 6. *Juss.* 19. *Fl. Br.* 8. *Lam.* t. 5. *Gertn.* t. 68.

Nat. Ord. *Imundatæ*. *Linn.* *Naiades*. *Juss.* 6. *Haloragææ*. *Br. Terr. Austr.* 17.

Akin, doubtless, to *Myriophyllum*, and to the exotic genus *Serpicula*; but there are too many anomalies and exceptions in the character, to allow us decidedly to refer *Callitriche* to any established Order. The above affinity will hardly induce me to give up the reputed *corolla* of this genus, though inferior.

Cal. none. *Petals* 2, oblong, incurved, acute, opposite, equal. *Filam.* capillary, gradually elongated. *Anth.* terminal, two-lobed. *Germ.* superior, four-lobed. *Styles* 2, capillary,

spreading, with acute *stigmas*. *Seeds* 4, naked, roundish, compressed, with a dilated margin.

Inundated or floating herbs. *Leaves* opposite, simple, entire. *Fl.* minute, axillary, white, often separated.

1. *C. verna*. Vernal Water-starwort.

Leaves triple-ribbed; the uppermost crowded, obovate. Margin of the seeds obtuse.

C. verna. *Linn. Sp. Pl.* 6. *Willd. v.* 1. 28. *Wahlenb. Lapp.* 2. *Fl. Dan. t.* 129. *Tozzetti Obs.* 7. *t.* 4. *f.* 18—22.

C. aquatica. *Huds.* 439. *Fl. Br.* 8. *Engl. Bot. v.* 11. *t.* 722. *Hook. Lond. t.* 127. *Scot.* 259.

Stellaria. *Raii Syn.* 289. *Dill. Giss. app.* 119. *t.* 6.

S. n. 553. *Hall. Hist. v.* 1. 238.

S. aquatica. *Lob. Ic. v.* 1. 792. *f.*

Alsine aquis inundans, foliis longiusculis. *Bauh. Hist. v.* 3. 777. 2. *f.* Water Star-wort. *Pet. H. Br. t.* 6. *f.* 3.

β . *C. aquatica* β . *Fl. Br.* 9. *Huds.* 439.

Callitriche Plinii. *Column. Ecphr. v.* 1. 315. *t.* 316.

Stellaria minor et repens. *Raii Syn.* 289.

S. n. 554. *Hall. Hist. v.* 1. 238.

In ditches, ponds, and slow streams, every where.

Annual. *April, May.*

Root of very long slender fibres. *Stem* thread-shaped, branched, leafy. Lower *leaves* distant, spatulate, or lanceolate; uppermost stalked, crowded into a starry form, floating on the surface, elliptical or obovate, with 3 ribs, channelled beneath, and united above the base. *Fl.* axillary, solitary, sessile, usually separated; one barren; the other in the bosom of the opposite leaf fertile; in other parts of the stem 2 barren or 2 fertile ones are neighbours. Yellow *anthers* conspicuous above the floating leaves. *Fruit* of 4 little, flat, thin, vertical, almost orbicular *seeds*. Dr. Targioni Tozzetti has always found the *stam.* and *pist.* in separate *flowers*.

2. *C. autumnalis*. Autumnal Water-starwort.

Leaves linear, abrupt, single-ribbed, uniform. Margin of the seeds membranous.

C. autumnalis. *Linn. Sp. Pl.* 6. *Willd. v.* 1. 29. *Wahlenb. Lapp.* 2.

C. aquatica γ . *Fl. Br.* 9. *Engl. Bot. v.* 11. 722. *Huds.* 440.

C. foliis oppositis oblongis, fructibus quadrifariam dehiscentibus. *Gmel. Sib. v.* 3. 13. *t.* 1. *f.* 2.

Stellaria aquatica, foliis longis tenuissimis. *Raii Syn.* 290.

S. n. 555. *Hall. Hist. v.* 1. 238.

Lenticula palustris angustifolia, folio in apice dissecto. *Loes. Pruss.* 140. *t.* 38.

Long Water Star-wort. *Pet. H. Br. t. 6. f. 4*; copied from Loesel. In clear pools and lakes.

Near London. *Petiver*, whose specimens were seen by Ray. In Clunie loch, Scotland. *Mr. Arthur Bruce*. In the outlet of Llyn Maelog, Anglesea, growing beneath the surface of the water, in July, 1825. *Mr. W. Wilson of Warrington*.

Annual. *June—October*.

The very accurate Dr. Wahlenberg's remarks, and specimens from my late worthy correspondent Mr. Bruce, prove the distinctness of this species. The *leaves* are more membranous and much more minutely cellular, of a rich, deep, permanent green; the uppermost, according to Loesel, crowded and floating, but all linear. *Fl.* according to Linn., united, not separated. Outer edges of the *seeds* very thin and membranous. Mr. Bruce's plant grew a foot below the surface.

Class II. DIANDRIA. *Stamens 2.*

Order 1. MONOGYNIA. *Pistil 1.*

* *Flowers inferior, monopetalous, regular.*

6. LIGUSTRUM. *Corolla 4-cleft. Berry with 4 seeds.*
7. FRAXINUS. *Cor. none, or deeply 4-cleft. Capsule compressed, with 1 or 2 seeds. Some flowers without stamens.*

** *Fl. inferior, monopet., irregular, with seed-vessels.*

9. VERONICA. *Cor. wheel-shaped, deeply 4-cleft. Caps. of 2 cells.*
10. PINGUICULA. *Cor. ringent, spurred. Caps. of 1 cell. Cal. 5-cleft.*
11. UTRICULARIA. *Cor. ringent, spurred. Caps. of 1 cell. Cal. of 2 leaves.*

*** *Fl. inf., monopet., irreg., with naked seeds.*

13. LYCOPUS. *Cor. nearly equal. Stamens distant, simple. Seeds abrupt.*
14. SALVIA. *Cor. ringent. Stam. with a lateral stalk.*

**** *Fl. superior.*

8. CIRCÆA. *Cor. of 2 petals. Cal. in 2 segments. Caps. of 2 cells. Seeds solitary.*

***** *Fl. apetalous, or with 4 petals.*

12. LEMNA. *Cor. none. Cal. of 1 leaf. Caps. with 1 seed.*
15. CLADIUM. *Cor. none. Glumes chaffy, sheathing; the outer ones empty. Drupa, without bristles at the base.*

Pet. 0. Salicornia 2, 3. Fraxinus 1. Schœnus 4. Carex.

Pet. 4. Lepidium 2. Senebiera 2.

Order II. DIGYNIA. *Pistils 2.*

16. ANTHOXANTHUM. *Cal. glume of 2 valves, 1-flowered. Cor. glume of 2 valves, awned. Seed 1.*

See Hierocle, n. 41.

DIANDRIA MONOGYNIA.

6. LIGUSTRUM. Privet.

Linn. Gen. 9. *Juss.* 106. *Fl. Br.* 12. *Tourn. t.* 367. *Lam. t.* 7. *Gærtn. t.* 92.

Nat. Ord. *Sepiariæ*. *Linn.* 44. *Jasmineæ*. *Juss.* 37. *Oleinaæ*. *Br. Pr.* 522. See *Grammar* 97. *N.* 7 the same.

Cal. inferior, tubular, with 4 upright teeth. *Cor.* of 1 petal, funnel-shaped, longer than the calyx; limb with 4 deep, ovate, spreading segments; valvular in the bud. *Stam.* opposite, alternate with the segments, in the mouth of the tube. *Germ.* superior, oval. *Style* short. *Stigma* thick, cloven. *Berry* of 2 cells. *Seeds* 2 in each cell, convex externally, angular at the inner margin.

Shrubby. *Branches* opposite, round. *Leaves* opposite, simple, entire. *Panicles* terminal, with opposite stalks. *Fl.* white. Next akin to Lilac.

1. *L. vulgare*. Common Privet, Print, or Prim-print.

Leaves elliptic-lanceolate, obtuse, with a small point.

L. vulgare. *Linn. Sp. Pl.* 10. *Willd. v.* 1.41. *Vahl Enum. v.* 1.35. *Fl. Br.* 12. *Engl. Bot. v.* 11. *t.* 764. *Curt. Lond. fasc.* 5. *t.* 1. *Hook. Scot.* 3. *Bull. Fr. t.* 295. *Poit. & Turp. Par.* 5. *t.* 4.

L. n. 530. *Hall. Hist. v.* 1.230.

Ligustrum. *Raii Syn.* 465. *Mill. Ic.* 108. *t.* 162. *f.* 2. *Matth. Valgr. v.* 1.154. *f.* *Camer. Epit.* 89. *f.* *Fuchs. Hist.* 480. *f.* *Ger. Em.* 1394. *f.*

In rather moist thickets and hedges, on a gravelly or chalky soil.

Shrub. *May, June.*

6 or 8 feet high, smooth, bitter. *Branches* straight, filled with pith; wood hard. *Buds* axillary, ovate, of a few opposite scales. *Leaves* on short stalks, imitating myrtle, but of a duller hue; almost evergreen in mild seasons, and not injured by smoke. *Panicles* many-flowered, dense, thrice-compound. *Flowers* strongly scented, white; brown before they fall. *Berries* globular, nauseous and very bitter, black; varying to yellow.

Useful for cut hedges in gardens.

7. FRAXINUS. Ash.

Linn. Gen. 550. *Juss.* 105. *Fl. Br.* 12. *Tourn. t.* 343. *Lam. t.* 858. *Gærtn. t.* 49.

Nat. Ord. See *n.* 6.

Cal. either none, or in 4 deep segments. *Cor.* none, or in 4 deep, linear, long segments. *Filam.* short, between the segments, opposite. *Anthers* large, with 4 furrows. *Ger-men* superior, ovate, of 2 cells, with rudiments of 2 pendulous seeds. *Style* short. *Stigma* cloven. *Capsule* lanceolate, flat, not bursting, often of but one cell, with a solitary, lanceolate, compressed seed, covered with rusty glittering powder.

Arboreous. *Branches* opposite, compressed at the upper part. *Buds* ovate, valvular. *Leaves* opposite, pinnate, smooth, deciduous. *Panicles* lateral and terminal, with opposite stalks. *Fl.* pale. *Capsules* pendulous, brown. *Calyx* and *Corolla* wanting in our species, as well as the *stamens* in some flowers; one tree bearing the greatest number of perfect *stamens*, another of perfect *pistils*.

The exotic genus *Chionanthus* differs in the fruit from this, as Privet from Lilac.

1. *F. excelsior.* Common Ash.

Leaflets serrated. Flowers without calyx or corolla.

F. excelsior. *Linn. Sp. Pl.* 1509. *Willd. v. 4.* 1099. *Vahl Enum. v. 1.* 53. *Fl. Br.* 13. *Engl. Bot. v. 24. t.* 1692. *Hook. Scot. 3. Fl. Dan. t.* 969.

F. n. 528. *Hall. Hist. v. 1.* 228.

Fraxinus. *Raii Syn.* 469. *Camer. Epit.* 64. *f. Ger. Em.* 1472. *f.*

In woods and hedges; especially on hills in limestone countries. Tree. *April, May.*

One of our tallest, most graceful trees, with a smooth grey bark, and large, coal-black, rather downy buds. *Wood* tough, whitish. *Leaves* stalked, of 5 or 6 pair, with an odd one, of ovate-lanceolate, acute, nearly sessile, opposite leaflets, whose main rib is fringed beneath; their common stalk channelled and bordered. *Panicles* from lateral buds, below the leaf-buds, drooping, many-flowered. *Flowers* small, brown, consisting only of a *pistil*, with (generally) one short *stamen* at each side. Very rarely there are flowers with *stamens* only. *Capsules* with a flat leaf-like termination, an inch long, and generally of 2 cells, with an oblong seed in each, glittering with rusty meal, like an almond, but bitter and nauseous.

The Weeping Ash, a variety with drooping branches, is propagated by grafting only.

2. *F. heterophylla.* Simple-leaved Ash.

Leaves both simple and compound, with tooth-like serratures.

- F. heterophylla*. *Vahl Enum.* v. 1. 53. *Comp.* 3. *Engl. Bot.* v. 35. t. 2476.
F. simplicifolia. *Willd.* v. 4. 1098. *Berl. Baumz.* 121. t. 3. f. 3.
F. excelsior, var. 2. *With.* 57.—var. 3. *Hull ed.* 2. 308.

In woods rare.

Tree. *April, May.*

Leaves for the most part simple, 4 or 5 inches long, strongly but unequally serrated, on long *footstalks*. A few other *leaves* are said to be three-lobed, or ternate; or even pinnate of 5 leaflets. *Seed* elliptical, shorter than in *F. excelsior*; of which, nevertheless, I suspect this to be a mere variety.

8. CIRCÆA. Enchanter's-nightshade.

Linn. Gen. 11. *Juss.* 319. *Fl. Brit.* 13. *Tourn.* t. 155. *Lam.* t. 16. *Gærtn.* t. 24.

Nat. Ord. *Calycanthemæ*. *Linn.* 17. *Onagræ.* *Juss.* 88.

Cal. superior; tubular at the base; limb in 2 large, ovate, deflexed, deciduous segments. *Petals* 2, inversely heart-shaped, equal, borne by the calyx, alternate therewith. *Filam.* opposite to the calyx, and as long, swelling upwards. *Anth.* roundish. *Germen* roundish, rough. *Style* thread-shaped. *Stigma* dilated, notched. *Caps.* obovate, rough, of two cells. *Seeds* 1 in each cell, obovate, flat on the inside.

Herbaceous. *Root* creeping. *Leaves* opposite, stalked, indented, undivided. *Fl.* racemose, white or reddish. *Fruit* a bur.

1. *C. lutetiana*. Common Enchanter's-nightshade.

Stem erect. *Leaves* ovate, slightly toothed, opaque and downy.

C. lutetiana. *Linn. Sp. Pl.* 12. *Willd.* v. 1. 53. *Vahl Enum.* v. 1. 301. *Fl. Br.* 13. *Engl. Bot.* v. 15. t. 1056. *Curt. Lond. fasc.* 3. t. 3. *Hook. Scot.* 4. *Fl. Dan.* t. 210. *Raii Syn.* 289. *Ger. Em.* 351. f. *Lob. Ic.* v. 1. 266. f. *Lam. f.* 1. *Bull. Fr.* t. 297. *Poit. & Turp. Par.* 10. t. 7.

C. n. 813. *Hall. Hist.* v. 1. 362.

In moist shady places, hedge bottoms, churchyards, orchards, &c. Perennial. *June, July.*

Root tenaciously creeping. *Stem* 18 or 20 inches high, round, downy, leafy. *Leaves* of a darkish dull green, waved, with short teeth, 1 rib, and many veins. *Clusters* one or more, of many small scentless *flowers*. *Cal.* brownish-green. *Pet.* white, or reddish. *Fruit* reflexed, clothed with hooked bristles.

Used formerly in incantations and philters, apparently instead of the Mandrake, *Atropa Mandragora*, *Fl. Græc. t. 232*; and at least equally vain, if less dangerous.

2. *C. alpina*. Mountain Enchanter's-nightshade.

Stem ascending. Leaves heart-shaped, serrated, shining. Calyx membranous.

C. alpina. *Linn. Sp. Pl.* 12. *Fl. Lapp. ed. 2. 5.* *Willd. v. 1. 53.* *Vahl Enum. v. 1. 301.* *Fl. Br. 14.* *Engl. Bot. v. 15. t. 1057.* *Hook. Scot. 4.* *Lam. f. 2.* *Ehrh. Herb. 111.* *Beitr. v. 5. 179.* *Fl. Dan. t. 1321.*

C. n. 814. *Hall. Hist. v. 1. 362.*

C. minima. *Column. Ecphr. v. 2. 79. t. 80.*

C. alpina omnium minima. *Ambrosin. Phyt. 162. f.*

Solanifolia Circæa alpina. *Bauh. Pin. 168.* *Moris. v. 2. 617. sect. 5. t. 34, last figure.*

β . *Fl. Br. 14.* *Willd. v. 1. 54.* *Vahl Enum. v. 1. 301.* *Schrad. Germ. v. 1. 14.*

C. alpina. *Fl. Dan. t. 256.*

C. intermedia. *Ehrh. Herb. 101.* *Beitr. v. 4. 42.*

In moist, shady, stony places, in Westmoreland, Cumberland, and Lancashire, as well as in Scotland. By the sides of the Highland lakes frequent. *Dr. Hooker.* β On the north shore of Loch Tay. *Mr. M' Ritchie.* Near Leeds. *Rev. W. Wood.* In shady groves by the river at Matlock bath, Derbyshire.

Perennial. *July, August.*

Essentially and, as Haller well observes, permanently distinct from the foregoing; of more humble growth, with heart-shaped, strongly serrated, shining leaves, and more plentiful clusters of flowers, whose calyx is more membranous, and, as well as the petals, redder. The stem is often as downy as in *lutetiana*, and the leaves are mostly fringed.—The variety β is as tall as the *lutetiana*; its pubescence, though often copious, very minute; but the shining leaves, and their sharp serratures, as well as the structure and hue of the flowers, accord best with *C. alpina*.

9. VERONICA. Speedwell.

Linn. Gen. 12. *Juss. 99.* *Fl. Br. 15.* *Sm. in Rees's Cycl. v. 37. Br. Pr. 434.* *Tourn. t. 60.* *Lam. t. 13.* *Gærtn. t. 54.*

Nat. Ord. *Personatæ*. *Linn. 40.* *Pediculares*. *Juss. 35.* *Scrophularinæ*. *Br. Pr. 433.*

Cal. inferior, in 4, rarely 5, deep, oblong, more or less unequal segments, permanent. *Cor.* wheel-shaped, deciduous; tube various in length; limb in 4 deep, unequal,

undivided lobes, the lower one smallest, upper broadest. *Filam.* spreading, tapering downwards. *Anth.* oblong. *Germen* compressed. *Style* thread-shaped, as long as the stamens, declining. *Stigma* small, notched. *Caps.* various in shape, ovate, elliptical, or inversely heart-shaped, compressed, of 2 cells, and 4 valves, more or less easily separable. *Seeds* numerous, roundish, compressed, or peltate, or umbilicated.

Herbaceous, or somewhat shrubby. *Root* annual or perennial. *Stem* branched. *Leaves* opposite, rarely whorled, simple, indented, sometimes pinnatifid; never really compound; floral ones alternate. *Flowers* alternate, mostly blue; rarely flesh-coloured, or white; the lower segment palest; upper darkest; dark lines radiating from the mouth. *Calyx* various, affording the best specific characters. A genus not very nearly akin to any other, except *Wulfenia*. Qualities insignificant.

* *Clusters or spikes terminal. Root perennial.*

1. *V. spicata*. Spiked Speedwell.

Spike terminal. Leaves bluntly serrated about the middle only; their base tapering into a footstalk: radical ones obovate. Stem ascending, quite simple.

V. spicata. Linn. *Sp. Pl.* 14. Willd. v. 1. 56. Vahl *Enum.* v. 1. 60. *Fl. Br.* 15. *Engl. Bot.* v. 1. t. 2. Schrad. *Germ.* v. 1. 15. *Fl. Dan.* t. 52.

V. n. 542. Hall. *Hist.* v. 1. 234.

V. spicata recta minor. Bauh. *Hist.* v. 3. p. 2. 282. f. Raii *Syn.* 279.

V. spicata minor. Vaill. *Par.* 200. t. 33. f. 4.

V. recta minima. Clus. *Hist.* v. 1. 347. f. Ger. *Em.* 627. f. Lob. *Ic.* v. 1. 472. f.

In high dry chalky pastures, especially on Newmarket heath, and about Bury St. Edmund's.

Perennial. July—Sept.

Root somewhat creeping. *Herb* from 4 to 8 inches high, minutely hairy; hairs often in lines on the stem. I have never seen it branched. *Leaves* oblong, opposite; the lowest stalked; uppermost, sometimes all, linear and entire. *Flowers* on very short, if any, partial stalks, deep blue, numerous. *Bractees* linear, downy like the *calyx*. *Cor.* bearded at the mouth, as in *V. hybrida*.

2. *V. hybrida*. Welsh Speedwell.

Spikes terminal. Leaves elliptical, obtuse, unequally and bluntly serrated; lowermost ovate, stalked. Stem nearly upright, not perfectly simple.

V. hybrida. *Linn. Sp. Pl.* 14. *Willd.* v. 1. 57. *Vahl Enum.* v. 1. 60. *Fl. Br.* 16. *Engl. Bot.* v. 10. t. 673. *Schrad. Germ.* v. 1. 17.

V. spicata. *Poit. & Turp. Par.* 19. t. 19?

V. spicata cambrobritannica, *bugulæ subhirsuto folio.* *Raii Syn.* 278. t. 11.

V. mas recta latifolia, *spicâ cæruleâ.* *Barrel. Ic.* t. 682. according to Schrader.

At the sides of mountains, very rare.

Gathered on Craig Breiddin, or Brythen, Montgomeryshire, by Mr. Bowman, in 1817; where Mr. Lhwyd discovered it in Ray's time. On Humphrey head, a steep rock near Cartmel Wells, Lancashire. *Mr. Crowe* and *Mr. Woodward*; also *Rev. Mr. Bingley.*

Perennial. *July, August.*

Larger and rather more hairy, especially about the *calyx*, than the preceding, having usually 1 or 2 lateral *spikes*, or rudiments of them. The lower *leaves* are nearly ovate, being abrupt at the base, towards the *footstalks*. All the *leaves* are of a broader, rather elliptical, figure; their serratures stronger, more copious and general, and their hue a more grassy green. These two species are certainly very near akin, but Professor Schrader, one of the greatest Europæan botanists, keeps them distinct.

3. *V. fruticulosa.* Flesh-coloured Shrubby Speedwell.

Cluster terminal, elongated, many-flowered. Leaves elliptic-lanceolate. Stems erect; shrubby below. Capsule ovate, with four lanceolate valves.

V. fruticulosa. *Linn. Sp. Pl.* 15. *Mant.* 316. *Willd.* v. 1. 61. *Vahl Enum.* v. 1. 62. *Fl. Br.* 18. *Engl. Bot.* v. 15. t. 1028. *Wulf. in Jacq. Coll.* v. 4. 229. t. 5. *Hook. Scot.* 5. *Don H. Br.* 202.

V. frutescens. *Scop. Carn.* v. 1. 19; excluding Morison's syn.

V. n. 545. *Hall. Hist.* v. 1. 235. t. 16. f. 1.

On the mountains of Scotland, in moist places.

Gathered on Ben Cruachan, Argyleshire, by the Rev. Dr. Walker, from whose original plant, cultivated in his garden, I have specimens. Mr. R. Brown, whose accuracy is also beyond all doubt or "supposition," told me he found this plant on Ben Lawers. I trust no further confirmation is requisite to establish it as a native.

Perennial. *July.*

Root strong and woody. *Stems* branched, entangled and shrubby at their base; the flowering branches erect, about 6 inches high, round, slightly downy, leafy, mostly simple. *Leaves* distantly notched or serrated, rather pale, downy at their edges and veins; sometimes quite entire. *Cluster* usually solitary, minutely downy,

rather spiked than corymbose. *Flowers* pale pink, or flesh-coloured, veined, on partial *stalks* which are much lengthened, and the *calyx* enlarged, after flowering. *Caps.* rather elliptical and abrupt, longer than the calyx, soon splitting into 4 acute valves. *Seeds* flattish, smooth. The plant is by no means hairy, but rather downy, as is very exactly expressed in *Engl. Bot.*

4. *V. saxatilis*. Blue Rock Speedwell.

Cluster terminal, corymbose, of few flowers. Leaves elliptical. Stems spreading; shrubby below. Capsule ovate, with four lanceolate valves.

V. saxatilis. *Linn. Suppl.* 83. *Willd.* v. 1. 62. *Vahl Enum.* v. 1. 63. *Fl. Br.* 17. *Engl. Bot.* v. 15. t. 1027. *Dicks. Crypt. fasc.* 2. 29. *Bauh. Hist.* v. 3. 284. *Scop. Carn.* v. 1. 11. *Wahlenb. Lapp.* 6. *Schrad. Germ.* v. 1. 24. *Hook. Scot.* 5.

V. fruticulosa. *Fl. Dan.* t. 342.

V. n. 545 β . *Hall. Hist.* v. 1. 236.

V. alpina, con foglia di Serpillo. *Pon. Bald.* 181. f.

V. alpina frutescens. *Bauh. Pin.* 247, according to Burser's Herb. seen by Wahlenberg. *Moris.* v. 2. 318. *sect.* 3. t. 22. f. 5.

V. tertia fruticans. *Clus. Hist.* v. 1. 347. f.

V. fruticans serpillifolia. *Ger. Em.* 628. f.

On rocks and stony ground, on the mountains of Scotland.

Found on Ben Lawers by Mr. Dickson and others; on Mael Greadha in Breadalbane, by Mr. Borrer.

Perennial. *July*.

Of more humble and spreading growth than the last. *Leaves* smaller, serrated about their middle, dull green. *Flowers* from 3 to 6 only, in each corymbose, not spiked, *cluster*; their stalks finely downy, twice or thrice as long as the *bracteas*. *Cor.* large, beautiful, of a fine blue, pink at the mouth. *Caps.* much like the last.

V. nummularia of Gouan, and *pygmæa* of Schrank, are perhaps, as Schrader observes, unjustly referred to this species.

5. *V. alpina*. Alpine Speedwell.

Cluster terminal, dense, corymbose. Leaves ovate, smoothish, somewhat serrated. Calyx fringed. Stem ascending, simple.

V. alpina. *Linn. Sp. Pl.* 15. *Fl. Lapp. ed.* 2. 7. t. 9. f. 4. *Willd.* v. 1. 63. *Vahl Enum.* v. 1. 64. *Fl. Br.* 18. *Engl. Bot.* v. 7. t. 484. *Fl. Dan.* t. 16. *Schrad. Germ.* v. 1. 25. *Wahlenb. Lapp.* 7. *Hook. Scot.* 4.

V. pumila. *Allion. Pedem.* v. 1. 75. t. 22. f. 5.

V. caule simplici, floribus congestis terminato, foliis ovato-acutis dentatis. *Allion. Spec.* 19. t. 3. f. 3.

V. n. 544. *Hall. Hist. v. 1. 235. t. 15. f. 2.*

V. alpina, bellidis folio minor. *Bauh. Pin. 247. Wahlenb. ex Herb. Burser.*

Teucrium sextum, pumilum. *Clus. Hist. v. 1. 350.*

On the margins of rivulets on the highest mountains of Scotland, first observed by Mr. Dickson.

Perennial. *July, August.*

Root creeping, with long fibres. Stem about 4 inches high, simple, except at the very bottom. Leaves sometimes entire, sometimes deeply serrated. White jointed hairs are scattered, more or less, over the herbage. Flowers about 6 to 10, small, bright blue. Cal. obovate, strongly fringed. Caps. obovate, emarginate, crowned with the short permanent style and capitate stigma.

6. *V. serpyllifolia*. Smooth Speedwell. Paul's Betony.

Cluster terminal, somewhat spiked. Leaves ovate, slightly crenate, three-ribbed, smooth. Capsule inversely heart-shaped, shorter than the style.

V. serpyllifolia. *Linn. Sp. Pl. 15. Willd. v. 1. 64. Vahl Enum. v. 1. 65. Fl. Br. 19. Engl. Bot. v. 15. t. 1075. Curt. Lond. fasc. 1. t. 3. Hook. Scot. 4. Fl. Dan. t. 492. Schrad. Germ. v. 1. 21. Wahlenb. Lapp. 5.*

V. pratensis minor. *Raii Syn. 279.*

V. minor. *Ger. Em. 627. f.*

V. minor serpyllifolia. *Lob. Ic. v. 1. 472. f.*

V. minima repens. *Riv. Monop. Irr. t. 99. f. 1.*

β . *V. humifusa*. *Dicks. Tr. of Linn. Soc. v. 2. 288.*

V. alpina. *Lightf. 72, 1138.* His description, taken from *Linn. Fl. Lapp.*, belongs to the real *alpina*.

In meadows and pastures frequent.

β . On the highest mountains of Scotland, under wet shady rocks. *Dickson.* On the Cheviot hills, Northumberland. *Mr. Winch.*

Perennial. *May, June.*

Stems more or less procumbent; in β quite prostrate. Herb of a pale shining green, a little succulent; smooth in wet situations; in dry ones all over hairy. Leaves on short footstalks. Clusters solitary, erect; leafy at their base; bracteated above. Fl. pale blue, or white, with dark blue streaks; sometimes flesh-coloured. Cal. obovate, equal. Caps. inversely heart-shaped. Flower-stalks and bracteas most frequently downy.

β is scarcely even a lasting variety.

** *Clusters or spikes lateral. Root perennial.*

7. *V. Beccabunga*. Brooklime.

Clusters lateral. Leaves elliptical, flat. Stem creeping.

- V. Beccabunga.* *Linn. Sp. Pl.* 16. *Willd.* v. 1. 64. *Vahl Enum.* v. 1. 69. *Fl. Br.* 20. *Engl. Bot.* v. 10. t. 655. *Curt. Lond. fasc.* 2. t. 3. *Woodv.* t. 7. *Hook. Scot.* 6. *Fl. Dan.* t. 511.
V. aquatica rotundifolia, *Becabunga dicta*, minor. *Raii Syn.* 280.
Beccabunga. *Riv. Monop. Irr.* t. 100. f. 1.
Anagallis, seu *Becabunga.* *Ger. Em.* 620. f.
Sium. *Fuchs. Hist.* 725. f.

In clear ditches and rivulets.

Perennial. *June, July.*

Herb deep green, smooth, shining, juicy. *Stems* round, procumbent or floating, branched, with long, simple, fibrous roots. *Leaves* obtuse, ribbed, variously and bluntly serrated. *Fl.* dull blue, numerous, in long, axillary, stalked clusters. *Bracteas* linear. *Cal.* ovate. *Caps.* roundish, tumid, cloven.

Beccabunga comes from the German *Bach-pungen*, *bach* meaning a rivulet; in Yorkshire and Norfolk a *beck*.

8. *V. Anagallis.* Water Speedwell. Long-leaved Brooklime.

Clusters lateral, opposite. Leaves lanceolate, serrated. Stem erect.

V. Anagallis. *Linn. Sp. Pl.* 16. *Willd.* v. 1. 65. *Vahl Enum.* v. 1. 69. *Fl. Br.* 20. *Engl. Bot.* v. 11. t. 781. *Curt. Lond. fasc.* 5. t. 2. *Hook. Scot.* 6. *Fl. Dan.* t. 903.

V. aquatica longifolia media. *Raii Syn.* 281.

Anagallis aquatica major. *Ger. Em.* 620. f.

In ditches, and muddy watery places.

Perennial. *July.*

Akin to the last, but larger, upright, with long, acute, more serrated, rather paler, leaves. Clusters long, acute. *Cal.* acute. *Fl.* light blue; sometimes flesh-coloured. *Root* creeping. Whole plant smooth.

9. *V. scutellata.* Narrow-leaved Marsh Speedwell.

Clusters lateral, alternate; fruit-stalks reflexed. Leaves linear, slightly indented.

V. scutellata. *Linn. Sp. Pl.* 16. *Willd.* v. 1. 65. *Vahl Enum.* 70. *Fl. Br.* 21. *Engl. Bot.* v. 11. t. 782. *Curt. Lond. fasc.* 5. t. 3. *Hook. Scot.* 5. *Fl. Dan.* t. 209. *Poit. & Turp. Par.* 15. t. 13.

V. aquatica angustifolia minor. *Raii Syn.* 280.

V. palustris angustifolia. *Riv. Monop. Irr.* t. 96. f. 1.

Anagallis aquatica quarta. *Lob. Ic.* v. 1. 467. f. *Ger. Em.* 621. f.

β. *V. parmularia.* *Poit. & Turp. Par.* 16. t. 14. *Fl. Dan.* t. 1561.

In watery, spongy bogs, chiefly on a sandy soil.

Perennial. *July, August.*

A lax, spreading, slender plant, generally smooth, but, like *V. serpyllifolia*, becoming hairy, and even hoary, in dry or barren ground. *Fl.* pale flesh-coloured, streaked with dark blue, on slender stalks, more and more divaricated after flowering. *Cal.* acute. *Caps.* didymous.

10. *V. officinalis*. Male, or Common, Speedwell.

Clusters lateral; partial stalks shorter than their bracteas. Leaves elliptical, serrated, roughish. Stem procumbent. Stigma capitate.

V. officinalis. *Lin. Sp. Pl.* 14. *Willd. v.* 1. 59. *Vahl Enum. v.* 1. 74. *Fl. Br.* 16. *Engl. Bot. v.* 11. t. 765. *Curt. Lond. fasc.* 3. t. 1. *Woodv. suppl. t.* 219. *Hook. Scot.* 6. *Fl. Dan. t.* 248. *Bull. Fr. t.* 293. *Poit. & Turp. Par.* 12. t. 8. *Riv. Monop. Irr. t.* 93.

V. mas, supina et vulgatissima. *Raii Syn.* 281.

V. vera et major. *Ger. Em.* 626. f.

V. mas. *Fuchs. Hist.* 166. f.

β. *V. Allionii.* *Hook. Scot.* 7, excluding the syn.

About dry sandy banks, barren heaths, woods, and mountainous pastures, common.

β. On various mountains in Scotland and Ireland. *Messrs. Mackay, G. Don, Templeton, &c.*

Perennial. *May, June.*

Stems prostrate, creeping, 6—18 inches long, round. Whole plant more or less rough with spreading, short, jointed hairs. *Leaves* blunt or pointed, single-ribbed, on short stalks, rather rigid. *Clusters* pointed, much longer than the leaves, erect. *Cal.* elliptical, narrow, nearly equal, hairy. *Cor.* light blue, with dark streaks. *Stigma* always capitate. *Caps.* inversely heart-shaped, rather abrupt, veiny. *Seeds* pale, smooth, disk-like.

β has nearly smooth *stems, leaves, and calyx*, with hairy *flower-stalks*, but appears to be a mere variety. The *stigma* is capitate.

The real *V. Allionii*, as I have often in vain represented, is a totally distinct exotic species, with perfectly smooth, thick, rigid *leaves*; blunt, dense, long-stalked *clusters*, of nearly sessile, deep-blue *flowers*, characterized essentially by a simple, abrupt, not capitate, *stigma*.

V. officinalis is recommended as a sort of medicinal tea, and Simon Paulli, an old Danish botanist, contended it was the identical tea of China. The flavour is astringent and bitter, by no means agreeable; perhaps most resembling common black tea.

11. *V. hirsuta*. Little Hairy Speedwell.

Clusters lateral; partial stalks shorter than their bracteas. Leaves elliptic-lanceolate, somewhat serrated, slightly hairy. Stems ascending. Capsule abrupt, undivided.

V. hirsuta. *Hopkirk Glott.* 9. *Hook. Scot.* 6.

V. setigera. “*D. Don Rare Pl. of Scot.* 4.”

In dry heathy places in Carrick, Ayrshire. *Mr. James Smith.*

Perennial. *June.*

A very diminutive species, well marked by its abrupt, undivided, not heart-shaped, *capsule*. The plant is 2 or 3 inches high, hairy, looking like a starved specimen of *V. officinalis*; but I have seen it remain unaltered by culture. The *leaves* are stalked, small and narrow. *Fl.* pale blue, very distant in the lower part of each cluster. *Stigma* capitate.

12. *V. Chamædrys.* Germander Speedwell. Wild Germander.

Clusters lateral. Leaves ovate, sessile, rugged, deeply serrated. Stem diffuse, with a hairy line at each side. Calyx four-cleft, lanceolate.

V. Chamædrys. *Linn. Sp. Pl.* 17. *Willd. v. 1.* 69. *Vahl Enum. v. 1.* 77. *Fl. Br.* 22. *Engl. Bot. v. 9.* t. 623. *Curt. Lond. fasc. 1. t. 2.* *Hook. Scot.* 7. *Mart. Rust. t.* 66. *Fl. Dan. t.* 448. *Poit. & Turp. Par.* 13. t. 9.

V. Chamædrys sylvestris dicta. *Raii Syn.* 281.

V. pratensis latifolia. *Riv. Monop. Irr. t.* 94.

Chamædrys. *Brunf. Herb. v. 1.* 125. *f.*

Ch. sylvestris. *Ger. Em.* 657. *f.*

In groves, meadows, pastures and hedges, common.

Perennial. *May, June.*

Herbage light green, paler than most of the genus when dried. *Stem* simple, ascending obliquely, remarkable for its opposite hairy lines. *Leaves* strongly veined, most hairy about the margin; rarely somewhat stalked. *Clusters* rising above the stem, acute, their stalks hairy all round. *Fl.* numerous, transient, but very beautiful, bright blue, with dark streaks, and a white centre; their outside pale and flesh-coloured. *Caps.* small, inversely heart-shaped. The *flowers* expand in fine weather only. Some take this for the German “Forget me not.” It vies in beauty with the true one, *Myosotis palustris*.

13. *V. montana.* Mountain Germander Speedwell. Mountain Madwort.

Clusters lateral, lax, of few flowers. Leaves ovate, stalked, serrated. Stem diffuse, hairy all round.

V. montana. *Linn. Sp. Pl.* 17. *Suppl.* 83. *Willd. v. 1.* 68. *Vahl Enum. v. 1.* 78. *Fl. Br.* 21. *Engl. Bot. v. 11.* t. 766. *Curt. Lond. fasc. 4. t. 2.* *Hook. Scot.* 6. *Jacq. Austr. t.* 109. *Fl. Dan. t.* 1201. *Hoffm. Germ. ann.* 1791. t. 1. *Poit. & Turp. Par.* 14. t. 10.

V. chamædryoides, foliis pediculis oblongis insidentibus. *Rail Syn.* 281.

V. procumbens. *Riv. Monop. Irr.* t. 93.

Alyssum Dioscoridis montanum. *Column. Ecphr.* v. 1. 286. t. 288.

In woods, chiefly on a moist calcareous soil, but not very common.

Perennial. *May, June.*

Columna first described, and admirably figured, this species; the great Sherard first detected it in England, in Charlton-wood, Kent; and Curtis has elucidated it beyond all future doubt. A foolish story is told of its changing to *V. Chamædryis*, which out of regard to a most excellent botanist, whose own specimens are before me, ought not to have appeared in print. No two species can be more distinct. The universal hairiness of the stem; stalked, thinner, and more shining, leaves; and smaller paler flowers, are sufficient marks; but the compressed, dilated capsules, formed as it were of two orbicular cells, and thrice as large as the foregoing, are decisive.

*** *Flowers axillary, solitary. Root annual.*

14. *V. agrestis.* Procumbent Field Speedwell. German- Chickweed.

Flowers solitary. Leaves ovate, deeply serrated, shorter than the flower-stalks. Stems procumbent. Segments of the calyx ovate. Seeds cupped.

V. agrestis. *Linn. Sp. Pl.* 18. *Willd.* v. 1. 72. *Vahl Enum.* v. 1. 80. *Fl. Br.* 23. *Engl. Bot.* v. 11. t. 783. *Curt. Lond. fasc.* 1. t. 1. *Hook. Scot.* 7. *Fl. Dan.* t. 449.

V. folio chamædryos. *Riv. Monop. Irr.* t. 99. f. 2.

Alsine foliis trissaginis. *Ger. Em.* 616. f.

A. media. *Fuchs. Hist.* 22. f.

A common weed in all cultivated ground.

Annual. *April—September.*

Root small. Stem hairy on two opposite sides, branched at the base only, spreading on the ground in every direction, flaccid. Leaves on short stalks; the upper ones, or rather all which bear flowers, alternate. Herbage all rough, and more or less hairy. Fl. small, bright blue; their stalks long, recurved after flowering. Cal. fringed, now and then irregularly toothed; dilated much as the fruit advances. Caps. of 2 round, tumid lobes, rough. Seeds about 6 in each cell, hemispherical, rugged; concave and peltate beneath.

15. *V. arvensis.* Wall Speedwell. Speedwell Chick- weed.

Flowers solitary, nearly sessile. Leaves ovate, deeply ser-

rated; the floral ones lanceolate, entire. Stem erect. Seeds flat.

V. arvensis. Linn. *Sp. Pl.* 18. Willd. v. 1. 73. Vahl *Enum.* v. 1. 80. *Fl. Br.* 24. *Engl. Bot.* v. 11. t. 734. *Curt. Lond. fasc.* 2. t. 2. *Hook. Scot.* 7. *Fl. Dan.* t. 515.

Alsine foliis veronicæ. Ger. *Em.* 613. f.

Alyssum. *Column. Phytob.* t. 28. ed. 2. 21. t. 8.

On walls, banks, and dry gravelly or sandy ground, common.

Annual. *May.*

Upright, slender, rough, pale green, about 6 inches high; usually branched at the base. *Floral leaves* diminished almost to *bractees*, not all invariably, though generally, alternate. *Fl.* small, light blue; white in the centre. *Cal.* lanceolate. *Caps.* inversely heart-shaped, compressed, fringed. *Seeds* several, elliptical, flat, with a central dimple at one side, convex on the other. This is quite a spring plant, of no note or utility.

16. *V. hederifolia.* Ivy-leaved Speedwell. Small Henbit. Winter-weed, in Norfolk.

Flowers solitary. Leaves heart-shaped, flat, five-lobed. Segments of the calyx heart-shaped, acute. Seeds cupped, wrinkled.

V. hederifolia. Linn. *Sp. Pl.* 19. Willd. v. 1. 73. Vahl *Enum.* v. 1. 82. *Fl. Br.* 24. *Engl. Bot.* v. 11. t. 784. *Curt. Lond. fasc.* 2. t. 1. *Hook. Scot.* 7. *Fl. Dan.* t. 428. *Poit. & Turp. Par.* 23. t. 26.

V. flosculus singularibus, hederulæ folio, Morsus gallinæ minor dicta. Raii *Syn.* 280.

V. folio hederæ. Riv. *Monop. Irr.* t. 99. f. 3.

Alsine hederacea. Ger. *Em.* 616. f.

A. quartum genus. Fuchs. *Ic.* 13. f.

In cultivated and waste ground every where.

Annual. *April, May.*

Like *V. agrestis*, procumbent with many *stems*, which are likewise hairy on two opposite sides. *Seeds* 2 in each cell, hemispherical and peltate, but more wrinkled. *Leaves* somewhat hairy, stalked; their middle lobe largest. *Fl.* light purplish blue, streaked. *Caps.* tumid.

17. *V. triphyllus.* Blunt-fingered Speedwell. Upright Chickweed.

Flowers solitary. Upper leaves in deep, finger-like, obtuse segments. Flower-stalks longer than the calyx. Seeds flat.

V. triphyllos. Linn. *Sp. Pl.* 19. Willd. v. 1. 74. Vahl *Enum.* v. 1. 83. *Fl. Br.* 25. *Engl. Bot.* v. 1. t. 26. *Fl. Græc.* v. 1. 8. t. 10. *Curt. Lond. fasc.* 6. t. 2. *Fl. Dan.* t. 627. *Schrad. Germ.* v. 1. 44.

V. n. 551. *Hall. Hist.* v. 1. 237.

V. folio rutæ. Riv. *Monop. Irr.* t. 96. f. 3.

V. flosculis singularibus, foliis laciniatis, erecta. Raii *Syn.* 280.

Alsine recta. Ger. *Em.* 612. f.

In sandy fields, but very rarely.

Chiefly on the sandy confines of Norfolk and Suffolk; first found by Thomas Willisel, in Ray's time. Mr. Tofield is said to have met with it near Rossington, Yorkshire.

Annual. *April.*

Root tapering. *Stem* 3 or 4 inches high, erect, with spreading branches, chiefly from the lower part. *Herbage* finely downy or hoary, a little viscid. Lower *leaves* opposite, undivided, or palmate; upper alternate, in 3 or 5 deep segments. *Fl.* of a deep rich blue, in nearly equal segments. *Cal.* bluntish. *Caps.* inversely heart-shaped, compressed, hairy. *Style* scarcely projecting beyond the lobes. *Seeds* numerous, obovate, flat, umbilicated at one side.

18. *V. verna.* Vernal Speedwell.

Flowers solitary. Leaves pinnatifid; uppermost lanceolate, undivided. Flower-stalks shorter than the calyx. Stem erect.

V. verna. Linn. *Sp. Pl.* 19. *Syst. Veg. ed.* 14. 60. Willd. v. 1. 75. Vahl *Enum.* v. 1. 83. *Fl. Br.* 26. *Engl. Bot.* v. 1. t. 25. *Rose Elem. app.* 444. t. 2. f. 1. *Fl. Dan.* t. 252. *Poit. & Turp. Par.* 21. t. 22. *Schrad. Germ.* v. 1. 45. *Schreb. Lips.* 11.

V. n. 552. *Hall. Hist.* v. 1. 237.

V. Bellardi. Willd. v. 1. 76. *Allion. Pedem.* v. 1. 77. t. 85. f. 1.

V. succulenta. *Ibid.* 78. t. 22. f. 4.

V. montana. Riv. *Monop. Irr.* t. 96. f. 3.

In fields of the most barren sand.

About Thetford, Bury, &c. first found by Sir John Cullum, Bart.

Annual. *April.*

Most like *V. arvensis* in habit and colour, but much smaller. The *leaves* are deeply divided, in a pinnatifid manner, with a central or terminal lobe larger than the rest; several of the floral ones are three-cleft; most of the upper ones lanceolate and undivided. In a starved state few or none of the *leaves* are divided, and it becomes *V. Bellardi*.

V. succulenta is the identical *verna* in its proper state. The *stem* is simple or branched, from 1 to 4 inches high; unequally downy, as in *V. arvensis*. *Fl.* small, light blue, with darker

DIANDRIA—MONOGYNIA. *Pinguicula*. 27

streaks. *Caps.* inversely heart-shaped, broad, compressed, finely downy all over, as well as fringed. *Seeds* obovate, flat, very thin; corrugated minutely at one side.

10. PINGUICULA. Butterwort.

Linn. Gen. 13. *Juss.* 98. *Fl. Br.* 26. *Sm. in Rees's Cycl.* v. 27. *Tourn. t.* 74. *Lam. t.* 14. *Gärtn. t.* 112.

Nat. Ord. Corydalis. *Linn.* 24. *Lysimachia.* *Juss.* 34. *Lentibularia.* *Br. Pr.* 429. *n.* 11 the same.

[The *Lentibularia*, separated as an Order from *Primulaceæ*, see *Grammar* 96, are thus characterized by Mr. Brown, *Prodr.* 429.

“*Calyx* divided, permanent. *Corolla* monopetalous, inferior, irregular, with a spur and 2 lips. *Stam.* 2, concealed within the *corolla*, and attached to its lower part. *Anthers* simple, sometimes contracted in the middle. *Germs* of 1 cell. *Style* 1, very short. *Stigma* with 2 lips. *Capsule* of 1 cell, with a large central *receptacle*. *Seeds* numerous, small, destitute of *albumen*; *embryo* sometimes undivided (or monocotyledonous).

Herbs growing in water, or in marshy situations. *Leaves* radical, either undivided, or compound, resembling *roots*, and bearing small bladdery appendages. *Flower-stalks* radical, with or without small scales, resembling *stipulas* (rather *bracteas*); sometimes furnished with whorled bladders; for the most part they are unbranched, and either single-flowered, or bearing many flowers in a spike or cluster. Each *flower* is accompanied by a single *bractea*, rarely wanting.”

According to Richard, the *embryo* is monocotyledonous throughout this whole Order; and Mr. Brown has found it so in *Utricularia*, but in *Pinguicula* he observed 2 very certain *cotyledons*. Here therefore is an exception to one of those distinctions, generally presumed most absolute; nor is it a solitary instance.

Although the difference between a regular and an irregular *flower* is by no means sufficient, in general, to constitute a separate Natural Order, (see *Luridæ* in *Pentandria Monogynia*); yet in the present case that difference is confirmed by so many additional circumstances, that few Orders can be better defined, or more obvious, than that of the *Lentibularia*.]

PINGUICULA.

Cal. small, ringent, permanent; upper lip erect, 3-cleft; lower reflexed, divided. *Cor.* ringent, more or less equally 5-cleft in the border; with a spur from the base behind. *Stam.* cylindrical, their *anthers* clapped close to the *stigma*. *Germs* globose. *Style* very short. *Stigma* unequally 2-lipped. *Caps.* of 2 valves at the top. *Seeds* numerous, cylindrical, on a central unconnected *receptacle*.

Herbaceous, perennial, without *stems*. *Leaves* numerous, undivided, entire, involute, mostly glutinous. *Fl.* several, drooping, blue, purplish, or white with some yellow, on simple, naked, radical stalks.

1. *P. lusitanica*. Pale Butterwort.

Nectary obtuse, shorter than the nearly regular petal. Flower-stalk hairy. Capsule globose.

P. lusitanica. *Linn. Sp. Pl.* 25. *Willd. v. 1.* 109. *Vahl Enum. v. 1.* 192. *Fl. Br.* 26. *Engl. Bot. v. 3. t.* 145. *Hook. Scot.* 8.

P. villosa. *Huds. S. Lightf. Scot.* 77. *t. 6*; excluding synonyms.

P. flore minore carneo. *Raii Syn.* *281.

Viola palustris, *Pinguicula dicta*, *lusitanica*. *Grisl. Virid.* 84.

On the borders of bogs in Dorsetshire, Hampshire, Devonshire and Cornwall, as well as in Ireland, the west of Scotland and its islands. Most plentiful in Sutherland, according to Professor Hooker, on the wet moors adjoining Cape Wrath.

Perennial. *June, July*.

Root fleshy. *Leaves* pale green, semipellucid, with numerous red veins. *Flower-stalks* 3 or 4 inches high, clothed, especially in their lower part, with viscid hairs. *Fl.* pale lilac; the throat yellow streaked with red; spur yellow. "*Leaves* permanent in winter." *Mr. Drummond*.

2. *P. vulgaris*. Common Butterwort. Yorkshire Sanicle.

Nectary cylindrical, acute, as long as the very irregular petal. Segments of the calyx oblong. Capsule ovate.

P. vulgaris. *Linn. Sp. Pl.* 25. *Willd. v. 1.* 110. *Vahl Enum. v. 1.* 191. *Fl. Br.* 27. *Engl. Bot. v. 1. t.* 70. *Fl. Dan. t.* 93. *Poit. & Turp. Par.* 27. *t. 29*. *Hook. Lond. t.* 104. *Scot.* 8.

P. Gesneri. *Bauh. Hist. v. 3.* 546. *f.* *Raii Syn.* *281.

P. sive Sanicula Eboracensis. *Ger. Em.* 788. *f.*

On bogs, and moist heaths, especially in the North, as well as in Norfolk.

Perennial. *May, June*.

Larger than the foregoing. *Leaves* thicker, more glutinous, not veiny. *Tube* and *spur* pale purple; *limb* deep blue, its 5 segments very unequal, all entire. *Stigma* with a spur behind; broad in front, covering the *anthers*.

The viscid exudation of the leaves is reputed to be good for the sore dugs of cows; whence the Yorkshire name.

3. *P. grandiflora*. Large-flowered Butterwort.

Nectary cylindrical, acute, as long as the nearly regular, five-cleft, veiny petal. Segments of the calyx ovate, obtuse. Capsule ovate.

P. grandiflora. Willd. v. 1. 110. Vahl Enum. v. 1. 191. "De Cand. Fr. v. 1. 250. v. 3. 575." Engl. Bot. v. 31. t. 2184. Lam. f. 2. Hook. Lond. t. 128.

P. flore amplo purpureo, cum calcare longissimo. Raii Hist. v. 1. 752. Tourn. Inst. 167.

On bogs in the south of Ireland.

In marshy ground, in the western part of the county of Cork. Mr. Drummond.

Perennial. May.

Still larger than *P. vulgaris*, and abundantly distinct; the leaves nearly twice as large, more veiny and yellower. *Stalks* 6—9 inches high, more viscid and stronger. *Cal.* blunter. *Cor.* nearly of the colour of the last, but twice as large, finely reticulated all over with dark blue veins, and much less unequally lobed. "The leaves are deciduous in winter." Mr. Drummond.

11. UTRICULARIA. Bladderwort, or Hooded Milfoil.

Linn. Gen. 14. Juss. 98. Fl. Br. 28. Sm. in Rees's Cycl. v. 37. Lam. t. 14.

Nat. Ord. see n. 10.

Calyx-leaves two, small, ovate, equal, permanent. *Cor.* ringent; upper lip obtuse, erect; lower larger, with a prominent, heart-shaped palate; spur single or double. *Stam.* short, with small cohering *anthers*. *Germen* globose. *Style* capillary, the length of the calyx. *Stigma* 2-lipped. *Caps.* globose, of 1 cell. *Seeds* numerous, small, on a large, globular, central *receptacle*.

Aquatic herbs, floating, in all our species, by means of bladders attached to their *stems* or *leaves*, which latter are finely divided. *Fl.* raised on a central *stalk*, above the water; in ours racemose, yellow. New Holland abounds with simple-leaved, fixed species, whose *flowers*, as well as those of many tropical *Utricularia*, are most generally blue.

1. *U. vulgaris*. Greater Bladderwort.

Spur conical. Stalk straight. Cluster somewhat corymbose. Upper lip of the corolla the length of the palate, reflexed at the sides.

U. vulgaris. *Linn. Sp. Pl.* 26. *Willd. v. 1.* 112. *Vahl Enum. v. 1.* 198. *Fl. Br.* 28. *Engl. Bot. v. 4. t.* 253. *Hook. Scot.* 8. *Fl. Dan. t.* 138. *Poit. & Turp. Par.* 29. *t.* 30.

U. vulgaris major. *Linn. Suec.* 9. *Ehrh. Herb. n.* 81.

Lentibularia. *Raii Syn.* *286. *Riv. Monop. Irr. t.* 79.

In ditches and deep standing pools.

Perennial. *June, July.*

The crown of the root sends out 5 or 6, simple or alternately branched, leafy shoots, about a foot long. Leaves alternate, triply pinnatifid, almost capillary, bearing numerous crested bladders, which float the plant at the flowering season, by means of air formed within them. This air, according to Mr. Hayne, gives place subsequently to water, and the plant sinks, to ripen its seed at the bottom. *Fl.* 6 or 8, large, yellow, with an orange-striped palate, and purplish stalks as well as calyx.

2. *U. intermedia*. Intermediate Bladderwort.

Spur conical. Stalk two- or three-flowered. Upper lip of the corolla flat, twice as long as the palate. Leaves with deep, forked, flat segments. Bladders separate from the leaves.

U. intermedia. *Hayne in Schrad. Journ. for 1800.* 18. *t.* 5. *Vahl Enum. v. 1.* 198. *Comp.* 5. *Engl. Bot. v. 35. t.* 2489. *Hook. Scot.* 9. *Schrad. Germ. v. 1.* 55. “*Dreves et Hayne Ic. t.* 17.” *Fl. Dan. t.* 1261.

U. vulgaris minor. *Linn. Suec.* 9. *Ehrh. Herb. n.* 91. *Beitr. v. 5.* 178.

Millefolium aquaticum, flore luteo galericulato. *Lob. Ic. v. 1.* 791. *f.*
M. palustre galericulatum. *Ger. Em.* 828. *f.*

In ditches, in Ireland and Scotland.

Near Dublin. *Dr. Scott.* Bantry. *Miss Hutchins.* Found by Mr. D. Don, in a ditch by the side of Rescalin lake, 4 miles east of Forfar. *Hooker.*

Perennial. *July.*

Smaller than the former; propagating itself by dense green terminal buds, as expressed in the old wooden cuts. Leaves repeatedly forked, linear, acute, fringed. *Fl.* yellow, half the size of *U. vulgaris*; upper lip, and palate, streaked with red. Bladders on branched stalks, not on the leaves.

3. *U. minor*. Lesser Bladderwort.

Spur short, obtuse, keeled, deflexed. Cluster of few flowers.
Corolla gaping; palate nearly flat; lips undivided.

U. minor. Linn. *Sp. Pl.* 26. Willd. v. 1. 112. Vahl *Enum.* v. 1. 199. Fl. Br. 28. Engl. Bot. v. 4. t. 254. Hook. Scot. 9. Fl. Dan. t. 128. Schmid. Ic. 79. t. 21. f. 1—11. Schrad. Germ. v. 1. 56. Ehrh. Herb. n. 62. Beitr. v. 5. 177.

Lentibularia minor. Raii *Syn.* *286.

Millefolium palustre, galericulatum, minus. Pluk. *Phyt.* t. 99. f. 6. very bad.

Aparine aquis innatans Terevisana, foliis Percepier, capreolis donata. Bocc. *Mus.* 23. t. 4, no flowers.

In ditches; on spongy bogs, but rare.

Perennial. July.

Still smaller than the last. *Bladders* more numerous, many of them, if not all, attached to the leaves. Fl. about half as large as *U. intermedia*, pale yellow, streaked; palate not closing the mouth.

12. LEMNA. Duck-weed.

Linn. *Gen.* 478. Fl. Br. 956. Lam. t. 747. Sm. in Rees's *Cycl.* v. 20. Hook. Lond. t. 119.

Lenticula. Juss. 19. Mich. *Gen.* 15. t. 11. Dill. *Gen.* 118. t. 6.

Nat. Ord. *Miscellanæ*. Linn. 54. *Naiades*. Juss. 6. Near *Hydrocharideæ*. Br. Pr. 344. *Aroideæ*; sect. 2, *Pistiaceæ*. Richard. Hook. Scot. 191.

Cal. of 1 leaf, membranous, torn, evanescent. *Cor.* none. *Stam.* lateral, thread-shaped, longer than the calyx, unequal; each *anther* a pair of globes, splitting at the top. *Germ.* superior, ovate, keeled at one side next the *stam.* *Style* columnar, shorter than the *stamens*. *Stigma* obtuse. *Caps.* not valvular, of 1 cell. *Seed* 1, oval, transverse.

An aquatic genus, now well explained by Prof. Hooker, who, like Mr. Brown, considers it as a reduced or simplified *Aroideæ*, next akin to *Pistia*.

Herb floating, consisting of a simple, flattish, highly vascular, smooth, sometimes laterally proliferous, *frond*^a, with

^a I submit to the use of this term, as necessary in this instance and a very few others, though the plants are not cryptogamic. See *frons* in *Introd. to Botany*, and *Grammar*.

a central *root*, of one or more pendulous, simple fibres, each tipped with a cylindrical cap. *Fl.* rare, from a marginal cleft; *buds* (*gemmæ*) most frequently supply their place.

1. *L. trisulca*. Ivy-leaved Duck-weed.

Fronds stalked, elliptic-lanceolate, proliferous.

L. trisulca. *Linn. Sp. Pl.* 1376. *Willd. v. 4.* 193. *Fl. Br.* 956. *Engl. Bot. v. 13. t.* 926. *Hook. Lond. t.* 119; *Scot.* 10. *Fl. Dan. t.* 1086.

Hydrophace n. 1901. *Hall. Hist. v. 3.* 69.

Lenticularia ramosa monorrhiza, foliis oblongis, pediculis longioribus donatis. *Mich. Gen. 16. t. 11. f.* 5.

Lenticula aquatica trisulca. *Bauh. Hist. v. 3. 777. f. Raii Syn.* 129.

Hederula aquatica. *Lob. Ic. v. 2. 36. f. Ger. Em.* 830. *f.*

In clear still waters, very common.

Annual. *June*.

Fronds about half an inch long, acute, pale green, often waved or toothed, proliferous laterally, so as to become repeatedly compound, spreading at right angles. *Fl.* minute, white, with yellow *anthers*. Several flowers want the *pistil*, none the *stamens*, which latter are both at one side of the *germen*. "Seed very hard. *Embryo* simple, horizontal, (or rather transverse,) in a whitish, fleshy *albumen*." *Hooker*, whose figure and description are worthy of their excellent author.

2. *L. minor*. Lesser Duck-weed.

Fronds obovate, flattish above and beneath. Roots solitary.

L. minor. *Linn. Sp. Pl.* 1376. *Willd. v. 4.* 194. *Fl. Br.* 957. *Engl. Bot. v. 16. t.* 1095. *Hook. Lond. t.* 120. *Scot.* 11. *Fl. Dan. t.* 1087.

Hydrophace n. 1900. *Hall. Hist. v. 3.* 69.

Lenticula palustris vulgaris. *Vaill. Par. 114. t. 20. f.* 3.

Lenticularia media, et minor. *Mich. Gen. 16. t. 11. f.* 2, 3.

Lens palustris. *Raii Syn.* 129. *t. 4. f.* 1. *Camer. Epit.* 852. *f. Ger. Em.* 829. *f. Vallisn. Op. v. 2. 88. t.* 14, 15.

In ponds and ditches every where.

Annual. *June, July*.

Fronds 2 or 3 lines long, floating in broad dense masses, somewhat aggregate, or proliferous. *Fl.* much like the last; very rare.

3. *L. gibba*. Gibbous Duck-weed.

Fronds obovate; slightly convex above; hemispherical beneath. Roots solitary.

L. gibba. *Linn. Sp. Pl.* 1377. *Willd. v. 4.* 194. *Fl. Br.* 957.
Engl. Bot. v. 18. t. 1233. *Hook. Scot.* 11. *Fl. Dan. t.* 1088.

Hydrophace n. 1898. *Hall. Hist. v. 3.* 68.

Lenticula palustris major, infernè magis convexa, fructu polyspermo. *Mich. Gen. 15. t. 11. f. 1.*

In ponds and ditches, but not common.

Annual. *June, July.* Mr. Borrer.

Larger than the last; extremely convex, vascular, and coarsely reticulated, at the under side. *Cal.* scarcely visible, or soon disappearing.

4. *L. polyrrhiza.* Greater Duck-weed.

Fronds roundish-obovate; convex beneath. Roots clustered.

L. polyrrhiza. *Linn. Sp. Pl.* 1377. *Willd. v. 4.* 195. *Fl. Br.* 958.
Engl. Bot. v. 35. t. 2458. *Hook. Scot.* 11. *Wiggers Holsat.* 66.
Fl. Dan. t. 1089.

Hydrophace n. 1899. *Hall. Hist. v. 3.* 68.

Lenticula palustris major. *Dill. in Raii Syn.* 129. *t. 4. f. 2.* *Vaill. Par.* 114. *t. 20. f. 2.*

Lenticularia major polyrrhiza, infernè atro-purpurea. *Mich. Gen. 16. t. 11. f. 1.*

Very common in ditches and standing pools.

Annual. *Fl. not observed in Britain.*

Much larger than either of the 2 last, broadly obovate; obscurely striated, or ribbed, and of a fine green, above; rather convex, and purple, beneath. *Root* of many fibres, from near the base, or point of union, of the aggregate fronds. The rare little work of Wiggers records a young German named Graver, as having found the flowers, situated where the fronds overlay each other, in July and August. The seed proved larger and flatter than in *L. gibba.*

13. LYCOPUS. Gipsy-wort.

Linn. Gen. Pl. 15. *Juss.* 111. *Fl. Br.* 29. *Tourn. t.* 89. *Lam. t.* 18.

Nat. Ord. Verticillatæ. *Linn.* 42. *Labiataæ.* *Juss.* 89.
n. 14 the same.

Cal. tubular, divided half way into 5 acute segments, permanent. *Cor.* tubular, 4-cleft, obtuse; upper segment rather the broadest. *Stam.* simple, rather prominent, distant, spreading upwards. *Anth.* small, of 2 pointed lobes. *Germ.* 4-cleft. *Style* the length of the *stam.* conical at the base. *Stigma* cloven. *Seeds* 4, obovate, quadrangular, obtuse, in the bottom of the calyx.

Herbaceous, perennial, inodorous, roughish. *Stem* square.

Leaves opposite, strongly serrated or pinnatifid. *Fl.* axillary, whorled, small, pale. Comes nearest to *Mentha*.

1. *L. europæus*. Common Gipsy-wort. Water Horehound.

Leaves deeply serrated.

L. europæus. *Linn. Sp. Pl.* 30. *Willd. v. 1.* 120. *Vahl Enum. v. 1.* 210. *Fl. Br.* 29. *Engl. Bot. v. 16. t.* 1105. *Curt. Lond. fasc.* 3. *t. 2.* *Hook. Scot.* 9. *Poit. et Turp. Par.* 31. *t. 32.* *Fl. Dan. t.* 1081.

L. palustris glaber. *Raii Syn.* 236.

Pseudo-marrubium palustre. *Riv. Monop. Irr. t.* 22.

Marrubium aquaticum. *Ger. Em.* 700. *f.* *Lob. Ic. v. 1.* 524. *f.*

On the banks of clear ditches, pools and rivers, on a sandy or gravelly soil, frequent.

Perennial. *July, August.*

Root creeping. *Stem* 2 feet high. *Leaves* numerous, on short stalks, oblong, acute, coarsely serrated, often deeply pinnatifid. *Fl.* white, with purple dots.

14. SALVIA. Sage, or Clary.

Linn. Gen. 17. *Juss.* 111. *Fl. Br.* 30. *Tourn. t.* 83. *Lam. t.* 20. *Gærtn. t.* 66.

Nat. Ord. see *n.* 13.

Cal. tubular, ribbed, unequally 2-lipped, permanent. *Cor:* tube dilated upwards, compressed; upper lip concave; lower broad, 3-lobed, the middle lobe largest, cloven. *Stam.* with 2 divaricated branches, one only bearing a perfect, oblong, single-celled *anther*. *Germ.* 4-cleft. *Style* curved with the stamens, usually longer. *Stigma* forked. *Seeds* 4, oval, in the bottom of the dry converging calyx.

Aromatic or bitter. *Stem* square. *Leaves* various, notched or serrated, wrinkled; in ours undivided, stalked. *Fl.* in whorled spikes; mostly purplish.

1. *S. pratensis*. Meadow Clary.

Leaves oblong, crenate; heart-shaped at the base: uppermost clasping the stem. Bractees very small. Summit of the corolla glutinous.

S. pratensis. *Linn. Sp. Pl.* 35. *Willd. v. 1.* 135. *Vahl Enum. v. 1.* 262. *Fl. Br.* 30. *Engl. Bot. v. 3. t.* 153. *Bull. Fr. t.* 357.

Sclarea pratensis, foliis serratis, flore cæruleo. *Dill. in Raii Syn.* 237.

Horminum pratense. *Riv. Monop. Irr. t.* 36.

H. sylvestre. *Fuchs. Hist.* 569. *f.*

H. sylvestre Fuchsii. *Ger. Em.* 769. *f.*

In dry meadows, and about hedges, very uncommon.

Near Cobham in Kent. *Mr. Jacob Rayer.*

Perennial. *July.*

Three feet high, erect, not very aromatic. Lower leaves on long stalks, deep green. *Fl.* in numerous whorls, large and handsome, of a fine purplish blue, with ovate, acute, entire bracteas.

2. *S. verbenaca.* Wild English Clary.

Leaves serrated, sinuated, smoothish. Corolla much more contracted than the calyx.

S. verbenaca. *Linn. Sp. Pl.* 35. *Willd. v. 1.* 137. *Vahl Enum.* v. 1. 255. *Fl. Br.* 31. *Engl. Bot. v. 3. t.* 154. *Curt. Lond. fasc. 6. t. 1.* *Hook. Scot.* 10.

Horminum sylvestre, lavandulæ flore. *Raii Syn.* 237.

H. sylvestre. *Ger. Em.* 771. *f.*

In meadows, pastures and waste ground, by way sides, on a gravelly or chalky soil, not uncommon. Rare in Scotland and the north of England.

Perennial. *June—October.*

A foot or 18 inches high, more or less decumbent, aromatic. Leaves greyish green, the radical ones stalked, depressed, doubly crenate. *Fl.* small, violet blue. *Bracteas* as long as the calyx. *Seeds* black, smooth; covered, when laid in water, with a fine dense mucilage; hence they serve to envelop and remove any injurious body from under the eyelids.

15. CLADIUM. Twig-rush.

Browne Jam. 114. *Brown Pr.* 236. *Hook. Scot.* 3.

Nat. Ord. Calamariæ. *Linn.* 3. *Cyperoidæ.* *Juss.* 9. *Cyperacæ.* *DeCand.* 134. *Br. Pr.* 212.

Spikes imbricated in every direction, with sheathing, concave, chaffy *glumes*, mostly empty, one or two of the uppermost only being perfect and single-flowered. *Cor.* none. *Stam.* linear, longer than their glume, (in some foreign species said to be more than 2.) *Anth.* linear, erect. *Germ.* superior, ovate, without any bristles or scales at the base. *Style* capillary, the length of the stamens, deciduous, but without a joint at the bottom. *Stigm.* 2, 3, or 4, slender, acute, downy. *Drupa* ovate, polished, brittle, of 1 cell. *Nut* bony, ovate, acute.

A genus of hard, harsh, rushy, often prickly-edged plants, whose stems, whether round or triangular, are more or less clothed with alternate sheathing leaves, or scales. *Spikes* numerous, brown, or blackish, aggregate, generally paniced.

1. *C. Mariscus*. Prickly Twig-rush.

Panicle repeatedly compound, leafy. Spikes capitate. Stem round, smooth, leafy. Leaves prickly at the margin and keel.

C. mariscus. *Br. Pr.* 236. *Hook. Scot.* 11.

C. germanicum. *Schrader. Germ.* v. 1. 75. t. 5. f. 7. **

Schœnus Mariscus. *Linn. Sp. Pl.* 62. *Willd.* v. 1. 259. *Vahl Enum.* v. 1. 221. *Fl. Br.* 43. *Engl. Bot.* v. 14. t. 950. *Host Gram.* v. 3. 37. t. 53. *Ehrh. Phytoph.* 21.

Mariscus n. 1343. *Hall. Hist.* v. 2. 179.

Cyperus longus inodorus sylvestris. *Raii Syn.* 426. *Ger. Em.* 29. f. *Lob. Ic.* v. 1. 76. f.

Pseudo-cyperus palustris, foliis et carinâ serratis. *Scheuchz. Agr.* 375. t. 8. f. 7—11.

In fens and boggy places; sometimes near the sea; but not common. Very rare in Scotland.

Perennial. *July, August.*

Root long and creeping. *Stem* 3 or 4 feet high, erect, polished, jointed; angular at the top. *Leaves* keeled, taper-pointed; serratures very neat and sharp. *Panicle* erect, with many compound, corymbose, bracteated, angular, furrowed branches. *Spikes* mostly two-flowered, rusty brown. *Drupa* pointed, of a shining brown; mealy within. *Nut* hard and thick, brown, unpolished, with 3 slight angles. *Kernel* solitary, roughish.

The genus *Mariscus* of Haller is only the Linnæan *Schœnus* under another name. *Mariscus* of Vahl is a different genus, established by him, and retained by Mr. Brown, who first determined *Schœnus Cladium* of Solander, Swartz and Vahl to be the same species as our *Cladium Mariscus*. Schrader is of a different opinion, and amongst other differences, which may be accounted for, asserts that the *fruit* is surrounded by bristles. Swartz says there are bristles at the sides of the inner *glume*, which surrounds the *germen*; and Dr. Browne before him had recorded the existence of 2 such, arising from the back of the *corolla*, towards its base. All the difficulty is removed by an examination in the Linnæan herbarium, of Dr. Browne's own Jamaica specimen, which, being in an early state of flowering, and each *spike* more or less perfectly 2-flowered, the second or later *flower* is not opened; and its *stigma*, not yet put forth, constitutes these supposed bristles. I find the same thing in the English *Cladium Mariscus*, and no doubt remains of their being one species. Whether the second *flower*, or any rudiment of it, be always present or not, there is only one *drupa* perfected in each *spike* of the English plant, with something like an abortive flower now and then attached to it at one side. My Jamaica specimen

has no fruit formed ; but by Dr. Browne's description it appears that one *flower* only proves perfect, or fertile.—In the hot dry summer of 1825, in Cheshire, each spike ripened two, or even three, *seeds*. *Mr. W. Wilson*.

DIANDRIA DIGYNIA.

16. ANTHOXANTHUM. Vernal-grass.

Linn. Gen. 18. *Juss.* 29. *Fl. Br.* 31. *Lam. t.* 23.

Nat. Ord. *Gramina*. *Linn.* 4. *Gramineæ*. *Juss.* 10. *Br.* Pr. 168. See next class.

Cal. single-flowered, of 2 ovate, pointed, concave valves; the inner largest. *Cor.* of 2 equal valves, shorter than the *cal.* awned at the back; the longer *awn* jointed. *Nect.* 2 ovate, thin, minute scales, clasping the base of the germen. *Stam.* protruding, capillary. *Anth.* oblong, forked at each end. *Germ.* superior, oblong. *Styles* short. *Stigmas* erect, long, downy. *Seed* 1, roundish, acute at each end, naked, unconnected with the glumes.

True grasses. *Stem* jointed. *Panicle* dense, compound.

1. *A. odoratum*. Sweet-scented Vernal-grass.

Panicle spiked, ovate-oblong. Flowers longer than their awns, on short partial stalks.

A. odoratum. *Linn. Sp. Pl.* 40. *Willd. v.* 1. 156. *Vahl Enum. v.* 1. 310. *Fl. Br.* 31. *Engl. Bot. v.* 9. t. 647. *Curt. Lond. fasc.* 1. t. 4. *Hook. Scot.* 11. *Mart. Rust. t.* 23. *Stillingsf. t.* 1. *Schreb. Gram.* 49. t. 5. *Leers* 6. t. 2. f. 1. *Poit. & Turp. Par. t.* 39. *Sincl.* 7. *Gramen vernum, spicâ brevi laxâ. Raii Syn.* 398.

In meadows and pastures very common.

Perennial. *May, June*.

Root fibrous. *Stems* slender, rigid, smooth, a foot high, with 1 or 2 joints, tasting like lavender. *Leaves* flat, bright green, a little hairy; each with a white, membranous, sheathing *stipula*. *Fl.* generally closed, brownish; turning yellow with age. In drying the plant exhales the odour of Woodruff, and is the chief cause of the fragrance of new hay.

For a new and very curious view of the *flowers* of this genus, given by Mr. Brown, see *Hierochloe, Gen.* 41.

Class III. TRIANDRIA. *Stamens* 3.

Order I. MONOGYNIA. *Pistil* 1.

* *Flowers superior.*

17. VALERIANA. *Cor.* 5-cleft; protuberant at the base. *Seed* 1, with a feathery radiating crown.
18. FEDIA. *Cor.* 5-cleft; protuberant at the base. *Caps.* crowned with the toothed calyx, without valves, of 1—3 fertile cells. *Seeds* solitary.
19. CROCUS. *Cor.* in 6 deep equal segments; tube longer than the limb. *Stigmas* folded.
20. TRICHONEMA. *Cor.* in 6 deep equal segments; tube shorter than the limb. *Filam.* downy. *Stigm.* very slender, deeply divided.
21. IRIS. *Cor.* in 6 deep unequal segments, alternately reflexed. *Stigm.* 2-lipped, like petals.

** *Fl. inferior, chaffy. Seed* 1.

22. SCHCENUS. *Cor.* none. *Spike* of very few flowers. *Glumes* 2-ranked, with many smaller, empty, external ones. *Style* simple at the base, deciduous.
23. RHYNCHOSPORA. *Cor.* none. *Spike* of very few flowers. *Gl.* imbricated all round, with many smaller, empty, external ones. *Seed* beaked with the dilated, hardened, permanent base of the style.
25. SCIRPUS. *Cor.* none. *Gl.* imbricated all round, uniform, concave, expanded. *Style* simple at the base, deciduous.
26. ELEOCHARIS. *Cor.* none. *Gl.* imbricated all round, uniform, expanded. *Seed* crowned and articulated with the dilated hardened base of the style.
27. ERIOPHORUM. *Cor.* none. *Gl.* imbricated all round, uniform, expanded. *Seed* subtended by numerous very long hairs.
24. CYPERUS. *Cor.* none. *Gl.* imbricated, 2-ranked, uniform, compressed. *Style* simple at the base, deciduous. *Seed* naked at the base.
28. NARDUS. *Cor.* of 2 valves. *Cal.* none.

Juncus 4, 5, 16.

Order II. DIGYNIA. Pistils 2. True
Grasses, Gramina.

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

31. ALOPECURUS. *Cal. of 2 valves. Cor. of 1 valve; simple at the summit; awned at the base. Styles combined.*
32. KNAPPYA. *Cal. of 2 valves. Cor. of 2 unequal, very hairy, awnless valves.*
30. PHLEUM. *Cal. of 2 close, parallel, pointed valves, concealing the cor. of 2 awnless valves. Seed loose.*
29. PHALARIS. *Cal. of 2 close, parallel valves, concealing the double cor. of 3 or 4 valves; 2 innermost downy, subsequently hardened, investing the seed.*
33. POLYPOGON. *Cal. of 2 valves, awned at the summit, concealing the cor. of 2 valves; the outermost with a terminal awn. Seed loose.*
34. MILIUM. *Cal. of 2 tumid, close valves, inclosing the cor. of 2 valves. Seed coated with the hardened corolla.*
35. AGROSTIS. *Cal. of 2 acute valves, shorter than the cor. which is membranous, tufted with hairs at the base, unchanged. Seed loose.*
36. CYNODON. *Cal. of 2 lanceolate, acute, spreading, equal valves, shorter than the cor. of 2 compressed, very unequal valves. Seed coated with the hardened corolla.*
49. SPARTINA. *Cal. of 2 lanceolate, compressed, clasping valves. Cor. of 2 compressed, rather unequal, lanceolate valves. Nect. none. Seed loose. Styles combined.*
53. STIPA. *Cal. of 2 lax, pointed, awnless valves. Cor. with a terminal spiral awn, jointed at the base.*
55. LAGURUS. *Cal. of 2 fringed valves, with terminal, feathery awns. Outer valve of the cor. with 3 awns.*
37. DIGITARIA. *Cal. of 2 or 3 very unequal, close-pressed, awnless valves. Cor. of 2 unequal, depressed, awnless valves. Seed coated with the hardened corolla.*

Arundo 2, 3, 4, 5. Melica 1.

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

39. AIRA. *Florets 2, without any intermediate rudiment. Seed loose. Cor. unchanged.*
42. MELICA. *Florets 1 or 2, with the rudiments of 1 or 2 intermediate ones. Seed coated with the hardened corolla.*
40. HOLCUS. *One floret barren. Cor. awned. Seed coated with the hardened corolla. Cal. keeled.*
38. PANICUM. *One floret neuter. Cor. of the perfect one awnless. Seed coated with the hardened corolla. Cal. ribbed.*
41. HIEROCHLOE. *Florets 3; central one perfect, with 2 stamens; lateral ones barren, with 3. Cor. permanently membranous. Seed loose. Styles distinct.*
43. SESLERIA. *Florets 2 or 3, all perfect. Outer valve of the cor. toothed; inner cloven. Seed loose. Styles combined.*

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

47. BRIZA. *Cor. awnless, tumid, expanded, concave, without a keel. Seed depressed, united to the corolla.*
45. POA. *Cor. awnless, compressed, keeled, ovate, acute. Seed loose, elliptic-oblong.*
44. GLYCERIA. *Cor. awnless, cylindrical, furrowed, ribbed, abrupt, not keeled. Seed loose, cylindric-oblong.*
46. TRIODIA. *Cor. orbicular, expanded, obscurely ribbed, deeply cloven, with an intermediate point; both valves concave. Seed loose, depressed.*
48. DACTYLIS. *Cor. awned at the summit, lanceolate, keeled, compressed; inner valve folded, 2-ribbed. Seed loose, oblong. Cal. compressed, taper-pointed, unequal.*
51. FESTUCA. *Cor. awned at the summit, or pointed, keeled, nearly cylindrical, concave; inner valve flat, 2-ribbed, downy at the ribs. Seed loose, oblong. Cal. concave, acute, very unequal.*

50. CYNOSURUS. *Cor.* awned, at the summit, lanceolate, keeled, concave; inner valve flat, 2-ribbed. *Seed* loose, elliptic-oblong. *Cal.* awned, equal. *Spikelets* in pairs; 1 entirely neuter.
52. BROMUS. *Cor.* awned at the back, cloven, concave; inner valve flat, 2-ribbed, bristly at the ribs. *Seed* elliptic-oblong, united to the inner valve.
54. AVENA. *Cor.* awned at the back, cloven, nearly cylindrical; inner valve flat, ovate. *Seed* elliptic-oblong, united to the hard outer valve.
56. ARUNDO. *Cor.* surrounded with long permanent hairs. *Florets* 1 or many.

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

57. LOLIUM. *Cal.* of 1 principal valve, opposite to the stalk, fixed, many-flowered.
58. ROTTBOLLIA. *Cal.* of 2 parallel, sometimes combined, valves, opposite to the stalk, imperfectly 2-flowered.
61. TRITICUM. *Cal.* of 2 transverse opposite valves, solitary, many-flowered.
59. ELYMUS. *Cal.* of 2 parallel valves, aggregate, with 2 or more *florets*.
60. HORDEUM. *Cal.* of 2 parallel valves, aggregate, ternate, with 1 *floret*. *Central flower* only perfect.

Order III. TRIGYNIA. *Pistils* 3.

62. MONTIA. *Cal.* of 2 leaves. *Cor.* monopetalous. *Caps.* with 3 valves, and 3 *seeds*.
64. POLYCARPON. *Cal.* of 5 leaves. *Petals* 5, nearly entire. *Caps.* with 3 valves, and many *seeds*.
63. HOLOSTEUM. *Cal.* of 5 leaves. *Pet.* 5, jagged. *Caps.* with 6 teeth, and many *seeds*.

TRIANDRIA MONOGYNIA.

* *Flowers superior.*

17. VALERIANA. Valerian.

Linn. Gen. 22. *Juss.* 195. *Fl. Br.* 37. *Tourn.* t. 52. *Lam.* t. 24. f. 1, 2. *Gærtn.* t. 86.

Nat. Ord. *Aggregatæ.* *Linn.* 48. *Dipsacææ.* *Juss.* 56. *Valerianææ.* *DeCand.* 64. *Juss. Ann. du Mus.* n. 18 the same.

Cal. a slight border, subsequently expanding into a crown for the *seed.* *Cor.* of 1 tubular petal, with a protuberance or spur on one side at the base, containing honey; limb in 5 obtuse, rather unequal, segments. *Filam.* 3, or fewer, awl-shaped, erect, borne by the corolla, and as long as the limb. *Anth.* oblong. *Germ.* inferior, elliptic-oblong, of 1 cell. *Style* thread-shaped, the length of the stamens. *Stigma* mostly simple. *Seed* ovate-oblong, compressed, with 3 ribs at one side, and one at the other, crowned with many spreading, feathery rays, gradually unrolled.

Perennial herbs, with aromatic or fetid *roots.* *Stem* round. *Leaves* opposite, simple, pinnatifid, or pinnate, smooth. *Fl.* corymbose, spiked, terminal, reddish. The *seed* is truly naked, having only a membranous film besides its outer skin, or *testa.*

1. *V. rubra.* Red Valerian.

Flowers with one stamen, and a long spur. Leaves ovate-lanceolate, nearly entire.

V. rubra. *Linn. Sp. Pl.* 44. *Willd.* v. 1. 175. *Vahl Enum.* v. 2. 1. *Fl. Br.* 37. *Engl. Bot.* v. 22. t. 1531. *Hook. Scot.* 14. *Don H. Br.* 76. *Lam. f.* 2. *Dod. Pempt.* 351. f.

V. rubra *Dodonæi.* *Ger. Em.* 678. f.

V. n. 213 α . *Hall. Hist.* v. 1. 93.

V. marina. *Riv. Monop. Irr.* t. 3. f. 2.

V. marina latifolia major. *Moris.* v. 3. 102. *sect. 7. t.* 14. f. 15.

Phu peregrinum. *Camer. Epit.* 24. f.

On chalk cliffs and old walls.

In the chalk-pits of Kent, certainly wild.

Perennial. *June—September.*

One to two feet high, leafy, very smooth, and rather glaucous.

Lower leaves somewhat stalked, lanceolate, entire; upper sessile, more ovate, occasionally toothed at the broadest part. *Fl.* of an elegant rose-colour, scentless, numerous, erect, in a dense corymbose head, of forked, unilateral spikes.

2. *V. dioica*. Small Marsh Valerian.

Flowers with three stamens, dioecious. Stem-leaves pinnatifid; radical ones ovate.

V. dioica. *Linn. Sp. Pl.* 44. *Willd. v. 1.* 176. *Vahl Enum. v. 2.* 2. *Fl. Br.* 37. *Engl. Bot. v. 9. t.* 628. *Curt. Lond. fasc. 4. t.* 3. *Hook. Scot.* 15. *Fl. Dan. t.* 687. *Bull. Fr. t.* 311. *Poit. & Turp. Par. t.* 41.

V. n. 208. *Hall. Hist. v. 1.* 90.

V. sylvestris minor, & *V. sylvestris*, seu *palustris*, minor altera. *Raii Syn.* 200.

V. minor. *Ger. Em.* 1075. *f.*

V. minor, et *V. flore exiguo*. *Riv. Monop. Irr. t.* 2.

Phu minimum. *Matth. Valgr. v. 1.* 38. *f.* *Camer. Epit.* 23. *f.*

In moist boggy meadows frequent.

Perennial. *June*.

Root creeping. *Stem* simple, 6 or 8 inches high; the fertile plant most robust. *Leaves* and their segments mostly entire; occasionally serrated. *Fl.* flesh-coloured. *Spur* very short and blunt. *Seed-crown* red, less feathery. *Stam.* and *pist.* sometimes in the same *flower*, but scarcely both perfect.

3. *V. officinalis*. Great Wild Valerian.

Stamens three. Leaves all pinnate; leaflets lanceolate, nearly uniform.

V. officinalis. *Linn. Sp. Pl.* 45. *Willd. v. 1.* 177. *Vahl Enum. v. 2.* 6. *Fl. Br.* 38. *Engl. Bot. v. 10. t.* 698. *Curt. Lond. fasc. 6. t.* 3. *Hook. Scot.* 15. *Woodv. t.* 96. *Fl. Dan. t.* 570.

V. n. 210. *Hall. Hist. v. 1.* 91.

V. sylvestris major. *Raii Syn.* 200. *Ger. Em.* 1075. *f.*

Valeriana. *Riv. Monop. Irr. t.* 1.

Phu. *Column. Phytob.* 113. *t.* 114.

Ph. parvum. *Matth. Valgr. v. 1.* 37. *f.*

Ph. minus. *Camer. Epit.* 22. *f.*

Ph. germanicum. *Fuchs. Hist.* 857. *f.*

β . *Valeriana sylvestris major montana*. *Bauh. Pin.* 164. *Dill. in Raii Syn.* 200.

V. foliis angustioribus. *Riv. Monop. Irr. t.* 2. *f.* 1.

In marshes, and about the banks of pools and rivers.

β . In dry mountainous woods and pastures.

Perennial. *June*.

Root tuberous, somewhat creeping, fetid; in β more aromatic, and preferred for medical use. *Stem* about 4 feet high, furrowed. *Leaflets* coarsely serrated; those of the radical leaves broadest, approaching to ovate; but there is no remarkably large terminal leaflet; those of the stem in β are very narrow, and often

entire. *Fl.* numerous, blush-coloured, or white, in large corymbose *panicles*.

This, as a medicinal plant, is but a substitute for the real $\Phi\upsilon\upsilon$, or Phu, of Dioscorides, *V. Dioscoridis*. *Sm. Fl. Græc. Sibth. t. 33.* which Dr. Sibthorp ascertained in his Greek tour.

4. *V. pyrenaica*. Heart-leaved Valerian.

Stamens three. Stem-leaves heart-shaped, serrated, stalked; the uppermost pinnate.

V. pyrenaica. *Linn. Sp. Pl. 46. Willd. v. 1. 179. Vahl Enum. v. 1. 11. Don H. Br. 77. Engl. Bot. v. 23. t. 1591. Hook. Scot. 15.*

V. canadensis. *Riv. Monop. Irr. t. 4.*

V. maxima, cacaliæ folio. *Pluk. Phyt. t. 232. f. 1.*

In various woods in Scotland, particularly about Edinburgh and Glasgow. *G. Don, and T. Brown, M.D.*

Perennial. *July.*

Stem 2 or 3 feet high, furrowed. *Leaves* all variously serrated; the lower ones simple; upper accompanied with 1 or 2 pair of small lanceolate *leaflets*. *Footstalks* of the uppermost leaves, as well as their ribs and margins, often downy. *Fl.* light rose-coloured, numerous, with a short spur. The scent of the *root*, and probably its qualities, agree with the last.

18. FEDIA. Corn-sallad.

Vahl Enum. v. 2. 18. Sm. in Rees's Cycl. v. 14. Hook. Scot. 12. Gärtn. t. 86.

Valerianella. *Tourn. t. 52.*

Valerianæ species. *Linn. Gen. 22.*

Nat. Ord. see *n. 17.*

Cal. of 3 or 4 variously-shaped teeth, subsequently enlarged, and crowning the *capsule*. *Cor.* of 1 tubular petal, with a short blunt spur at one side; limb in 5 obtuse, rather unequal, segments. *Filam.* 3, sometimes more, borne by the tube, rather shorter than the limb. *Anth.* roundish. *Germ.* inferior, of 3 cells, roundish. *Style* thread-shaped. *Stigma* notched. *Caps.* coriaceous or membranous, various in shape, not bursting, crowned with the permanent *calyx*, usually of 2 abortive cells, and 1 fertile. *Seeds* solitary, ovate, smooth, with a simple skin.

Annual herbs, about a span high, with a fibrous *root*, forked leafy *stem*, and opposite, mostly simple and smooth, *leaves*. *Fl.* small, blueish, purplish, red, or yellow. *Fruit* very various.

1. *F. oleria*. Common Corn-sallad, or Lamb's Lettuce.

Leaves linear-tongue-shaped, blunt. Flowers capitate. Capsule inflated, two-lobed.

F. oleria. *Vahl Enum. v. 2. 19. Hook. Scot. 15. Schrad. Germ. v. 1. 95.*

Valeriana oleria. *Willd. v. 1. 182.*

V. Locusta. *Linn. Sp. Pl. 47, α. Fl. Br. 39. Engl. Bot. v. 12. t. 811. Curt. Lond. fasc. 5. t. 4. Mart. Rust. t. 24.*

Valerianella arvensis præcox humilis, semine compresso. *Raii Syn. 201. Moris. sect. 7. t. 16. f. 36.*

V. n. 214. Hall. Hist. v. 1. 94.

Lactuca agnina. *Ger. Em. 310. f. 1, 2.*

Locusta major, et minor. Riv. Monop. Irr. t. 6.

In corn-fields, and light cultivated ground.

Annual. *April—June.*

Stem forked twice or thrice, furrowed, smooth, except a few deflexed hairs on the ribs just below each fork. *Lower leaves* spatulate, stalked; upper sessile, sometimes jagged. *Fl.* pale blue, in round heads; none at the forks of the stem. *Caps.* smooth, with a minute crown, of 3 inflexed teeth, one of them much the largest. The *leaves* vary in form and division.

2. *F. dentata*. Oval-fruited Corn-sallad.

Leaves linear-tongue-shaped. Flowers solitary in the forks of the stem. Capsule ovate, ribbed. Crown erect.

F. dentata. *Vahl Enum. v. 2. 20. Hook. Scot. 15. Schrad. Germ. 96.*

Valeriana dentata. *Willd. v. 1. 183. Ehrh. Herb. 122. Fl. Br. 1385. Engl. Bot. v. 20. t. 1370.*

V. Locusta oleria. *Fl. Dan. t. 738.*

Valerianella n. 215. Hall. Hist. v. 1. 94.

In corn-fields.

Found in Cornwall and Essex, by Mr. Edw. Forster; on Harleton hill, Cambridgeshire, by the Rev. Mr. Holme.

About Edinburgh. *Hooker.*

Annual. *June, July.*

Leaves narrower than in the foregoing. *Fl.* smaller, purplish, almost all from the forks of the smooth *stem*. *Caps.* not inflated, nor lobed. *Crown* of 3, scarcely more erect, unequal teeth, one much the largest.

Column's synonym, *Ephr. t. 209. f. 2*, appears doubtful, as the seed of our plant is neither pierced nor umbilicated; that of Rivinus evidently belongs to *F. oleria*.

Fedia, as derived from *Fedus*, an ancient word, synonymous with *Hædus*, a kid, is not unsuitable to this genus. *Valerianella*, being a compound, as well as a diminutive, of an established name, is inadmissible.

19. CROCUS. *Crocus*.

Linn. Gen. 25. *Juss.* 59. *Fl. Br.* 39. *Tourn.* t. 183, 184. *Lam.* t. 30.
Nat. Ord. Ensatae. *Linn.* 6. *Irides.* *Juss.* 18. n. 20 and
 21 the same.

Cal. radical, of 2 unequal, membranous, tubular sheaths, single-flowered. *Cor.* superior; tube cylindrical, erect, 3 or 4 times the length of the *limb*, which is regular, in 6 elliptic-oblong, equal segments, 3 of them partly internal. *Filam.* in the mouth of the tube, shorter than the limb. *Anth.* arrow-shaped, erect. *Germ.* at the root, inferior, roundish. *Style* thread-shaped, very long, rising as high as the stamens. *Stigm.* 3, dilated upwards, variously folded, jagged, or many-cleft. *Caps.* membranous, of 3 cells, and 3 valves. *Seeds* several, globular.

Stem or *stalk* none. *Bulb* solid, externally coated. *Leaves* several, recurved, linear, keeled, revolute, smooth, with a white central stripe, radical as well as the *flowers*, which are blue or yellow, vernal or autumnal.

* 1. *C. sativus*. Saffron Crocus.

Stigma prominent laterally, in three deep, linear, notched segments.

C. sativus. *Linn. Sp. Pl.* 50, α . *Willd.* v. 1. 194. *Vahl Enum.* v. 2. 45. *Fl. Br.* 39. *Woodv.* t. 176. *Redout. Liliac.* t. 173.

C. officinalis. *Huds.* 13, α . *Mart. Rust.* t. 58.

C. autumnalis. *Engl. Bot.* v. 5. t. 343.

Crocus. *Raii Syn.* 374. *Ger. Em.* 151. f. *Trag. Hist.* 763. f. *Fuchs. Hist.* 441. f.

Crocum. *Matth. Valgr.* v. 1. 62, 63. f, f. *Camer. Epit.* 33. f.

In meadows and pastures, naturalized probably.

Perennial. *September.*

Fl. shorter than the *leaves*, large, purple. *Throat* without hairs. *Stigm.* deep-orange, fragrant, narrow, a little dilated upwards, and notched at the summit. *Anth.* pale yellow. The *stigmas* are the officinal Saffron.

2. *C. vernus*. Purple Spring Crocus.

Stigma within the flower, in three short wedge-shaped jagged lobes. Tube of the corolla hairy at the mouth.

C. vernus. *Willd.* v. 1. 195. *Vahl Enum.* v. 1. 46. *Fl. Br.* 40. *Engl. Bot.* v. 5. t. 344. *Ker in Curt. Mag.* t. 860. *Jacq. Austr. app.* t. 36. *Redout. Liliac.* t. 266.

C. sativus. *Linn. Sp. Pl.* 50, β .

C. officinalis. *Huds.* 13, β .

C. n. 1257. *Hall, Hist.* v. 2. 127.

C. vernalis cæruleus. Deering Nott. 60.

C. vernus, flore purpureo. Ger. Em. 154. f.

In meadows about Nottingham plentifully, first observed by Deering.

Perennial. March.

Fl. much like the last, occasionally white. *Leaves* less revolute. *Stigm.* pale, inodorous. Mr. Ker first noticed an assemblage of entangled, jointed, pellucid hairs, closing the top of the tube; an excellent character of this species. It is very common in gardens, flowering a fortnight later than the still more abundant Yellow Crocus, *Curt. Mag. t. 45.*

3. *C. reticulatus.* Net-rooted Crocus.

Stigma within the flower, in three obtuse undivided segments. Three outer segments of the corolla recurved. Coat of the bulb strongly reticulated.

C. reticulatus. Marsch. Taur.-Caucas. v. 1. 28.

C. susianus. Ker in *Curt. Mag. v. 18. t. 652.* Dryand. in *Ait. Hort. Kew. ed. 2. v. 1. 81.*

C. vernus latifolius, flavo vario flore. Clus. Hist. v. 1. 206. f.

C. vernus latifolius flavo varius. Rudb. Elys. v. 2. 121. f. 4.

C. vernus latifolius, flore flavo, striis violaceis. Ger. Em. 155. f.

C. orientalis vernus, flore subcæruleo, externè spadiceo-rubente. Tourn. Cor. 25.

In grassy pastures or meadows.

In Sir Henry Bunbury's park, at Barton, Suffolk, very plentifully, and certainly wild. Mr. Dawson Turner.

Perennial. March.

Smaller than any other of our wild species. *Bulb* very remarkable for its strong, dense, wiry coating, of stout, rigid, interbranching fibres, firmly connected, and making a curious net-work. *Leaves* rather narrow. *Fl.* one or two. Three inner segments of the *corolla* erect; outer ones permanently recurved, and marked externally with three longitudinal, dark-purple, somewhat feathery, stripes; the ground of the whole *corolla* being whitish, or pale blue, or yellow. Our's agrees in colour with original specimens of the *C. reticulatus* β of the *Fl. Taur.-Caucasica*, the α having yellow flowers as in the *Bot. Mag.* I cannot but prefer an expressive name to one liable to many objections. At least I would give botanists their choice. Mr. Ker has well distinguished this species; and he justly remarks that its representations in the older books are very characteristic, though I think not that of the *Hort. Eystetensis*, especially in the *root*.

4. *C. nudiflorus.* Naked-flowering Crocus.

Stigma within the flower, in three deeply-laciniated tufted segments. Flower unaccompanied by leaves.

C. nudiflorus. *Fl. Br.* 41. *Engl. Bot.* v. 7. t. 491. *Vahl Enum.* v. 2. 46.

C. speciosus. *Marsch. Taur.-Cauc.* v. 1. 27, from the author.

C. sylvestris autumnalis. *Dod. Pempt.* 214. f.

C. montanus autumnalis. *Ger. Em.* 154. f. 6.

Colchicum commune. *Deering Nott.* 57.

In sandy meadows annually overflowed.

Between Nottingham castle and the Trent. *Rev. Mr. Becher.*

Perennial. *October.*

Tube of the *cor.* a foot long; limb of a fine deep purple. *Stigma* deep orange, not much scented. *Leaves* not produced till December, paler, flatter, with less of a white central stripe, than in the two preceding. *Capsule* elliptical, stalked, ripening in May.

20. TRICHONEMA. *Trichonema*.

Ker in Sims & Kön. Ann. of Bot. v. 1. 222. *Dryand. in Ait. Hort.*

Kew. ed. 2. v. 1. 82. *Sm. in Rees's Cycl.* v. 36.

Romulea. *Maratti Plant.* 13. t. 1.

Nat. Ord. see *n.* 19.

Cal. an inferior sheath, more than half the length of the *cor.* of 2 lanceolate, entire, permanent valves. *Cor.* superior; tube very short, funnel-shaped; limb regular, somewhat spreading. *Filam.* from the mouth of the tube, much shorter than the limb, minutely hairy, with large, oblong, converging *anther*. *Style* longer than the *stam.* *Stigm.* 3, equal, spreading, very slender, rather abrupt, divided to the base. *Caps.* roundish. *Seeds* globose.

Root a solid bulb. *Stem* simple or divided, naked, or bearing one leaf. *Leaves* mostly radical, narrow, smooth. *Fl.* solitary, various and changeable in colour and size.

1. *T. Bulbocodium*. Channel-leaved *Trichonema*.

Leaves linear, channelled, recurved, longer than the flower-stalks.

T. Bulbocodium. *Ait. Hort. Kew. ed.* 2. v. 1. 82.

Ixia Bulbocodium. *Linm. Sp. Pl.* 51. *Willd.* v. 1. 196. *Vahl Enum.* v. 2. 50. *Comp.* 8. *Engl. Bot.* v. 36. t. 2549. *Fl. Græc.* v. 1. 26. t. 36. *Jacq. Ic. Rar.* t. 271. *Curt. Mag.* t. 265. *Redout. Liliac.* t. 88.

Sisyrinchium Theophrasti. *Column. Ecphr.* 328. t. 327.

Crocus vernus. *Ger. Em.* 153. f. 1, 2.

On grassy hillocks in Guernsey. *Mr. Gosselin.*

Perennial. *March, April.*

Bulb ovate, with torn membranous coats, eatable. *Leaves* several,

spreading, 3 or 4 inches long. *Fl.* blue or purplish, ribbed, varying to white or yellow, on simple or branched, sometimes leafy, curved *stalks*.

21. IRIS. Iris, or Flower-de-luce.

Linn. Gen. 27. *Juss.* 57. *Fl. Br.* 41. *Tourn. t.* 186—188. *Lam. t.* 33. *Gartn. t.* 13.

Nat. Ord. see *n.* 19.

Cal. an inferior sheath, of 2 leafy valves. *Cor.* superior; 3 outer segments largest, rounded, reflexed, opposite to, and applied underneath, the stigmas; sometimes hairy above: inner erect, narrow: all united by a firm thick base. *Filam.* awl-shaped, lying on the larger segments. *Anth.* oblong, depressed. *Germ.* oblong, with 3 furrows. *Style* short, thread-shaped. *Stigm.* 3, equal, dilated, and of the texture of petals, two-lipped; upper lip cloven, erect; lower minute; with a cleft between them to receive the pollen. *Caps.* angular, of 3 cells and 3 valves. *Seeds* numerous, 2-ranked, globular, or angular from pressure.

Perennial smooth herbs, with a tuberous, sometimes bulbous *root*. *Stem* leafy below, erect, round. *Leaves* sheathing, mostly sword-shaped. *Fl.* several, large, purple, blueish, or yellow.

1. I. *Pseud-acorus*. Yellow Water Iris.

Corolla beardless; inner segments smaller than the stigmas. Leaves sword-shaped. Seeds angular.

I. *Pseud-acorus*. *Linn. Sp. Pl.* 56. *Willd. v.* 1. 232. *Vahl Enum. v.* 2. 138. *Fl. Br.* 41. *Engl. Bot. v.* 9. t. 578. *Curt. Lond. fasc.* 3. t. 4. *Woodv. t.* 40. *Hook. Scot.* 16. *Fl. Dan. t.* 494. *Bull. Fr. t.* 137. *Poit. & Turp. Par. t.* 46. *Cord. Hist.* 134. f.

I. n. 1260. *Hall. Hist. v.* 2. 129.

I. *palustris lutea*. *Raii Syn.* 374. *Ger. Em.* 50. f.

Pseudoacorum. *Matth. Valgr. v.* 1. 20. f.

Pseudoiris. *Dod. Pempt.* 248. f.

Acorus. *Brunf. Herb. v.* 2. 47. f.

Acorum falsum. *Camer. Epit.* 6. f.

A. officinarum. *Fuchs. Hist.* 13. f. 12.

In ditches, pools and rivers frequent.

Perennial. *July*.

Root horizontal, depressed, brown, very astringent. *Stem* 3 or 4 feet high. *Leaves* erect, ribbed, grass-green. *Fl.* from 3 to 6, large, handsome, bright yellow; disk of the larger segments pencilled with dark purple.

2. *I. fœtidissima*. Stinking Iris, or Gladwyn. Roast-beef plant.

Corolla beardless; inner segments spreading. Stem with one angle. Leaves sword-shaped. Seeds globose.

I. fœtidissima. Linn. *Sp. Pl.* 57. Willd. v. 1. 232. Vahl *Enum.* v. 2. 139. Fl. Br. 42. Engl. Bot. v. 9. t. 596. Poit. & Turp. *Par. t.* 45.

I. sylvestris quam Xyrim vocant. Raii *Syn.* 375.

Xyris. Ger. Em. 60. f. Matth. *Valgr.* v. 2. 340. f. Camer. *Epit.* 733. f. Sphatula fœtida. Fuchs. *Hist.* 793. f. 794. *Trag. Hist.* 904. f.

In groves, thickets, and under hedges, but rather rare. Dr. Withering observed it to be very common in all the south-west counties.

Perennial. *May*.

About 2 feet high. Leaves dull green, exhaling, when rubbed, a scent compared to that of roast beef, to which it is no compliment. Fl. dull pale purple, pencilled with dark veins. Seeds orange-coloured, polished.

** *Fl. inferior, chaffy. Seed 1.*

22. SCHÆNUS. Bog-rush.

Linn. *Gen. Pl.* 29. Juss. 27. Fl. Br. 42. Br. Pr. 231. Lam. t. 38. f. 1. Chætopora. Br. Pr. 232.

Nat. Ord. *Calamariæ*. Linn. 3. *Cyperoideæ*. Juss. 9. *Cyperaceæ*. Decand. 134. Br. Pr. 212. Five following genera belong to the same. See *Grammar* 68, 198.

[This natural order, for which I prefer the original name of *Calamariæ*, has received great illustration by Mr. Brown's discoveries in New Holland; and from his *Prodromus* the following characters, in addition to Jussieu's, given in the *Grammar*, are principally taken. My *calyx*, consisting of a single *scale* or *glume* to each *flower*, and often accompanied by many smaller empty ones in each *spike*, is the *palea* (chaff or scale) of Mr. Brown. The *Perianth*, or *Calyx*, of this author, is either wanting, or consists of rough *bristles*, various in number, or more rarely is membranous, as in the genus *Carex*, consisting in that instance of 1 valve; in others of 3. But my objection to this view of the subject is, that these *bristles*, or membranous parts, are situated between the *stamens* and *germen*, and cannot therefore be either *calyx* or *corolla*, but are rather an appendage to the *germen* and *seed*, which latter they accompany to the last.

The *stamens* are "of a definite number, generally 3, some-

times 1 or 2, sometimes 4 or 6, very rarely 12;" their *filaments* either capillary, or flat, lax and spreading, proceeding from the *receptacle* beneath the *germen*; *anthers* attached by the base, linear, undivided, mostly pendulous, of 2 cells, bursting lengthwise. *Germen* with the rudiment of a single kernel only, which is attached by its base to the bottom; *style* cylindrical, or more commonly triangular, finally separating, either at the base, or more usually at a joint, a little way up, leaving the lower part to form a beak to the *seed*; *stigmas* linear, downy, rarely cloven. *Seed* hard, often polished, coloured, and dotted, with as many angles as there are *stigmas*; its chief bulk consisting of a firm *albumen* of the same shape; *embryo* simple, orbicular, flattened, situated in the base of the seed, on the outside of the *albumen*, as Mr. Brown observes in opposition to Gærtner, who, with Jussieu, describes this organ as within the *albumen*; *plumula* not discernible.

The *flowers* are ranged in *spikes*, various in length; the lower *glumes* of which are, many of them, in some cases, abortive and destitute of any organs of fecundation.

I think nothing is gained by calling the *seed* of these plants a *nut*, on account of its hardness, which is but comparative; there being no supernumerary integument to distinguish this *seed* from others, acknowledged to be simple and naked.]

SCHÆNUS.

Spike of 1—3 *flowers*, subtended by numerous, smaller, empty, keeled, folded, crowded *glumes*, in 2 opposite ranks. *Cor.* none. *Filam.* capillary, longer than the *glumes*. *Anth.* linear, erect. *Germ.* superior, roundish, more or less triangular, with or without a few rough bristles, shorter than its own *glume*, underneath. *Style* capillary, simple and without a joint at the base, deciduous. *Stigm.* 3, acute, feathery. *Seed* the shape of the *germen*, hard, loose, simply pointed.

Root scarcely creeping. *Stems* erect, rushy, round or triangular, without joints, leafy chiefly at the base. *Leaves* sheathing, rigid. *Spikes* aggregate, brownish. The bristles under the *germen* are present or not, in species otherwise so nearly akin, that they appear scarcely to mark even natural sections of the genus. The same is the case in *Scirpus*.

1. *S. nigricans*. Black Bog-rush.

Stem round, naked. Head roundish, abrupt, overtopped by one of the two floral leaves.

S. nigricans. *Linn. Sp. Pl.* 64. *Willd.* v. 1. 261. *Vahl Enum.* v. 2. 208. *Fl. Br.* 43. *Engl. Bot.* v. 16. t. 1121. *Hook. Scot.* 16. *Don H. Brit.* 51. *Schrad. Germ.* v. 1. 113.

Cyperus nigricans. *With.* 78.

C. n. 1347. *Hall. Hist.* v. 2. 181.

Juncus lævis minor, paniculâ glomeratâ nigricante. *Raii Syn.* 430.

J. lithospermi semine. *Magn. Monsp.* 145. t. 144.

J. capitatus lithospermi semine. *Moris. sect.* 8. t. 10. f. 28.

Junco affinis, capitulo glomerato nigricante. *Scheuchz. Agr.* 349. t. 7. f. 12, 13, 14.

On turfy bogs.

Perennial. *June*.

Root of very long strong fibres, crowned with black, shining, erect, folded sheaths, a few of which bear very narrow, acute, upright leaves, convex beneath, and embrace the bottom of the simple, rigid, otherwise naked, stem, which is from 8 to 12 inches high. *Head* black. *Anth.* long, prominent, yellow. *Stigm.* 3, dark purple. *Seed* white and polished, with a few narrow rough scales below the base, arising from the elongated receptacle, represented in *Engl. Bot.* but overlooked by Vahl and Schrader.

23. RHYNCHOSPORA. Beak-rush.

Vahl Enum. v. 2. 229. *Br. Pr.* 229.

Nat. Ord. see n. 22.

Spike of 2 or 3 perfect flowers, subtended by numerous, gradually smaller, empty, crowded glumes. *Gl.* all imbricated in every direction, concave, pointed. *Cor.* none. *Filam.* 1, 2 or 3. *Anth.* linear, erect. *Germ.* superior, roundish, small, with several rough bristles, shorter than its glume, beneath. *Style* capillary, with a broad base, which remains, forming a hard, conical, compressed, pale beak to the convex, otherwise obtuse, seed.

Stems erect, simple, leafy, triangular. *Leaves* keeled, with entire sheaths. *Spikes* in corymbose, stalked heads. *Fl.* sometimes partly monoecious, according to Vahl.

1. *R. alba*. White Beak-rush.

Heads abrupt. Stamens two. Leaves tapering. Numerous bristles at the base of the seed.

R. alba. *Vahl Enum.* v. 2. 236.

Schoenus albus. *Linn. Sp. Pl.* 65. *Willd. v. 1.* 267. *Fl. Br.* 46.
Engl. Bot. v. 14. t. 985. *Hook. Scot.* 16. *Don H. Br.* 53. *Fl.*
Dan. t. 320, bad.

Scirpus n. 1341. *Hall. Hist. v. 2.* 179.

Cyperus minor palustris hirsutus, paniculis albis paleaceis. *Raii*
Syn. 427. *Moris. v. 3.* 239. *sect. 8. t. 9. f.* 39.

Gramen junceum leucanthemum. *Ger. Em.* 30.*

G. cyperoides palustre leucanthemum. *Scheuchz. Agr.* 503. *t. 11.*
f. 11.

Gramini luzulæ accedens glabrum, in palustribus proveniens, pa-
 niculatum. *Pluk. Phyt. t. 34. f.* 11.

On turfy bogs, most frequent in mountainous countries.

Perennial. *July, August.*

Root moderately creeping. *Whole plant* smooth and slender,
 from 6 to 12 inches high. *Leaves* erect, shorter under the flower-
 stalks. *Spikes* slender, very white when recent; pale reddish
 brown when old or dry. *Stigm.* 2. *Seed* lenticular, greyish, with
 a flat beak, one third its own length, and about 10 brown rough
 bristles from the receptacle, rising above it.

2. *R. fusca*. Brown Beak-rush.

Heads ovate-oblong. Stamens three. Leaves thread-shaped.
 Three bristles at the base of the seed.

R. alba β . *Vahl Enum. v. 2.* 236.

Schoenus fuscus. *Linn. Sp. Pl.* 1664. *Willd. v. 1.* 262. *Engl. Bot.*
v. 22. t. 1575. *Don H. Br.* 203. *Ehrh. Beitr. v. 4.* 154. *Phy-*
toph. n. 1. *Roth Germ. v. 2.* 48. *Schrad. Germ. v. 1.* 110. *Turn.*
in Bot. Guide 754. *Fl. Dan. t.* 1562.

Cyperus minor angustifolius palustris, capitulis fuscis paleaceis.
Moris. v. 3. 239. *sect. 8. t. 11. f.* 40, bad. *Dill. in Raii Syn.* 427.

In bogs, rare.

On Cromlyn bog, near Swansea. *Mr. E. Forster*. Near Killarney,
 Ireland. *Mr. Mackay*. Originally gathered near the isle of
 Purbeck, Dorsetshire, by the Rev. Mr. Lightfoot, according to
 a specimen in the herbarium of the Rev. Mr. Hasted, Bury.
Mr. John Denson.

Smaller than *R. alba*. *Leaves* narrower, of a more even thickness,
 not tapering. *Glumes* of a shining reddish brown. *Bristles* only
 3, alternate with the 3 permanent *stam.* *Style* varying in length.

24. CYPERUS. *Cyperus*, or Galingale.

Linn. Gen. 29. *Juss.* 27. *Fl. Br.* 47. *Tourn. t.* 299. *f. D—F.*
Lam. t. 38. *Gærtn. t.* 2.

Nat. Ord. see *n. 22.*

Spike mostly linear, compressed, of numerous *flowers*, with

uniform, keeled *glumes*, imbricated in 2 opposite ranks, all perfect, except one or two at the bottom. *Filam.* 2 or 3, short. *Anth.* linear. *Germ.* roundish, without bristles beneath. *Style* simple at the base, deciduous. *Stigm.* 2 or 3. *Seed* pointed, smooth, loose.

Root fibrous, or creeping. *Stem* simple, without joints, round, or mostly triangular, leafy or sheathed about the bottom, as well as at the summit. *Spikes* terminal, aggregate, either capitate or spiked.

1. *C. longus*. Sweet Cyperus. English Galingale.

Stem triangular. Umbel leafy, twice compounded, with naked stalks. *Spikes* alternate.

C. longus. *Linn. Sp. Pl.* 67. *Willd. v.* 1. 285, excl. Rottb. syn. *Vahl Enum. v.* 1. 346. *Fl. Br.* 47. *Engl. Bot. v.* 19. *t.* 1309. *Jacq. Ic. Rar. t.* 297. *Raii Syn.* 425. *Ger. Em.* 30. † *f.* *Schrad. Germ. v.* 1. 120.

C. longus odoratus. *Bauh. Theatr.* 216. *f.* *Moris. v.* 3. 237. *sect.* 8. *t.* 11. *f.* 13.

C. odoratus, radice longâ. *Scheuchz. Agr.* 378. *t.* 8. *f.* 12.

In marshes, but very rare.

By a rivulet between St. David's town and St. David's head. *Sir John Cullum, Bart.* At Walton in Gordan, Somersetshire. *Mr. Dyer.*

Perennial. *July.*

Root moderately creeping, highly aromatic, and astringent. *Stem* 2 or 3 feet high, with a very large, leafy, compound, erect umbel, whose slender triangular stalks are closely sheathed at the base. *Spikes* shining brown, narrow, erect, 5 or 6 together, loosely spreading in 2 directions. *Stigm.* 3.

2. *C. fuscus*. Brown Cyperus.

Stem triangular. Umbel compound, with three unequal leaves beneath. *Spikes* crowded, spreading every way. *Stigmas* three.

C. fuscus. *Linn. Sp. Pl.* 69. *Willd. v.* 1. 280. *Vahl Enum. v.* 2. 336. *Hook. Lond. t.* 85. *Fl. Dan. t.* 179. *Fl. Græc. v.* 1. 34. *t.* 48. *Poit. & Turp. Par. t.* 75. *Schrad. Germ. v.* 1. 118. *Leers* 9. *t.* 1. *f.* 2. *Ehrh. Calam.* 111.

C. n. 1349. *Hall. Hist. v.* 2. 181.

C. minimus, paniculâ sparsâ nigricante. *Scheuchz. Agr.* 384.

C. minor pulcher, paniculâ compressâ nigricante. *Moris. v.* 3. 239. *sect.* 8. *t.* 11. *f.* 38.

In wet meadows, rare.

Found by Mr. Haworth in a low marshy meadow, half a mile from Little Chelsea. *Hooker*.

Annual. *September*.

Root of many simple fibres. *Stems* several, about 6 inches high, smooth and pliant. *Spikes* numerous. *Gl.* brown, more or less dark, pale at the keel; the lower ones gradually deciduous with the seed. *Stam.* but 2 according to Dr. Hooker; 3 are represented in *Fl. Dan.* as well as by Leers, Poiteau, and Bauer. We have seen no living specimens to settle this matter. The *seed* is triangular, inequilateral, pale, with a simple beak. Willdenow, Vahl, and even Schrader, copy Linnæus's erroneous reference to Morison, *t.* 9, for 11.

25. SCIRPUS. Club-rush, and Bull-rush.

Linn. Gen. 30. *Juss.* 27. *Fl. Br.* 48. *Br. Pr.* 223. *Lam. t.* 38. *f.* 2. *Gærtn. t.* 2.

Isolepis. *Br. Pr.* 221.

Nat. Ord. see *n.* 22.

Spike of numerous *flowers*, all perfect. *Gl.* imbricated in every direction, expanded, concave, uniform, except 1 or 2 occasionally. *Cor.* none. *Filam.* flat. *Anth.* linear. *Style* neither jointed nor dilated at the base, deciduous. *Stigm.* 2 or 3, downy. *Seed* with or without rough bristles beneath; often pointed.

Bog or water plants for the most part, with generally perennial, fibrous, seldom creeping, *roots*. *Stem* round or angular, naked, except at the base or summit, without joints. *Inflorescence* usually compound, rarely simple. *Isolepis* differs solely in the want of bristles under the germen.

* *Spikes solitary.*

1. *S. cæspitosus.* Scaly-stalked Club-rush.

Stem round, striated; sheathed and invested with numerous scales at the base. *Spike* terminal. Outer glumes largest, with leafy points.

S. cæspitosus. *Linn. Sp. Pl.* 71. *Willd. v.* 1. 292. *Vahl Enum. v.* 2. 242. *Fl. Br.* 49. *Engl. Bot. v.* 15. *t.* 1029. *Rel. Rudb. t.* 28. *f.* 1. *Hook. Scot.* 17. *Don H. Br.* 132. *Schrad. Germ. v.* 1. 123. *Ehrh. Calam.* 102.

S. montanus, capitulo breviori. *Raii Syn.* 429. *Scheuchz. Agr.* 363. *t.* 7. *f.* 18.

S. n. 1334. *Hall. Hist. v.* 2. 176.

Juncus parvus montanus, cum parvis capitulis luteis. *Bauh. Hist. v.* 2. 523. *f.* 2.

On turfy barren heaths common.

Perennial. *July*.

Root with many coarse, tough, zigzag fibres. *Stems* numerous, from 3 to 12 inches high, in dense tufts, erect, naked, except at the base, where they bear 2 or 3 very short *leaves*, with long sheaths, besides numerous tumid, furrowed, polished, permanent, radical, external scales. *Spikes* solitary, small, reddish brown, many of them pinched and abortive; sometimes entirely suppressed; whence the barren *stems* have been taken, as Schrader remarks, for leaves. Two outer *glumes* as tall as the spike, pointed, their *seeds* most invariably perfected. *Stigm.* 3, rarely 4. *Seed* elliptical, triangular, brown, with green edges, subtended by about 6 forked bristles.

This species and the next approach in habit and character to *Eleocharis* hereafter described, to which I would remove them rather than not admit that genus. Mr. Brown, however, does not enumerate them as belonging to it.

2. *S. pauciflorus*. Chocolate-headed Club-rush.

Stem round, with a tight leafless sheath at the base. *Spike* terminal, of few flowers, longer than its blunt membranous-tipped outer *glumes*.

S. pauciflorus. *Lightf.* 1078. *Fl. Br.* 50. *Engl. Bot.* v. 16. t. 1122. *Hook. Scot.* 17. *Don H. Br.* 127.

S. Bæothryon. *Ehrh. Phyt.* 31. *Linn. Suppl.* 103. *Willd.* v. 1. 293. *Vahl Enum.* v. 2. 244. *Schrad. Germ.* v. 1. 125. *Roth Germ.* v. 2. 54.

S. campestris. *Roth Catal.* v. 1. 5.

S. n. 1335. *Hall. Hist.* v. 2. 176.

S. minimus, spicâ breviorè, squamosâ, spadiceâ. *Scheuchz. Agr.* 364. t. 7. f. 19.

On moors and mountains in Scotland, not uncommon.

Near Yarmouth, Norfolk. *Mr. D. Turner*.

Perennial. *August*.

Smaller than the last, with several barren *stems*, but no real *leaves*. The numerous radical polished imbricated scales are also wanting, there being only a very few thin and narrow ones, besides the close abrupt sheaths which embrace each *stem*. *Spike* smaller and blacker than in *S. cæspitosus*, but, except when starved, twice as long as the 2 outer *glumes*, which end in a rounded membranous border. *Seed* grey, shining, obtuse, with a brown point, and at the base 6 fine rough bristles.

I prefer Lightfoot's unexceptionable and original name to the pedantic one of Ehrhart, foisted, like many other such, by him, into the *Supplementum* of Linnæus, while printing; contrary to the author's intention.

3. *S. fluitans*. Floating Club-rush.

Stem branched, leafy, pliant and floating. Flower-stalks alternate, naked. Spikes terminal, of few flowers.

S. fluitans. *Linn. Sp. Pl.* 71. *Willd. v. 1.* 295. *Vahl Enum. v. 2.* 246. *Fl. Br.* 51. *Engl. Bot. v. 3. t.* 216. *Hook. Scot.* 18. *Don H. Br.* 129. *Schrad. Germ. v. 1.* 130. *Fl. Dan. t.* 1082.

S. equiseti capitulo minori. *Raii Syn.* 431. *Scheuchz. Agr.* 365. *t. 7. f.* 20.

Isolepis fluitans. *Br. Pr.* 221.

Gramen junceum clavatum minimum, seu Holosteum palustre repens, foliis capitulis et seminibus psyllii. *Moris. v. 3.* 230. *sect. 8. t. 10. f.* 31. *Pluk. Phyt. t.* 35. *f.* 1.

In ditches and ponds; as well as in pools upon grassy commons and heaths, occasionally dried up.

Perennial. *June, July.*

Stem zigzag, most slender in the lower part. Leaves awl-shaped, keeled, spreading at nearly a right angle with their sheaths; those that are under water longest and almost capillary. Flower-stalks 2 or 3 inches long, compressed, contracted at the top. Spikes solitary, small, pale green, with obtuse glumes, and yellow anthers. Style short. Stigmas 2, long and feathery. Seed pale, round, with 3 angles, and a very small point; no bristles underneath.

** *Stem round, with several spikes.*

4. *S. lacustris*. Bull-rush.

Stem round, naked. Panicle cymose, twice compound, terminal. Spikes ovate. Bractees generally much shorter than the panicle.

S. lacustris. *Lim. Sp. Pl.* 72. *Willd. v. 1.* 296. *Vahl Enum. v. 2.* 267. *Fl. Br.* 52. *Engl. Bot. v. 10. t.* 666. *Hook. Lond. t.* 91. *Scot.* 18. *Br. Pr.* 223. *Ehrh. Calam.* 112. *Fl. Dan. t.* 1142.

S. palustris altissimus. *Raii Syn.* 428. *Scheuchz. Agr.* 354.

Juncus maximus, seu Scirpus. *Bauh. Theatr.* 178. *f.*

In clear ditches, ponds, and the borders of lakes and rivers.

Perennial. *July, August.*

Root thick, creeping. Stems 4—6 feet high, soft, spongy, smooth, used for thatching, and especially for platted chair-bottoms. Leaves at the base 1 or 2, short, with long sheaths. Panicle various in luxuriance, or number of spikes, which are brown, soft, half an inch long, with fringed, pointed glumes. Stam. 3, flat. Stigm. 3, rarely but 2. Seed obovate, flat at one side, keeled at the other, having 6 rough bristles at the base, and ending in a very small brown point.

5. *S. glaucus*. Glaucous Club-rush.

Stem round, naked, glaucous. Panicle cymose, not higher than the bractea. Spikes ovate, conglomerate. Stigmas two.

S. glaucus. *Comp.* 10. *Engl. Bot.* v. 33. t. 2321.

S. lacustris β . *Fl. Br.* 52. *Huds.* 19. *Hook. Scot.* 18.

S. palustris humilior. *Scheuchz. Agr.* 356.

Juncus sive Scirpus medius. *Raii Syn.* 428. *Bauh. Theatr.* 181. f.

In salt-marshes, and salt-water ditches, not uncommon.

On the west of Ardbigland, Galloway, Scotland. *Mr. J. Mackay*.
Shoreham, Sussex; and Cley, Norfolk. *Mr. Borrer*.

Perennial. *August*.

Two feet high, of a glaucous hue. *Pan.* less compound. *Spikes* more crowded, darker, with broader *glumes* dotted with purple. *Stigm.* never more than 2. A very distinct species.

6. *S. Holoschœnus*. Round-cluster-headed Club-rush.

Stem round, naked. Spikes numerous, in globular, sessile or stalked, heads. Bracteas two, unequal, leafy. Leaves channelled. Seed without bristles.

S. Holoschœnus. *Linn. Sp. Pl.* 72. *Willd.* v. 1. 297. *Vahl Enum.* v. 2. 264. *Fl. Br.* 53. *Engl. Bot.* v. 23. t. 1612. *Fl. Dan.* t. 454, bad. *Dicks. Dr. Pl.* 2. *Schrad. Germ.* v. 1. 135.

S. maritimus, capitulis rotundioribus glomeratis. *Raii Syn.* 429.
Scirpoides maritimum, capitulis sparsis glomeratis. *Scheuchz. Agr.* 371. t. 8. f. 2—5.

Juncus maritimus capitulis rotundis. *Moris.* v. 3. 232. *sect.* 8. t. 10. f. 17. *Pluk. Phyt.* t. 40. f. 4. *Rel. Rudb.* 22. f. 1, and 25. f. 3. *Bauh. Theatr.* 174. f.

Holoschœnus. *Dalech. Hist.* 987. f.

On sandy sea shores, in the south of England, rare.

At Braunton Boroughs, Devonshire, found by Mr. Stevens. *Ray*.
In Somersetshire, Hampshire, Dorsetshire, &c. *Sherard, Pe-tiver*, &c.

Perennial. *September*.

Roots tufted. *Stems* firm, rushy. *Leaves* and *bracteas* acute, with a white furrow along the upper side. *Heads* sessile or stalked, brown, opaque, varying from 1 to 12 or 15 in England, and to more than 60 in warmer climates. *Glumes* obovate, with a point, keeled, fringed. *Stigm.* 3. *S. australis* and *romanus* of Linnæus are varieties of this, with 1 or 2 heads, and *S. globiferus* of his son, in the *Suppl.* 104, is an opposite variety with about 60.

7. *S. setaceus*. Bristle-stalked Club-rush.

Stem bristle-shaped, leafy at the base. Spikes about two, sessile, surmounted by a leafy bractea. Seed furrowed, without bristles.

S. setaceus. *Linn. Sp. Pl.* 73. *Willd. v. 1.* 298. *Vahl Enum. v. 2.* 253. *Fl. Br.* 54. *Engl. Bot. v. 24. t.* 1693. *Dicks. H. Sicc. fasc. 12. 1.* *Don H. Br.* 130. *Hook. Lond. t.* 97. *Scot.* 19. *Fl. Dan. t.* 311. *Leers 10. t. 1. f.* 6. *Schrad. Germ. v. 1.* 137. *Hoffm. Germ. for 1800. t. 2.* *Ehrh. Phytoph.* 51.

S. foliaceus humilis. *Raii Syn.* 430.

S. omnium minimus, capitulo breviori. *Scheuchz. Agr.* 358.

Isolepis setacea. *Br. Pr.* 222.

Juncellus omnium minimus. *Moris. v. 3.* 232. *sect. 8. t. 10. f.* 23.

In watery places, on sandy or gravelly ground.

Annual. *July, August.*

Stems tufted, about 3 inches high, slender, with 1 or 2, rarely 3, little roundish or ovate *spikes*, green or brownish, pointing obliquely, apparently lateral, but what rises above them is a leafy *bractea*, attended occasionally by a small one underneath. *Stigm.* 3, downy. *Seed* turbinate, triangular, slightly pointed, greyish, furrowed lengthwise, destitute of bristles.

8. *S. caricinus*. Compressed Club-rush.

Stem roundish, leafy at the bottom. Spikes aggregate, two-ranked, many-flowered. Leaves flat, with rough edges and keel. Seed with six bristles at the base.

S. caricinus. *Schrad. Germ. v. 1.* 132. *Wahlenb. Lapp.* 16.

S. caricis. *Retz. Prodr.* 16. *Roth Germ. v. 2.* 56. *Willd. Sp. Pl. v. 1.* 292.

S. n. 1342. *Hall. Hist. v. 2.* 179.

Schoenus compressus. *Linn. Sp. Pl.* 65. *Vahl Enum. v. 2.* 214. *Fl. Br.* 44. *Engl. Bot. v. 11. t.* 791. *Hook. Scot.* 16. *Pollich v. 1.* 35. *t. 1. f.* 2, faulty. *Leers 9. t. 1. f.* 1, excellent. *Ehrh. Phytoph.* 11. *Dicks. H. Sicc. fasc. 3. 2.*

Carex uliginosa. *Linn. Sp. Pl.* 1381. *Fl. Suec.* 325.

Gramen cyperoides, spicâ simplicî compressâ distichâ. *Pluk. Phyt. t. 54. f.* 9. *Raii Syn.* 425. *Scheuchz. Agr.* 490. *t. 11. f.* 6.

In boggy meadows, not very uncommon.

Perennial. *July.*

Root somewhat creeping. *Stem* about a foot high, simple. *Leaves* grass-green, sheathing, acute, keeled, rough-edged towards the end, nearly as tall as the stem. *Spikes* of a bright chestnut brown, collected into a flat common spike, in 2 ranks, the outer *glume* of each shorter than itself, and empty. *Stigm.* 2, (*Pollich's figure* shows 3,) downy. *Seed* lenticular, grey, with 6 rough,

longish bristles beneath, and beaked with an unusually long portion of the *style*, nearly the whole of it, though the *stigmas* are deciduous.

9. *S. rufus*. Brown Club-rush.

Stem round, leafy at the bottom. Spikes aggregate, two-ranked, few-flowered. Leaves channelled, smooth, without a keel. Seed without bristles.

S. rufus. Schrad. Germ. v. 1. 133. t. 1. f. 3. Fl. Dan. t. 1504.
Schœnus rufus. Huds. 15. Fl. Br. 45. Engl. Bot. v. 15. t. 1010.
 Vahl Enum. v. 2. 215. Hook. Scot. 17. Dicks. II. Sicc. fasc. 10. 6.
 Don. II. Brit. 52.

S. compressi varietas. Lightf. 1138. t. 24. f. 2.

In marshes towards the sea coast, in many parts of Scotland, as well as in Mull, Skye, Arran, &c.

On the western coast of Ireland. Dr. Wade. Near the bridge between Bootle and Crosby rabbit-warren, between Liverpool and Ince. Mr. John Shepherd. In Anglesea. Rev. H. Davies.

Perennial. June, July.

Root creeping, with downy fibres. Stems 4 to 6 inches high, round, quite smooth and even. Leaves 2, smooth throughout, semi-cylindrical, channelled, but not keeled, generally much shorter than the stem, which they embrace at the bottom with their sheaths. Compound spike ovate, flat, imperfectly 2-ranked, of a dark rusty brown. Bractea often very short; sometimes nearly equal to the whole spike, and leafy; often entirely wanting. Flowers 2, 3 or 4. Glumes turgid, even and polished; the outermost large, empty, as long as the partial spike to which it belongs. Stigm. 2. Seed ovate, smooth, pointed at each end, flat on one side, tumid on the other, tipped with a short jagged beak left by the *style*, and certainly without any bristles at the base. This last character, faithfully expressed in *Engl. Bot.*, effectually distinguishes this species from the last; and at the same time proves the unimportance of these bristles for a generic character, the two species in question being so nearly allied, that good botanists have hardly been able to discriminate them.

*** *Stem triangular. Panicle naked.*

10. *S. triqueter*. Triangular Club-rush.

Stem acutely triangular, straight, naked, sharp-pointed. Spikes lateral; sessile or stalked. Stigmas two. Seed smooth.

S. triqueter. Linn. Mant. 1. 29. Willd. v. 1. 302. Vahl Enum. v. 2. 270. Fl. Br. 55. Engl. Bot. v. 24. t. 1694. Hook. Lond. t. 92. Schrad. Germ. v. 1. 140. Fl. Dan. t. 1563.

S. n. 1338. Hall. Hist. v. 2. 177.

Juncus acutus maritimus, caule triquetro maximo molli, et proce-
rior nostras. *Pluk. Almag.* 200. *Phyt. t.* 40. *f.* 2. *Raii Syn.* 428.

β. *Scirpus pungens*. *Vahl Enum. v.* 2. 255.

Juncus acutus maritimus, caule triquetro, rigido, mucrone pungente.
Pluk. Almag. 200. *Phyt. t.* 40. *f.* 1. *Dill. in Raii Syn.* 429.

J. acutus maritimus, caule triangulo. *Bauh. Theatr.* 175. *f.* *Moris.*
v. 3. 232. *sect.* 8. *t.* 10. *f.* 20. *Rel. Rudb.* 22. *f.* 2, 3.

About the muddy banks of rivers exposed to the tide, but rarely.
In the Thames at Lambeth, Battersea, &c. as well as below
London. *Doody.* β. Found by Sherard in Jersey.

Perennial. *August.*

Root creeping, forming large entangled tufts. *Stems* 3 feet high,
acutely triangular throughout, pliant and cellular, with many
transverse interruptions; the point erect and rather sharp. *Leaf*
solitary, very short, with a long close sheath. *Spikes* from a
lateral cleft, 2 or 3 inches below the top, partly sessile, partly
on rigid angular stalks; all ovate, of numerous, closely imbricated,
elliptical, concave, fringed, keeled, pointed, partly reddish,
glumes. *Stam.* 3, with 3 rough intermediate bristles. *Stigm.* 2,
downy. *Seed* roundish, obtuse, smooth and polished, in which,
as Schrader observes, it differs from the exotic *S. mucronatus*,
whose *seed* is minutely corrugated, with 5 or 6 rough bristles
beneath. Our *S. triquetus* has 3 or 4, scarcely more. β, as far
as I can discover, is but a variety, whose spikes are all sessile.
Yet Plukenet's figure more resembles a Carolina species, *S.*
americanus of Pursh, n. 16; and Commerson's specimen before
me, alluded to by Vahl, is like *mucronatus*, but has smooth *seeds*.

11. *S. carinatus*. Blunt-edged Club-rush.

Stem bluntly triangular upwards, naked; round at the base.
Panicle cymose, terminal. Bractea pungent, channelled,
erect. Stigmas two.

S. carinatus. *Comp.* 10. *Engl. Bot. v.* 28. *t.* 1983. *Hook. Lond. t.* 79.

S. lacustris γ. *Huds.* 19. *Fl. Br.* 52.

Juncus aquaticus medius, caule carinato. *Dill. in Raii Syn.* 428.
Doody's Furrowed Bull-rush. *Pet. Conc. Gram. n.* 199.

About the banks of large rivers.

In the Thames at Battersea and Limehouse. *Doody.* Above
Westminster bridge. *Mr. E. Forster.* On the banks of the Arun,
near Arundel castle. *Mr. Borrer.*

Perennial. *August.*

Root creeping. *Leaf* none. *Stem* rather convex between the
angles; not flat, or concave, as in *S. triquetus*. *Panicle* most
like *S. lacustris*, but the principal bractea is often longer, and
more of the texture of the stem; still evincing its true nature,
as I apprehend, by being channelled; though with regard to
terminal or lateral inflorescence, the present species is inter-

mediate in nature, between *lacustris* and *triqueter*. Spikes ovate, numerous, rusty. Stigm. 2. Seed smooth, with 6 rough bristles beneath.

**** Stem triangular. Panicle leafy.

12. *S. maritimus*. Salt-marsh Club-rush.

Stem triangular. Panicle terminal, leafy. Spikes conglomerate. Glumes torn, with an intermediate point. Stigmas three.

S. maritimus. Linn. *Sp. Pl.* 74. Willd. v. 1. 306. Vahl *Enum.* v. 2. 269. Fl. Br. 56. Engl. Bot. v. 8. t. 542. Curt. Lond. fasc. 4. t. 4. Hook. Scot. 19. Don H. Br. 131. Schrad. Germ. v. 1. 143. Ehrh. Calam. 12.

S. n. 1339. Hall. Hist. v. 2. 178.

Gramen cyperoides palustre, paniculâ sparsâ. Raii *Syn.* 425.

G. cyperoides, paniculâ sparsâ, majus. Bauh. *Theatr.* 86. f.

G. aquaticum cyperoides vulgatus. Ger. *Em.* 22. f.

Cyperus longus inodorus latifolius, spicis tumidioribus minus sparsis. Moris. v. 3. 238. sect. 8. t. 11. f. 25.

β . *Scirpus tuberosus*. Desfont. *Atlant.* v. 1. 50.

S. maritimus. Fl. Dan. t. 937.

Cyperus rotundus littoreus. Ger. *Em.* 31. f.

C. rotundus inodorus littoreus. Moris. v. 3. 236. sect. 8. t. 11. f. 9. Raii *Syn.* 426.

In salt marshes, and about the banks of great rivers exposed to the tide, frequent.

Perennial. July, August.

Root creeping; in β knotty. Stem 1—3 feet high, striated; roughish at the angles; leafy at the base and summit. Leaves sheathing, keeled, dark-green, rough-edged, taper-pointed. Spikes ovate, soft, partly stalked, solitary or aggregate; occasionally elongated and cylindrical. Glumes membranous, of a dark uniform brown, often minutely downy; the point, or awn, longer than in the neighbouring species. Seed roundish, shining brown, with 3 blunt angles, and from 1 to 5 or 6 rough bristles.

13. *S. sylvaticus*. Wood Club-rush. Millet Cyperus-grass.

Stem triangular, leafy throughout. Panicle terminal, leafy, cymose, repeatedly compound. Flower-stalks sheathed at the base. Spikes aggregate.

S. sylvaticus. Linn. *Sp. Pl.* 75. Willd. v. 1. 307. Vahl *Enum.* v. 2. 271. Fl. Br. 57. Engl. Bot. v. 13. t. 919. Hook. Scot. 19. Fl. Dan. t. 307. Schrad. Germ. v. 1. 145. Leers 10. t. 1. f. 4. Ehrh. Calam. 131.

S. n. 1340. *Hall. Hist. v. 2. 178.*

Cyperus gramineus. *Bauh. Hist. v. 2. 504. f. Raii Syn. 426. Scheuchz. Agr. 393.*

C. gramineus miliaceus. *Ger. Em. 30. f.*

Gramen cyperoides miliaceum. *Bauh. Theatr. 90. f.*

G. arundinaceum, foliis acutissimis, paniculâ multiplici, cyperi facie. *Loes. Pruss. 119. t. 33.*

In moist shady woods, not common.

In Pembrokeshire, Warwickshire and Essex. *Ray.* In Norfolk. *Mr. Rose,* and *Mr. Stone.* In several woods about London, as well as in the south of Scotland.

Perennial. *June, July.*

Root creeping. *Stem* a yard high, or more, smooth. *Leaves* numerous, grassy, flat; rough and cutting at the edges and keel. *Panicle* of innumerable, little, dark-green, ovate *spikes.* *Glumes* obtuse, with more or less of a small point. *Stigm.* 3. *Seed* lenticular, convex at one side, whitish, smooth, with 6 or 8 longish rough bristles.

26. ELEOCHARIS. Spike-rush.

Br. Pr. 224.

Scirpus. *Tourn. t. 300. Lam. t. 38. f. 1.*

Nat. Ord. see *n. 22.*

Spike of numerous *flowers,* all perfect. *Gl.* imbricated in every direction, expanded, uniform. *Cor.* none. *Filam.* capillary. *Anth.* linear. *Germ.* compressed. *Style* dilated at the base, and united, by a suddenly contracted joint, with the *germen.* *Stigm.* 2 or 3. *Seed* lenticular, or triangular, crowned with the hard, discoloured, wrinkled, triangular or compressed, permanent base of the *style.* *Bristles* 4—12, finely toothed, beneath the *germen,* rarely wanting, springing from one common membranous base with the 3 *stamens.*

[The ingenious Mr. Kunth, in a treatise on the family of *Cyperaceæ,* p. 4, has objected to Mr. Brown's idea of an articulation in the *style;* because, as he justly says, an actual joint would intercept the impregnation. But there is no question of any such thing. There is nothing analogous, in the vegetable body, to the joints in the limbs of animals. The term is used for a certain point where, after the original functions of the part have been performed, a solution of continuity takes place; as in the *rachis,* or main stalk, of the spiked grasses, which becomes very brittle at each *joint,* when the seeds ripen, though originally continuous. The same may be observed in the stalks of leaves, and of fruits.]

Water plants with simple leafless *stems*, sheathed at the base, and a solitary, terminal, erect, leafless *spike*.

1. *E. palustris*. Creeping Spike-rush.

Stem round. Root creeping. Stigmas two. Seed lenticular, most convex at one side.

Scirpus palustris. *Linn. Sp. Pl.* 70. *Willd. v. 1.* 291. *Vahl Enum. v. 2.* 247. *Fl. Br.* 48. *Engl. Bot. v. 2. t.* 131. *Rel. Rudb.* 27. *f. 2.* *Don H. Br.* 126. *Hook. Scot.* 18. *Fl. Dan. t.* 273. *Poit. & Turp. Par. t.* 59. *Leers 10. t. 1. f.* 3. *Schrad. Germ. v. 1.* 127. *Wahlenb. Lapp.* 14.

S. n. 1336. *Hall. Hist. v. 2.* 177.

S. equiseti capitulo majori. *Raii Syn.* 429. *Scheuchz. Agr.* 360.

Juncus equiseti capitulis. *Bauh. Theatr.* 186. *f.*

J. minor, capitulis equiseti. *Ger. Em.* 35. *f.* 1631.

Juncellus cyperoides, capitulo simplici. *Loes. Pruss.* 131. *t.* 36.

In ditches, rivulets, and boggy ground, very common.

Perennial. *June, July.*

The *root* sends out horizontal runners, which fix themselves here and there by fibrous radicles. *Stems* many together, erect, as thick as a crow's quill, smooth, from 6 to 12 inches high, each invested at the base with 2 or 3 tight, entire, cylindrical, reddish sheaths. *Leaves* none. *Spike* ovate-oblong, acute, half an inch long. *Glumes* brown, bluntly keeled, acute, encompassed with a pale membranous border, and a little expanded while in flower. *Stam.* 3, capillary. *Anth.* linear, buff-coloured, loosely spreading. *Germ.* ovate. *Stigmas* certainly but 2, downy, spreading, the length of the *style*, whose base is greatly dilated, and ovate, but its point of attachment with the germen is not thicker than the upper part of the style. *Seed* yellow, polished, roundish-obovate, tumid at each side, but most on that next the glume, crowned by the brown, wrinkled, compressed, permanent, unpolished base of the style, and subtended by from 3 to 5 bristles, about its own length, rough with deflexed teeth. Three *stigmas* are very erroneously represented, in *Engl. Bot.* this species not being then well distinguished from the following.

2. *E. multicaulis*. Many-stalked Spike-rush.

Stem round. Root fibrous. Stigmas three. Seed acutely triangular, as well as the permanent base of the style.

Scirpus multicaulis. *Fl. Br.* 48. *Engl. Bot. v. 17. t.* 1187. *Don H. Br.* 128. *Vahl Enum. v. 2.* 246. *Schrad. Germ. v. 1.* 128.

S. palustris β , minor. *Wahlenb. Lapp.* 14. *Hook. Scot.* 18. *Linn. Fl. Lapp. ed. 2.* 16.

S. t. 167. *Fl. Dan.* See the remarks to *t.* 287 of that work.

S. multicaulis, equiseti capitulis minoribus. *Rel. Rudb.* 28. *f.* 2.

S. equiseti capitulis crassioribus et habitioribus, pumilus et multicaulis. *Rupp. Jen. ed. Hall.* 319.

S. caule aphylo, spicâ imbricatâ subrotundâ, glumis obtusis. *Hall. Enum.* 249.

On turfey bogs, and wet commons, in many parts of Scotland, as well as in Cornwall, Essex, Sussex, Yorkshire and Norfolk.

First noticed in the isle of Skye, by Mr. John Mackay, in 1794.

Perennial. *July.*

Root tufted, with many long fibres. Whole plant rather smaller than the preceding. *Stems* very numerous, 8 or 10 inches high, sometimes more, spreading loosely, with 1 or 2 tight purplish sheaths at the base. *Leaves* none. *Spike* smaller, more acute and slender, than in the last, and rather darker coloured. One or two of the lower *flowers* are often viviparous. *Glumes* obtuse, with a membranous edge. *Stam.* 3. *Stigmas* certainly 3, as is clearly expressed in *Engl. Bot.*, though Professor Schrader, by a scarcely credible mistake in anybody, but least of all in him, positively asserts that the painter has faultily drawn but 2! I presume moreover to persist in the correctness of the above synonyms, contrary to his opinion. There being, as Schrader allows, 3 *stigmas*, the *seed* has one flat side, and 3 nearly equal angles, and is smaller and browner than that of *E. palustris*, having moreover a triangular beak, or point. There are 5 or 6 rough bristles at the base of the *germen*, often more or less deciduous. Dr. Wahlenberg declares that he has carefully examined these two species, and found them the same, the *root* not being creeping in either. Professor Hooker, following him, has accordingly made them varieties. I recommend to these excellent botanists to consider the above particulars, and have no doubt of their coming to a better authorized conclusion.

3. *E. acicularis*. Least Spike-rush.

Stem quadrangular. *Stigmas* three. *Seed* numerously furrowed, without bristles at the base. *Filaments* permanent.

Scirpus acicularis. *Linn. Sp. Pl.* 71, omitting Scheuchz. syn. *Willd. v.* 1. 295. *Vahl Enum. v.* 2. 245. *Fl. Br.* 51. *Engl. Bot. v.* 11. *t.* 749. *Hook. Lond. t.* 49. *Scot.* 18. *Fl. Dan. t.* 287. *Dicks. H. Sicc. fasc.* 14. 1. *Don H. Brit.* 2. *Ehrh. Phyt.* 41. *Schrad. Germ. v.* 1. 130.

S. minimus, capitulis equiseti. *Dill. Giss.* 165. *Raii Syn.* 429. *Juncelli omnium minimi*, capitulis equiseti. *Pluk. Almag.* 201. *t.* 40. *f.* 7.

Juncellus clavatus minimus. *Moris. v.* 3. 234. *sect.* 8. *t.* 10. *f.* 37.

Cyperus acicularis. *With.* 78.

Mariscus n. 1346. *Hall. Hist. v.* 2. 180.

In damp spots, upon heaths, where water has stagnated during

winter. First noticed in England by the Rev. Mr. Dodsworth, according to Ray and Plukenet.

Perennial. *August*.

Root fibrous, with slender runners. *Stems* numerous, erect, very slender, from 2 to 6 inches high, certainly quadrangular, though somewhat compressed, smooth, with a tight red sheath at the base. *Leaves* none, though there are many barren stems which resemble them. *Spike* minute, of 5 or 6 flowers. *Glumes* brown, acute, with a membranous edge. *Stam.* 3, their filaments flat, longer than the seed, under the base of which they remain attached, and hence, as Dr. Hooker well remarks, may have arisen a report of this species having bristles under the *germen*. I could never find any. The *style* is short, with 3 long *stigmas*. *Seed* whitish, elliptic-oblong, with many longitudinal furrows, and a small blunt beak. The *seed* of the lowest *flower*, though perfectly formed, sometimes remains diminutive and abortive. *Kernel*, according to Dr. Hooker, smooth, obovate.

27. ERIOPHORUM. Cotton-grass.

Linn. Gen. 30. *Juss.* 27. *Fl. Br.* 58. *Lam. t.* 39. *Gærtn. t.* 2. *Nat. Ord.* see *n.* 22.

Spike of numerous *flowers*, all perfect. *Gl.* imbricated in every direction, uniform, flat, mostly membranous and greyish, pointed, with 1 or 3 slender ribs, not awned; 1 or 2 of the outermost often empty. *Cor.* none. *Filam.* 3, capillary. *Anth.* pendulous, prominent, linear. *Germ.* obovate, encompassed with numerous fine hairs from the *receptacle*, shorter than the *style*, but subsequently greatly elongated. *Style* simple, entirely deciduous. *Stigm.* 3, downy. *Seed* obovate, sometimes minutely and bluntly pointed, encompassed beneath with very copious, long, cottony, white hairs.

Root perennial, with strong fibres. *Stem* erect, simple, leafy; rarely naked. *Leaves* linear, or lanceolate. *Spikes* one or several, erect or pendulous. Natives of boggy meadows, or alpine moors.

* *Spike solitary.*

1. *E. vaginatum*. Hare's-tail Cotton-grass.

Stem triangular above; round below, with a swelling sheath. *Spike* ovate. *Glumes* membranous.

E. vaginatum. *Linn. Sp. Pl.* 76. *Willd. v.* 1. 312. *Vahl Enum. v.* 2. 388. *Fl. Br.* 58. *Engl. Bot. v.* 13. *t.* 873. *Rel. Rudb.* 29. *f. Curt. Lond. fasc.* 4. *t.* 10. *Graves Br. Gr. t.* 1. *Fl. Dan. t.* 236. *Poit. & Turp. Par. t.* 49. *Hook. Scot.* 20.

TRIANDRIA—MONOGYNIA. Er̄ophorum. 67

- E. cæspitosum.* *Host Gram. v. 1. 30. t. 39. Schrad. Germ. v. 1. 150.*
Juncus alpinus, cum caudâ leporinâ. *Bauh. Hist. v. 2. 514. f. Raii Syn. 436.*
J. alpinus, capitulo lanuginoso. *Bauh. Prodr. 23. f. Theatr. 187. f. 188. Scheuchz. Agr. 302. t. 7. f. 1—3. Prodr. 26. t. 7. f. 1.*
Gramen juncoides lanatum alterum danicum. *Moris. v. 3. 224. sect. 8. t. 9. f. 6.*

On barren mountainous moors, frequent. On turfy boggy heaths in the south of England, more rarely.

Perennial. *March, April.*

Root slightly creeping. *Stems* tufted, jointed, smooth, finally 12—15 inches high, with 1 or 2 inflated, strongly reticulated sheaths in the lower part, and below them several erect, slender, triangular, striated, sharp-pointed *leaves*, nearly as tall as the stem. *Spike* silvery grey when in flower, with long-pointed, thin, single-ribbed scales, and yellow prominent *anthers*; when in *seed* very conspicuous, in May and June, from its copious, long, white, soft and smooth hairs, by means of which the little triangular *seeds* are finally carried away by the wind.

Ray reports that sheep are very fond of this plant. I have found the leaves fed down early in the spring, before the stems run to seed.

2. *E. capitatum.* Round-headed Cotton-grass.

Stem entirely round, with a swelling sheath. Spike roundish. Glumes membranous.

E. capitatum. *Host Gram. v. 1. 30. t. 38. Schrad. Germ. v. 1. 151. Comp. 11. Engl. Bot. v. 34. t. 2387. Hook. Scot. 20. Fl. Dan. t. 1502.*

E. Scheuchzeri. *Roth in Sims & Kon. Ann. of Bot. v. 1. 149. Vahl Enum. v. 2. 388.*

Juncus alpinus, capitulo tomentosio majori. *Scheuchz. Agr. 304. Prodr. 27. t. 7. f. 2.*

On a sand-bank by an alpine rivulet on Ben Lawers, Scotland, near the limits of perpetual snow. *G. Don.*

Perennial. *August.*

Root extensively creeping. *Stem* about half as high as the foregoing, but of a stouter habit, and cylindrical throughout. *Leaves* thicker, and much shorter. *Glumes* smaller, and not quite so thin and delicate; the outer one with many ribs. Hairs of the *seed* much shorter than the former.

3. *E. alpinum.* Alpine Cotton-grass.

Stem triangular, naked above the leaves, which are shorter than their sheaths. Spike oblong-ovate. Glumes firm, strongly keeled.

E. alpinum. *Linn. Sp. Pl.* 77. *Willd. v. 1.* 314. *Fahl Enum.* v. 2. 388. *Fl. Br.* 60. *Engl. Bot. v. 5. t.* 311. *Hook. Scot.* 20. *Dicks. Tr. of Linn. Soc. v. 2.* 290 & 356. *Fl. Dan. t.* 620. *Dicks. H. Sicc. fasc.* 8. 3. *Don II. Brit.* 26. *Schrad. Germ. v. 1.* 149. *Host Gram. v. 1.* 31. t. 40.

Linagrostis juncea alpina, capitulo parvo, tomento rariore. *Scheuchz. Agr.* 305. t. 7. f. 4.

Juncus alpinus bombycinus. *Bauh. Prodr.* 23. *Bauh. Hist. v. 2.* 515. *Scheuchz. Prodr.* 27. t. 8. f. 1.

On turfy alpine bogs in Scotland.

On a moss 3 miles east of Forfar. *Mr. Brown, & Mr. G. Don*. On the mountains of Breadalbane; *Mr. Somerville. Hooker*.

Perennial. *June, July*.

Root creeping, throwing up a row of crowded stems, destitute of joints, 4—6 inches high, with 3 rough angles. *Leaves* few, very short, channelled, rough-edged, with long, striated, smooth sheaths. *Spike* erect, very small, of a few ovate, rusty, chaffy glumes, each with a strong, green keel, and quite unlike the grey, filmy, tapering scales of the 2 preceding species. *Hairs* white and shining, few in each spike, erect, not concealing the glumes.

The late *Mr. G. Don* justly pointed out to us that the shoot with long leaves, annexed to the figure in *Engl. Bot.*, belongs to *Carex dioica*, a plant frequently intermixed with this *Eriophorum*.

** *Spikes several*.

4. *E. polystachion*. Broad-leaved Cotton-grass.

Stem round. *Leaves* flat, lanceolate, with a triangular point. *Stalks* of the spikes smooth. *Hairs* thrice the length of the spike.

E. polystachion. *Linn. Sp. Pl.* 76. *Willd. v. 1.* 312. *Vahl Enum.* v. 2. 389. *Fl. Br.* 59. *Engl. Bot. v. 8. t.* 563. *Dicks. Tr. of Linn. Soc. v. 2.* 289. *H. Sicc. fasc.* 4. 1. *Hook. Scot.* 21. *Roth Germ. v. 2.* 63. *Leers* 11. t. 1. f. 5. *Hoffm. Germ. for 1800. t.* 3.

E. latifolium. *Schrad. Germ. v. 1.* 154. *Poit. & Turp. Par. t.* 50. *Fl. Dan. t.* 1381.

Linagrostis paniculâ minore. *Vaill. Par.* 117. t. 16. f. 2.

L. paniculâ ampliore. *Scheuchz. Agr.* 306.

Gramen tomentosum pratense, paniculâ sparsâ. *Bauh. Theatr.* 61. f. *Moris. v. 3.* 224. sect. 8. t. 9. f. 1.

In boggy meadows.

In Northamptonshire, Bedfordshire, Yorkshire, Cumberland, and very common in Scotland. *Dickson*. In Shropshire. *Rev. E. Williams*.

Perennial. *April*.

Root fibrous. *Stem* 2 feet high, jointed, striated, smooth, leafy, somewhat angular at the top, but otherwise quite cylindrical.

Leaves many, smooth, broad and flat, with a narrow acute keel; their points suddenly contracted, triangular, sharp. *Spikes* several, sessile or stalked, ovate, grey, with leafy, pointed, sheathing *bracteas*; their *stalks* striated, but not downy. *Glumes* filmy, bluntish, slightly keeled. *Anth.* linear, yellow. *Stigm.* 3, very slender. Hairs of the *seed* about thrice as long as the spikes, which become pendulous after flowering.

5. *E. pubescens*. Downy-stalked Cotton-grass.

Stem angular upwards. Leaves flat, lanceolate, with a triangular point. Stalks of the spikes downy. Hairs twice the length of the spike.

E. angustifolium. *Poit. & Turp. Par. t. 51.*

Gnaphalium. *Trag. Hist. 683. f. 3?*

In bogs and marshes.

At Frogden, Scotland. *Mr. Arthur Bruce*. On Cherry Hinton moor, Cambridgeshire, always growing on grassy ground, not in the bogs. *Rev. J. Holme*.

Perennial. *April, May?*

Smaller than the last, with which the *leaves* accord, except in being narrower, and somewhat shorter. The *stem* is triangular as low as the insertion of the first, or even second, leaf, but, as far as can be judged from dried specimens, appears to be cylindrical at the bottom. *Spikes* from 2 to 8 or 9, their *stalks* somewhat angular, compressed and striated, clothed with fine silky hairs. *Glumes* elliptical, flat, brownish-black, membranous, single-ribbed, except the outermost, which has sometimes 3 ribs. *Stigmas* 3, reddish. *Seed* obovate, triangular, tawny. *Hairs* scarcely half the length of the last, very white and silky, elegantly contrasted with the dark glumes, which they do not conceal.

The authors of the splendid, but unfortunately abortive, *Flora Parisiensis* have mistaken this for the *E. angustifolium* of other writers, which is their *E. Vaillantii*. Schrader, by his character of the rough *flower-stalks*, and angular *stem*, appears to have confounded our plant with the *polystachion*, his *latifolium*.

6. *E. angustifolium*. Common Cotton-grass.

Stem nearly round. Leaves linear, triangular; channelled towards the base. Stalks of the spikes smooth. Hairs four times the length of the spike.

E. angustifolium. *Roth Germ. v. 2. 63. Dicks. Tr. of Linn. Soc. v. 2. 289. Willd. v. 1. 313. Vahl Enum. v. 2. 389. Fl. Br. 59. Engl. Bot. v. 8. t. 564. Graves Br. Gr. t. 4. With. 72. Hook. Scot. 21. Schrad. Germ. v. 1. 153. Fl. Dan. t. 1442.*

E. polystachion. *Huds. 21. Curt. Lond. fasc. 4. t. 9.*

E. Vaillantii. *Poit. & Turp. Par. t. 52.*

Linagrostis. *Raii Syn.* 435.

L. paniculâ ampliore. *Vaill. Par.* 117. *t.* 16. *f.* 1.

Gnaphalium. *Trag. Hist.* 683. *f.* 1, 2?

In turf, boggy, and muddy meadows, common.

Perennial. *April.*

Root creeping. Plant nearly as tall, though much more slender than *E. polystachion*, with still longer hairs to the seeds, which almost entirely conceal the grey, membranous, pointed glumes. The spikes in seed, conspicuous for their whiteness, last through the summer, and though partly drooping, are less absolutely pendulous than those of the *polystachion*. The very narrow triangular leaves afford a ready distinction.

7. *E. gracile.* Slender Mountain Cotton-grass.

Stem round, with three slight angles. Leaves triangular; channelled towards the base. Spikes longer than the bractea. Hairs twice the length of the spike.

E. gracile. *Roth in Sims & Kon. Ann. of Bot. v.* 1. 150. *Comp.* 11. *Engl. Bot. v.* 34. *t.* 2402. *Hook. Scot.* 20. *Poit. & Turp. Par. t.* 53. *Wahlenb. Lapp.* 19.

E. triquetrum. *Schrud. Germ. v.* 1. 152. *Fl. Dan. t.* 1441.

In boggy mountainous situations.

On Ben Lawers, and the Clova mountains, in a micaceous soil. *G. Don.*

Perennial. *July.*

Root creeping, with slender, jointed runners. *Stem* slender, 6 inches high when in flower, twice as tall, like the other species, in seed. *Leaves* recurved, linear, triangular, acute, very narrow, smooth, shorter than the flowering stem; channelled and keeled in their lower part, with a short, lanceolate, entire stipula. *Spikes* 3 or 4, partly stalked, always nearly erect, accompanied by a leafy, ribbed bractea, not so tall as themselves. *Glumes* almost black, membranous, the uppermost somewhat pointed; lowest of all 3-ribbed.

Our Scottish specimen is not in seed, nor are the flower-stalks discernible; but it answers in other respects to German specimens in seed, from Professor Schrader. In these the stalks of the spikes are very minutely downy; the seeds linear-obovate; the hairs about twice as long as the spikes. A Lapland specimen from Dr. Wahlenberg agrees with them exactly.

28. NARDUS. Mat-grass.

Linn. Gen. 30. *Juss.* 33. *Fl. Br.* 61. *Lam. t.* 39.

Nat. Ord. Gramina. *Linn.* 4. *Gramineæ.* *Juss.* 10. *Br. Pr.* 168. See next genus. 33 following genera belong to the same. See *Grammar*, 68, 69, as also the following order.

Common receptacle linear, toothed, unilateral. *Flowers* alternate, sessile, all directed one way, perfect. *Cal.* none, except a slight border from the recept. *Cor.* a glume of 2 unequal, lanceolate, pointed, concave valves; the outer one largest, embracing the other. *Filam.* capillary, shorter than the corolla. *Anth.* oblong. *Germ.* superior, oblong, slender. *Style* 1, short. *Stigma* 1, long, feathery. *Seed* 1, linear, pointed at each end, invested with the permanent *corolla*.

A small genus of hard, rigid, slender, smooth grasses, with simple, upright or curved, many-flowered *spikes*.

1. *N. stricta*. Common Mat-grass.

Spike bristle-shaped, straight. *Leaves* thrice the length of their sheaths.

N. stricta. Linn. *Sp. Pl.* 77. Willd. v. 1. 314. Vahl *Enum.* v. 2. 396. Fl. Br. 61. Engl. Bot. v. 5. t. 290. Knapp t. 2. Mart. Rust. t. 27. Hook. Scot. 21. Cavan. Ic. v. 3. 2. t. 204. f. 2. Leers 11. t. 1. f. 7. Schreb. Gram. 65. t. 7. Fl. Dan. t. 1022. Schrad. Germ. v. 1. 157. Sincl. 171.

N. n. 1410. Hall. Hist. v. 2. 201.

Gramen sparteum juncifolium. Bauh. Theatr. 69. f. 70. Scheuchz. Agr. 90. t. 2. f. 10. Raii Syn. 293.

G. sparteum, capillaceo folio, minus. Moris. v. 3. 217. sect. 8. t. 7. f. 8.

Spartum nostras parvum. Lob. Ic. 90. f. Ger. Em. 41. f. 1631.

On barren, sandy, rather moist, heaths and moors.

Perennial. July.

Root of numerous, very strong, downy fibres. *Stems* and *leaves* furrowed, roughish with minute bristles, rigid, 4 or 5 inches high, remaining bleached through the winter. *Spikes* solitary, purplish, of many slender *flowers*, whose outermost *glume* is tipped with a short rough *awn*. Schrank celebrates this deep-rooted grass as a safe support to the hands of the alpine botanist, in precipitous situations, though it renders his path very slippery.

TRIANDRIA DIGYNIA.

An entirely natural order, consisting of *Gramina*. Linn. 4.

Gramineæ. Juss. 10. Br. Pr. 168. See *Grammar*, 68, 69.

No natural order can be more clear and distinct than this.

But why Jussieu changed its old name *Gramina*, for *Gramineæ*, I cannot discover. The plants are not *grassy*, but *grasses*, *ipsa gramina*. To call them *gramineæ*, is to compare them to themselves.

The following view of their characters, taken chiefly from Mr. Brown, will further illustrate what is contained in the *Grammar*.

Flowers for the most part united; sometimes monoecious; more frequently imperfect in one or other of their organs of impregnation.

Calyx of Linnæus, (*gluma* of Brown,) a *husk*, or *glume*, containing 1 or 2 *florets*, or many *florets* on a 2-ranked *common stalk*, or *receptacle*: it is mostly of 2 unequal valves, rarely of 1 only, or entirely wanting.

Corolla, (*perianth* of Brown,) a similar *husk*, or *glume*, almost always of 2 valves, (rarely of but 1,) which are dissimilar; the *outermost* generally keeled, having 1, 3, or many longitudinal ribs, pointed, often cloven at the summit, often bearing from below the top, a jointed, twisting, hygrometrical, often feathery, (rarely simple and straight,) *awn*; the *innermost* usually with 2 distant ribs, each at a lateral fold; generally without any awns, but with 2 if any; sometimes wanting.

Nectary of Linnæus, (*squamulæ* of Brown,) 1, or 2 combined, minute, membranous or fleshy *scales*, beneath the *germen*, either both at one side, between the outer valve of the *corolla* and the *stamens*, or alternate with the valves, and opposite to each other; sometimes entirely wanting.

Stamens below the *germen*, definite, except in *Pariana*; *filaments* long and capillary: *anthers* of 2 cells, oblong, prominent, pendulous, forked and divaricated at each end.

Germen with a solitary *kernel*; *styles* mostly 2, either distinct, or partly combined, rarely 1 only, and still more rarely 3; *Stigmas* rough, or feathery, sometimes branched, or compound.

Seed with a close, simple, firmly united, membranous, coloured skin; either naked, and unconnected; or inclosed

in the permanent hardened valves of the *corolla*, constituting a spurious *seed-vessel*, often accompanied with a spiral or feathery, finally separating, *awn*; *albumen* mealy; *embryo* closely applied to the outer side of the *albumen*, at the base, having a simple, shield-like, fleshy *cotyledon*, as durable as the *albumen*, to which it is attached, under the *skin*; *plumula* external, simple, in a membranous sheath of its own, from whence, when burst, the primary leaves of the young plant are protruded.

The genera of *grasses* are related to each other, as Mr. Brown observes, in many different directions; so that no regular series can exhibit them all according to their natural affinity. This able observer describes 3 principal modifications of their fructification.

In the first the *calyx* contains 1, 2, or many, *florets*. When the *floret* is solitary, the outer valve of the *corolla* is at the inside of the *outer*, or smaller, valve of the *calyx*; when there are 2 or more *florets*, they are either all perfect or complete as to *stamens* and *pistils*; or the upper, or innermost, are gradually smaller, and less perfect, wanting *stamens*, or *pistil*, or both. Most of the European genera come under this section, though they differ in their *inflorescence*, as *Agrostis*, *Aira*, *Phleum*, *Alopecurus*, *Festuca*, *Poa*, *Avena*, *Bromus*, *Triticum*, *Hordeum*, &c. These genera, chiefly abounding in the temperate, and found also in the frigid, zone, are of much rarer occurrence, if not entirely wanting, in the torrid zones.

The second section has either 2 *florets* in each *calyx*, or by suppression of valves, or of organs of impregnation, one *floret* only; the more perfect, or durable, *floret* being always within, or next to, the *inner* valve of the *calyx*. To this very natural tribe belong *Holcus* of Brown, (for which I retain the name of *Sorghum*, see Rees's *Cyclop.* v. 33, and which is not found in Britain,) *Andropogon*, *Ischænum*, *Saccharum*, *Panicum*, &c., principally tropical grasses, rarely occurring in the temperate, and scarcely at all in the frigid, zones.

The third section is characterized by having the intermediate *floret* united, or most perfect, while those at each side are either neuter, or furnished at most with *stamens* only. Mr. Brown considers this tribe as less natural, as well as less extensive, than the two former. *Hierochloe*, of which several species are found in the colder regions of each hemisphere, is an example of it, and to this genus *Anthoxanthum* bears a manifest relationship; see *Diandria Digynia*, p. 37. Mr. Brown traces an analogous struc-

ture in *Pomereulla*, *Ehrharta*, *Tetrarrhena*, *Microlena*, and perhaps *Phalaris*. In this last section are comprehended several genera, more or less anomalous in structure, and certainly ill understood by botanists in general. They either have separated *flowers*, or a deficiency of *calyx*, or an unusual number of *stamens*. Most of them are tropical and aquatic grasses.

Grasses yield more sustenance to man and to the larger animals, than all the rest of the vegetable kingdom together. Their herbage, so perpetually springing, and so tenacious of life, accommodated, in one instance or other, to almost every climate, soil, and situation, affords to Nature her most welcome clothing, and to the cultivator of the soil his chief riches. Nothing poisonous or injurious is found among them, if we except the intoxicating quality attributed to the seeds of *Lolium*; but many are gratefully aromatic. Their farinaceous *albumen* supplies man with the staff of life, in Wheat, Rye, Barley, Rice and Maize, and makes a great part of the food of many birds and small quadrupeds.

As man cannot live on tasteless unmixed flour alone, so neither can cattle, in general, be supported by mere grass, without the addition of various plants, in themselves too acrid, bitter, salt, or narcotic, to be eaten unmixed. Spices, and a portion of animal food, supply us with the requisite stimulus, or additional nutriment; as the *Ranunculus* tribe, and many others, season the pasturage and fodder of cattle.

29. PHALARIS. Canary-grass.

Linn. Gen. 32. *Juss.* 29. *Fl. Br.* 62. *Lam. t.* 42. *Gartn. t.* 80. *Schrad. Germ. v.* 1. 177.

Cal. single-flowered, of 2, nearly equal, compressed, keeled valves, whose straight inner margins meet. *Cor.* smaller than the *cal.* concealed, of 3 or 4 valves; the outermost smallest, lanceolate, acute, of 1 or 2 valves; 2 inner ones twice as large, unequal, cartilaginous, downy, subsequently hardened and closely investing the *seed*. *Nect.* 2 equal, ovate, thin scales. *Filam.* capillary. *Anth.* oblong. *Styles* very short, with long feathery *stigmas*. *Seed* ovate, coated with the inner *corolla*. *Stems* leafy. *Inflorescence* more or less compound, though often apparently a simple *spike*.

1. *Ph. canariensis*. Manured Canary-grass.

Panicle ovate, resembling a spike. Calyx-glumes boat-

shaped; entire at the summit. Outer corolla of two naked valves.

Ph. canariensis. *Linn. Sp. Pl.* 79. *Willd. v. 1.* 326. *Fl. Br.* 62. *Engl. Bot. v. 19. t.* 1310. *Mart. Rust. t.* 17. *Knapp t.* 3. *Hook. Scot.* 23. *Schrad. Germ. v. 1.* 177. *Leers 18. t. 7. f.* 3†. *Schreb. Gram. v. 1.* 83. *t. 10. f.* 2. *Sincl.* 303.

Phalaris. *Ger. Em.* 86. *f.*

Ph. major, semine albo. *Bauh. Theatr.* 534. *f.* *Scheuchz. Agr.* 52. *t. 2. f.* 3. A, C, E, F. *Moris. v. 3.* 186. *sect. 8. t. 3. f.* 1. *Dill. in Raii Syn.* 394.

In cultivated and waste ground, probably naturalized.

Annual. *June—August.*

Root of many white fibres. *Stem* 1 or more, 2 feet high, erect, leafy, striated, roughish, with brown joints. *Leaves* broad, soft, acute, with long tumid sheaths, and a blunt stipula. *Panicle* compact, erect, compound, though resembling a simple ovate spike, elegantly variegated with green and white. *Seeds* polished, the usual food of Canary-birds.

2. *Ph. arundinacea.* Reed Canary-grass.

Panicle upright, with spreading branches. *Flowers* crowded, unilateral. *Outer corolla* of two bearded valves.

Ph. arundinacea. *Linn. Sp. Pl.* 80. *Comp.* 11. *Engl. Bot. v. 6. t.* 402. *v. 30. t.* 2160. *f. 2.* *Huds.* 23. *Hook. Scot.* 23. *Purton* 69. *Schrad. Germ. v. 1.* 180. *t. 6. f.* 5. *Fl. Dan. t.* 259. *Leers 18. t. 7. f.* 3. *Ehrh. Calam.* 51.

Arundo colorata. *Soland. in Ait. II. Kew. ed. 1. v. 1.* 116. *Dryandr. ibid. ed. 2. v. 1.* 174. *Fl. Br.* 147. *Knapp t.* 98. *Willd. v. 1.* 457. *A. n.* 1524. *Hall. Hist. v. 2.* 243.

Gramen arundinaceum acerosâ glumâ. *Raii Syn.* 400. *Moris. v. 3.* 203. *sect. 8. t. 6. f.* 41.

G. aquaticum paniculatum, phalaridis semine. *Tourn. Inst.* 523. *Scheuchz. Agr.* 126. *t. 3. f.* 4.

In ditches, pools, and the margins of rivers, common.

Perennial. *July.*

Root tufted, creeping, with strong horizontal shoots. *Stem* 4 or 5 feet high, reed-like, jointed, hollow, smooth. *Leaves* harsh, lanceolate, flat, taper-pointed, striated, as well as their close sheaths. *Stipula* short, bluntish, decurrent. *Panicle* erect, large, lobed, with spreading, angular, rough branches. *Fl.* very numerous, crowded, leaning one way, often purplish. *Calyx-glumes* equal, acute, keeled, ribbed. *Inner Corolla* downy; at length cartilaginous, inclosing the seed; *outer* of 2 very minute, linear, swelling, firm glumes, each terminating in a tuft of hairs, exceeding their own length.

Dr. Schrader has most happily corrected the misconception relative to the outer corolla, which having been considered as tufts of hair only, this grass was judged an *Arundo*. See *t. 2160. f. 2.* A variety with striped leaves is common in gardens. See *Sincl.* 253.

30. PHEUM. Cat's-tail-grass.

Linn. Gen. 33. *Juss.* 29. *Fl. Br.* 68. *Lam. t.* 42. *Gärtn. t.* 1.
Cal. of 2 nearly equal, compressed, clasping, parallel, pointed, or awned, more or less abrupt, valves, spreading at the top, containing a single floret. *Cor.* of 2 unequal, mostly awnless, valves, concealed within the calyx, always remaining membranous; the larger valve clasping the smaller. *Filam.* capillary. *Anth.* linear, prominent, cloven at each end. *Germ.* roundish. *Styles* capillary, spreading. *Stigmas* feathery. *Seed* elliptic-oblong, loose. Annual or perennial grasses. *Stem* leafy. *Infl.* a spiked cluster, or dense panicle, assuming the form of a spike. *Fl.* numerous, crowded.

1. *Ph. pratense*. Common Cat's-tail-grass. Timothy-grass.

Cluster spiked, cylindrical. Calyx abrupt, fringed at the keel, longer than its awns.

Ph. pratense. *Linn. Sp. Pl.* 87. *Willd. v.* 1. 354. *Fl. Br.* 68. *Engl. Bot. v.* 15. *t.* 1076. *Mart. Rust. t.* 5. *Hook. Scot.* 23. *Knapp t.* 6. *Leers* 17. *t.* 3. *f.* 1. *Schreb. Gram. v.* 1. 102. *t.* 14. *Schrad. Germ. v.* 1. 182. *Sincl.* 83.

Ph. n. 1528. *Hall. Hist. v.* 2. 245.

Gramen typhinum majus, seu primum. *Raii Syn.* 398.

G. typhoides maximam, spicâ longissimâ. *Bauh. Theatr.* 49. *f. Prodr.* 10. *f. Scheuchz. Agr.* 60. *t.* 2. *f.* 5, A, B. *Moris. v.* 3. 193. *sect.* 8. *t.* 4. *ord.* 3. *f.* 1.

β . *Ph. pratense minus.* *Sincl.* 85.

G. typhinum minus. *Raii Syn.* 398.

G. typhoides medium, sive vulgatissimum. *Moris. v.* 3. 193. *sect.* 8. *t.* 4. *ord.* 3. *f.* 2.

γ . *Phleum nodosum.* *Linn. Sp. Pl.* 88. *Willd. v.* 1. 355. *Leers* 17. *t.* 3. *f.* 2. *Fl. Dan. t.* 380. *Sincl.* 87.

Ph. n. 1530. *Hall. Hist. v.* 2. 245.

Alopecurus bulbosus. *Dicks. H. Sicc. fasc.* 12. 4.

Gramen nodosum, spicâ parvâ. *Bauh. Theatr.* 20. *f. Dill. in Raii Syn.* 398.

G. typhoides asperum alterum. *Bauh. Theatr.* 52. *f. Scheuchz. Agr.* 62.

G. typhoides minus. *Moris. v.* 3. 194. *sect.* 8. *t.* 4. *ord.* 3. *f.* 3.

G. typhinum minus. *Ger. Em.* 12. *f.*

In moist meadows and pastures; β in less fertile spots, and by way sides; γ in barren ground, occasionally flooded, or in very dry situations; all equally common.

Perennial. *June—October.*

Root somewhat creeping; in β slightly tuberous; in γ bulbous, often double. *Stem* from 2 to 4 feet high, knotty, erect; in the

varieties partly decumbent; round, striated, leafy except near the top. *Leaves* flat, roughish, with long, close, striated *sheaths*, and a small blunt *stipula*. *Cluster* erect, cylindrical, obtuse, from 2 to 6 inches long, of innumerable crowded *flowers*, on short, subdivided, partial stalks. *Cal.* hairy, green or purplish, with white ribs, and a broad, dilated, abrupt, membranous margin to each valve. *Awns* straight, short, rough. Once celebrated for its agricultural merits, but now out of fashion, though it spontaneously makes a part of the hay crop.

2. *Ph. alpinum*. Alpine Cat's-tail-grass.

Cluster spiked, ovate-oblong. Calyx abrupt, fringed at the keel, as long as its awns. Root tuberous.

Ph. alpinum. *Linn. Sp. Pl.* 88. *Fl. Lapp. ed.* 2. 20. *Willd. v.* 1. 355. *Fl. Br.* 69. *Engl. Bot. v. S. t.* 519. *Dicks. Tr. of Linn. Soc. v.* 2. 288. *Don H. Brit.* 3. *Hook. Scot.* 23. *Schrad. Germ. v.* 1. 184. *Fl. Dan. t.* 213.

Ph. n. 1529. *Hall. Hist. v.* 2. 245.

Gramen typhoides alpinum, spicâ brevi, densâ et veluti villosâ. *Scheuchz. Agr.* 64. *Prodr.* 17. t. 3.

On the mountains of Scotland.

Near Garway moor. *Mr. Dickson*. On Ben Lawers. *Mr. Brown*. Perennial. *July*.

Root tuberous, moderately creeping. *Stem* ascending, 6—12 inches high, often decumbent at the base, leafy, smooth. *Sheaths* of the upper *leaves* very long, a little inflated. *Stipula* short, acute. *Cluster* about an inch long, often tinged with dull purple, as well as the naked upper part of the *stem*, and *sheaths* of the *leaves*. *Calyx-glumes* strongly fringed at the keel; their *awns* about as long as themselves, or longer. Outer valve of the *corolla* ribbed, tipped with a small awn.

3. *Ph. asperum*. Rough Cat's-tail-grass.

Panicle spiked, cylindrical. Calyx wedge-shaped, swelling upward, pointed, rough; keel naked. Stem branched.

Ph. asperum. *Jacq. Coll. v.* 1. 110. *Ic. Rar. t.* 14. *Villars Dauph. v.* 2. 61. *t.* 2. *f.* 4. *Schrad. Germ. v.* 1. 185.

Ph. paniculatum. *Huds.* 26. *Fl. Br.* 70. *Engl. Bot. v.* 15. t. 1077. *Knapp t.* 8. *Ait. H. Kew. ed.* 2. v. 1. 145.

Ph. viride. *Allion. Pedem. v.* 2. 232, from the author.

Ph. n. 1531. *Hall. Hist. v.* 2. 246.

Phalaris aspera. *Retz. Obs. fasc.* 4. 14. *Willd. v.* 1. 328. *Host Gram. v.* 2. 28. t. 37.

Ph. paniculata. *Ait. H. Kew. ed.* 1. v. 1. 87. *Sibth. Oxon.* 34.

In dry open fields, rare.

Near Bristol, and on Newmarket heath. *Hudson*. Near Bourn bridge. *Mr. Crowe*. In Badminton park, Gloucestershire, near the lodge. *Herb. Banks*. In Bedfordshire. *Rev. Dr. Abbot*.

Annual. *July*.

Whole plant bright green. *Root* of several strong whorled fibres. *Stem* 8—18 inches high, very smooth, leafy, branched from the bottom, as well as in the upper part. *Leaves* roughish, pointed, erect, with slightly swelling sheaths. *Stipula* oblong, generally torn. *Panicles* terminal, solitary, erect, 2 or 3 inches long, very dense, cylindrical, or somewhat tapering, rough to the touch, when bent to one side proving to be much branched and subdivided, consisting of innumerable little tumid *flowers*, whose *calyx-valves* are roughish, each tipped with a small rigid point; the keel often toothed, but never fringed; the inner edges membranous and abrupt. *Cor.* of 2 unequal, oval, ribbed, somewhat downy, glumes. *Stam.* and *Styles* capillary. *Seed* cylindrical, minute, loose.

The synonyms in Villars and Hudson, as well as those of older authors, are, as Schrader observes, to be received with caution.

I submit to the correction of the great author last mentioned as to the specific name, which is perhaps preferable to our original one, and certainly far more generally adopted.

4. Ph. *Boehmeri*. Purple-stalked Cat's-tail-grass.

Panicle spiked, nearly cylindrical. *Calyx-glumes* linear-lanceolate, slightly pointed, nearly smooth, abrupt at the inner margin. *Stem* simple.

Ph. *Boehmeri*. *Schrad. Germ. v. 1. 186. Comp. 12.*

Phalaris phleoides. Linn. Sp. Pl. 80. Willd. v. 1. 328. Fl. Br. 63.

Engl. Bot. v. 7. t. 459. Fl. Dan. t. 531. Host Gram. v. 2. 26. t. 34. Ehrh. Phyt. 61. Sincl. 207.

Gramen typhinum, spicâ conoide striatâ, culmo violaceo. Barrel. Ic. t. 21. f. 1.

In high sandy or chalky fields, rare.

In several parts of Cambridgeshire. *Lyons, Relhan, &c.* In a field at Narburgh, Norfolk. *Mr. Crowe* and *Mr. Woodward.*

Perennial. *July.*

Root fibrous. *Stems* 12—18 inches high, erect, leafy, of a shining purple where naked, by which this species is readily known. The radical *leaves* last in tufts through the winter; those on the stem have very long, scarcely inflated, sheaths. *Panicle* as remarkably lobed as the last. *Glumes* purplish, more or less fringed with a few bristles, not soft hairs; pointed, not awned. *Cor.* rather unequal, membranous, scarcely downy. *Styles* short.

5. Ph. *Michelii*. Michelian Cat's-tail-grass.

Panicle spiked, nearly cylindrical. *Calyx-glumes* lanceolate, taper-pointed, hairy, fringed. *Corolla* oblong, firm, hairy; inner valve cloven.

Ph. *Michelii. Allion. Pedem. v. 2. 233. Schrad. Germ. v. 1. 187.*

t. 1. f. 2. Comp. 12. Engl. Bot. v. 32. t. 2265. Hook. Scot. 24.

Ph. n. 1532. *Hall. Hist. v. 2. 246.*

Phalaris alpina. Hænke in Jacq. Coll. v. 2. 91. Host Gram. v. 2. 26. t. 35.

Gramen typhoides alpinum, spicâ graciliori delicatâ et villosâ. Scheuchz. Agr. 65. Hall. Enum. Rar. 10. n. 264.

G. typhinum junceum perenne. Barrel. Ic. t. 21. f. 2.

G. spicatum saxatile glabrum perenne, spicâ cylindraceâ rufescente longâ, locustis acutis cillii instar pilosis. Till. Pis. 72.

On the loftiest mountains of Scotland, but rare.

On the rocky parts of the mountains of Clova, Angusshire. *G. Don.*
Perennial. *July.*

Root fibrous. Stems tufted, from 1 to 2 feet high, leafy, sometimes purplish in the naked part. Leaves flat, pointed, rough-edged; the sheaths of the upper ones a little swelling. Stipula short and blunt. Panicle close, from 1 to 3 inches long, much thicker than the last. Calyx-glumes exactly lanceolate, not abrupt, with sharp, rigid, often inflexed points; their keels strongly fringed; the ribs and sides rough, with fine white hairs. Cor. essentially different from the last, being of the texture of the calyx, and almost as long, fringed; the outer glume with 5 ribs; inner cloven at the summit.

6. *Ph. arenarium.* Sea Cat's-tail-grass.

Spike slightly paniced, ovate-lanceolate, obtuse. Calyx-glumes lanceolate, fringed, thrice the length of the abrupt, notched, corolla.

Ph. arenarium. Linn. Sp. Pl. 88. Schrad. Germ. v. 1. 189. Comp. 12. Hook. Lond. t. 7. Scot. 24. Ehrh. Calam. 132. Fl. Dan. t. 915.

Phalaris arenaria. Huds. 23. Fl. Br. 62. Engl. Bot. v. 4. t. 222. Knapp t. 4. Willd. Sp. Pl. v. 1. 328.

Gramen typhinum maritimum minus. Raii Syn. 398. Pluk. Phyt. t. 33. f. 8. Scheuchz. Agr. 63.

On the sandy sea coast frequent; also on Swaffham and Newmarket heaths. *Engl. Bot.* At Narburgh, Norfolk. *Mr. Crowe and Mr. Woodward.*

Annual. *May.*

Root of many long, simple, partly downy, fibres. Stems several, except in a starved state, 3—6 inches high; leafy below; naked and purplish above. Upper leaf very short, with a long, rather swelling, sheath. Stipula lanceolate. Spike thick and short, variegated with green and white, narrow at the base. Inner margin of the calyx often a little abrupt. The very short, ribbed, abrupt, crenate outer glume of the corolla characterizes this very distinct species. The whole plant is somewhat glaucous, and after flowering remains long bleached, and often blown about, on the sand. Professor Hooker's reference to Scheuchzer should be 63, not 68, and belongs to Plukenet's synonym.

31. ALOPECURUS. Fox-tail-grass.

Linn. Gen. 33. *Juss.* 29. *Fl. Br.* 72. *Lam. t.* 42. *Gartn. t.* 1.

Cal. of 2, nearly equal, compressed, ovate-lanceolate, ribbed, clasping, acute valves, mostly, but not in every instance, combined at the base, containing a single floret. *Cor.* of 1 valve, rather shorter than the calyx, concave, ribbed, pointless. *Awn* from the base of the *cor.* and above twice its length, roughish; finally twisted and reflexed. *Filam.* capillary. *Anth.* cloven at each end. *Styles* more or less combined. *Stigm.* long, feathery, spreading. *Seed* ovate, smooth, loose, covered with the corolla.

Erect, decumbent, or floating grasses, mostly perennial. *Stem-leaves* with long sheaths. *Fl.* numerous, apparently spiked, but having simple or compound partial stalks. *Glumes* particoloured, often downy. *Awns* prominent.

1. *A. pratensis*. Meadow Fox-tail-grass.

Stem erect, smooth. Spike somewhat paniced. Calyx-glumes acute, hairy, combined at the base, shorter than the awn of the corolla.

A. pratensis. *Linn. Sp. Pl.* 88. *Willd. v.* 1. 357. *Fl. Br.* 72. *Engl. Bot. v.* 11. *t.* 759. *Hook. Scot.* 21. *Curt. Lond. fasc.* 5. *t.* 5. *Mart. Rust. t.* 6. *Knapp t.* 14. *Graves Br. Gr. t.* 21. *Schrad. Germ. v.* 1. 170. *Leers* 15. *t.* 2. *f.* 4. *Schreb. Gram.* 133. *t.* 19. *f.* 1. *Sincl.* 13.

A. n. 1539. *Hall. Hist. v.* 2. 248.

Gramen alopecuro simile glabrum, cum pilis longiusculis in spicâ. *Raii Syn.* 396.

G. alopecuroides majus. *Ger. Em.* 10. *f.* *Moris. v.* 3. 191. *sect.* 8. *t.* 4. *f.* 8.

G. myurum, spicâ molli candicante villosâ. *Scheuchz. Agr.* 70.

In meadows and pastures every where.

Perennial. *May.*

Root fibrous. *Stems* from $1\frac{1}{2}$ to 3 feet high, smooth, leafy.

Leaves a little glaucous, nearly smooth, flat; upper ones more rough, very short, with long, furrowed, slightly swelling sheaths.

Stipula short, obtuse, scarcely downy. *Spike* but partially paniced, though most of the flowers are stalked, 2 inches long, thick, soft, of a silky hoary aspect. *Calyx-glumes* combined at the lower part. *Cor.* folded, nearly as long, with 5 green ribs, and a prominent dorsal awn. *Anth.* prominent, yellow. *Styles* entirely united. *Stigm.* separate, about as long, slender, feathery. *Seed* ovate.

An excellent grass for pasturage, being early, plentiful in produce, and grateful to cattle in general.

2. *A. alpinus*. Alpine Fox-tail-grass.

Stem erect, smooth. Spike ovate, somewhat paniced.
 Calyx-glumes woolly, obliquely abrupt, nearly as long as the awn of the corolla.

A. alpinus. *Engl. Bot. v. 16. t. 1126. Fl. Br. 1386. Comp. 12. Hook. Scot. 22. Don H. Brit. 4.*

A. ovatus. *Knapp t. 15 ? wanting awns.*

On the loftiest mountains of Scotland.

On the mountains about Loch ne gare, Aberdeenshire, *Mr. R.*

Brown; who informs me that he communicated it to *Mr. G. Don*. Perennial. *July*.

Root somewhat creeping, with many long fibres. *Stem* about a foot high, bent at the lowest joint, then erect, leafy, smooth. Radical *leaves* linear, narrow; those on the stem two, broader, and much shorter, smooth, with very long, smooth, slightly inflated, pale reddish *sheaths*, each crowned by a very short abrupt *stipula*. The dense, spiked *panicle* is formed of numerous, crowded, compound tufts, or lobes, as in the foregoing species, but is ovate, and not an inch long. *Calyx-glumes* combined at the base, sloped off at the point, 3-ribbed, shaggy with long, dense, soft, white hairs. *Cor.* ovate, acute, folded, keeled, with 2 distant green ribs at each side, and a rough dorsal *awn*, scarcely, if at all, longer than the calyx. *Styles* short, combined. *Stigmas* slender, feathery.

No foreign author appears to have noticed this species.

3. *A. agrestis*. Slender Fox-tail-grass.

Stem erect, roughish. Spike racemose, nearly simple, tapering. Calyx-glumes almost naked, combined at the base, dilated at the keel.

A. agrestis. *Linn. Sp. Pl. 89. Willd. v. 1. 357. Fl. Br. 73. Engl. Bot. v. 12. t. 848. Mart. Rust. t. 22. Knapp t. 16. Hook. Scot. 22. Schrad. Germ. v. 1. 171. Schreb. Gram. v. 1. 140. t. 19. f. 2. Leers 16. t. 2. f. 5. Fl. Dan. t. 697. Ehrh. Phyt. 71. Sincl. 165.*

A. myosuroides. *Huds. ed. 1. 23. Curt. Lond. fasc. 2. t. 7.*

A. n. 1540. Hall. Hist. v. 2. 249.

Gramen myosuroides majus, spicâ longiore, aristis rectis. Raii Syn. 397.

G. spicatum, spicâ cylindraceâ, tenuissimâ, longiore. Scheuchz. Agr. 69. t. 2. f. 6, A, B.

G. alopecuroides, spicâ longâ, tenuiore. Moris. v. 3. 192. sect. S. t. 4. f. 12.

G. alopecurinum minus. Ger. Em. 11. f.

β. G. myosuroides minus, spicâ brevior, aristis recurvis. Raii Syn. 397.

In cultivated fields, and by way sides.

Annual. *July*.

Root small, fibrous. *Stems* several, $1\frac{1}{2}$ or 2 feet high, erect, leafy, roughish to the touch in the upper part. *Leaves* pale, rough above, with longish swelling *sheaths*, and each an oblong downy *stipula*. *Spike* slender, tapering at each end, 3 inches long, often purplish; the partial stalks almost entirely simple, and close-pressed. *Calyx-glumes* combined a good way up, lanceolate, narrow, a little downy at the edge; their keel dilated, but far less fringed than in *A. pratensis*. *Cor.* smooth. *Awn* twice the length of the calyx. *Styles* short, united. *Stigmas* thrice as long, slender, downy.

β , in Buddle's herbarium, is a very trifling variety, merely starved.

4. *A. bulbosus*. Bulbous Fox-tail-grass.

Stem erect. *Spike* tapering, perfectly simple. *Calyx-glumes* distinct, linear, pointed, downy. *Root* bulbous.

A. bulbosus. *Linn. Sp. Pl.* 1665. *Willd. v. 1.* 356. *Fl. Br.* 73. *Engl. Bot. v. 18. t.* 1249. *Knapp t.* 17.

Gramen myosuroides nodosum. *Dill. in Raii Syn.* 397. *t.* 20. *f.* 2.

G. typhinum phalaroides, pilosâ spicâ, aquaticum bulbosum. *Barrel. Ic. t.* 699. *f.* 1.

In wet salt marshes, rare.

First found by James Sherard, but the place is omitted by Dillenius.

On the north side of Yarmouth. *Mr. Woodward*. In Cardiff marshes, Glamorganshire, and near the Aust passage. *Rev.*

Mr. Lightfoot's herbarium. Near Weymouth. *Mr. Lambert*.

Perennial. *July*.

Root of several, aggregate, ovate, solid, fleshy bulbs, sometimes one above the other, with fibres beneath. *Stems* solitary from the top of each bulb, slender, round, smooth, leafy, with 2 joints, occasionally bent at the lowermost, otherwise erect, about a span high. *Leaves* narrow, striated, slightly channelled or concave; those on the stem with long swelling sheaths. *Stipula* lanceolate, short. *Spike* racemose, but hardly branched, the partial stalks very short. *Calyx-glumes* broader, and less linear, than they appear in *Engl. Bot.*, being somewhat dilated upward, and bordered at the keel; they are minutely downy, or hoary all over, with purplish ribs and point, the keel and ribs fringed. *Corolla* bluntish, one third shorter than the calyx; its awn twice as long. *Anthers* scarcely protruding beyond the glumes. *Styles* combined, short. *Stigmas* linear, downy, extending a little beyond the calyx. The *calyx-glumes* are certainly not combined in this species, which obliges me, with regret, to reject that part of Schreber's and Schrader's generic character. Foreign botanists seem unacquainted with this grass, nor have all those of our own country known it well. None can be more invariably distinct.

5. *A. geniculatus*. Floating Fox-tail-grass.

Stem ascending, bent at the joints. Spike cylindrical, slightly paniced. Calyx-glumes combined at the base, abrupt, fringed. Corolla notched, its awn twice the length of the calyx.

A. geniculatus. *Linn. Sp. Pl.* 89. *Willd. v. 1.* 358, excluding the reference to *Fl. Dan.*! *Fl. Br.* 74. *Engl. Bot. v. 18.* t. 1250. *Curt. Lond. fasc. 5.* t. 6. *Mart. Rust. t. 97.* *Hook. Scot.* 22. *Schrad. Germ. v. 1.* 173. *Leers 16. t. 2. f. 7.* *Ehrh. Calam.* 42. *Sincl.* 245.

A. paniceus. *Fl. Dan.* t. 861.

A. n. 1541. *Hall. Hist. v. 2.* 249.

Gramen aquaticum geniculatum spicatum. *Bauh. Theatr.* 42. f. *Scheuchz. Agr.* 72. t. 6. f. C, D, E. *Raii Syn.* 396.

G. fluviatile spicatum. *Ger. Em.* 14. f.

“*G. aquaticum spicatum*. *Park. Theatr.* 1275. f.”

G. alopecurum fluviatile geniculatum procumbens. *Moris. v. 3.* 193. *sect. 8. t. 4. f. 15.*

β. G. fluviatile album. *Dill. in Raii Syn.* 396.

γ. Alopecurus bulbosus. *Huds.* 27, excluding the synonyms.

A. bulbosus geniculatus. *Sincl.* 185.

In ponds, ditches, and slow streams, floating widely on the surface.

γ. In dry barren ground, or on walls.

Perennial. *July.*

Roots of many long fibres, from the lower joints of the branched, spreading, leafy, smooth *stems*. *Leaves* much broader and shorter than in the last, with roughish furrows, and long, smooth, rather tumid sheaths. *Stipula* oblong, very thin. *Spikes* erect, $1\frac{1}{2}$ or 2 inches long, bluntish, dense, but separable into short, branched lobes, or tufts, with smooth flower-stalks. *Calyx-glumes* nearly equal, obtuse, purplish, combined at the base, minutely pointed, but terminating in a membrane which conceals the dark-coloured point; their sides hairy, and keels strongly fringed. *Cor.* shorter than the calyx, abrupt, irregularly notched, ribbed slightly at each side. *Awn* from below the middle, twice the length of the calyx. *Anth.* linear, yellow. *Styles* short; according to Schrader combined at first, but subsequently distinct. *Stigmas* long, cylindrical, acute, downy.

The *root* in var. *γ* has extremely copious and long fibres, and one or two of the lower joints of the *stem*, owing to a dry barren situation, become oval and fleshy, as in *Phleum pratense γ*, p. 75. This has by many been mistaken for *A. bulbosus*, which always grows in water, and differs essentially in character, as I trust can no longer be doubted.

6. *A. fulvus*. Orange-spiked Fox-tail-grass.

Stem ascending, bent at the joints. Spike cylindrical, pa-

niced. Calyx-glumes combined at the base, obtuse, fringed. Awn the length of the calyx. Anthers roundish.

A. fulvus. *Engl. Bot.* v. 21. t. 1467. *Comp.* 13.

A. geniculatus var. 4. *With.* 121.

In ponds and ditches, floating on the surface.

In Edgbaston park, near Birmingham. *Withering.* At Swainsthorpe, near Norwich. *Mr. Stone.* In Angussshire and Fifeshire, Messrs. Don. *Hooker.*

Perennial. *July.*

Like the preceding in habit, and in general structure; but our specimens are much more luxuriant. *Spike* about 3 inches long, conspicuous for the orange colour of the *anthers*, which are still more peculiar on account of their short roundish figure. The shortness of the *awns* may be a variable circumstance. The suggestion of Dr. *Withering* first led me to propose this as a species, and I still wish to leave it for more accurate examination, though Professor *Hooker* is of a different opinion. I hope not to be thought precipitate or dogmatical, which faults I have had experience enough to wish, at least, to avoid.

32. KNAPPIA. Knappia.

Engl. Bot. v. 16. 1127. *Fl. Br.* 1387. *Comp.* 6. *Hook. Lond.* t. 64.

Mibora. *Adans. Fam.* v. 2. 495. *Beauv. Agr.* 29. t. 8. f. 4.

Chamagrostis. *Schrad. Germ.* v. 1. 158.

Cal. of 2, nearly equal, expanded, concave, keeled, ovate, abrupt, single-ribbed, awnless valves, containing a single floret. *Cor.* of 2 unequal, obovate, membranous, ribbed, very hairy, fringed, awnless valves, rather shorter than the calyx; the larger embracing the inner one. *Filam.* capillary, twice as long as the calyx. *Anth.* elliptic-oblong, cloven at each end, erect, with 2 minute terminal beaks. *Germ.* minute, roundish. *Styles* very short. *Stigmas* rather longer than the stamens, cylindrical, downy, acute. *Seed* loose, covered by the corolla, obovate, "copiously dotted in longitudinal lines." *Hooker.*

Only one species is known.

1. *K. agrostidea.* Early Knappia.

K. agrostidea. *Engl. Bot.* v. 16. t. 1127. *Comp.* 13. *Knapp* t. 110. *Davies Welsh Botanol.* 9. *Hook. Lond.* t. 61.

Agrostis minima. *Linn. Sp. Pl.* 93. *Willd.* v. 1. 372. *Fl. Br.* 82. *Huds.* 32. *Stillingfl. Misc. præf.* 28.

Chamagrostis minima. *Schrad. Germ.* v. 1. 158.

Gramen spartheum, capillaceo folio, minimum. *Dill. Giss. append.* 172. t. 16. f. 1.

- G. minimum.* Dalech. *Hist.* 424. f. Bauh. *Hist.* v. 2. 465. f.
G. minimum, paniculis elegantissimis. Bauh. *Theatr.* 26. f.
 Scheuchz. *Agr.* 40. t. 1. f. 7, 1.
G. minimum anglo-britannicum. Lob. *Illustr.* 20. Raii *Indic. Pl.*
Dub. 15.
G. loliaceum tenuissimum, unciale aut biunciale. Moris. v. 3. 182.
sect. 8. t. 2. f. 10.

In sandy maritime pastures, very rare.

A few miles from Lee, Essex, near the mouth of the Thames.
Lobel. Found by Mr. Stillfleet in Wales. *Huds.* Frequent
 on the south-west coast of Anglesea. *Rev. Hugh Davies.*

Annual. *March, April.*

Root of many long slender fibres. Stems 1 to 3 inches high, erect,
 simple, slender, smooth, triangular, naked, except at the very
 bottom, where they are invested with the membranous sheaths
 of a few short, obtuse, channelled leaves. Stipula membranous,
 bluntish, cloven, but not deeply divided. Spikes solitary, simple,
 erect, of from 6 to 10 flowers, mostly sessile, alternate, erect;
 2 or 3 of the lowermost only more or less stalked; their common
 stalk zigzag, slender, smooth, angular, but not excavated as in
 the truly spiked grasses. Fl., like the top of the stem, purplish.
 Cor. white and feathery.

This little grass, well known on the coasts of France, soon disap-
 pears after shedding its seeds. The name of *Chamagrostis*, com-
 posed of *Agrostis* already established, is inadmissible. *Mibora*
 of Adanson, whose meaning is not explained, but which is
 partly, as it seems, composed of βόρρα, fodder, has been over-
 looked, because that author's names, so often founded on a bad
 principle, have been generally neglected. The construction of
 this word is evidently incorrect, and to restore it would prove
 more inconvenient than instructive. See *Beauvais Agr. introd.* 6.

33. POLYPOGON. Beard-grass.

Desfont. Atlant. v. 1. 66. *Schrad. Germ.* v. 1. 192. *Comp.* 7. *Br.*
Prodr. 173. *Beauv. Agr.* 17. t. 6. f. 8.

Cal. of 2 nearly equal, folded, keeled valves, cloven at the
 summit; each with a terminal, straight, rough awn, pro-
 ceeding from the keel; containing a single floret. *Cor.*
 of 2, somewhat unequal, ovate, concave valves, much
 shorter than the calyx, and inclosed within it: the outer
 keeled, terminating in a rough awn; the inner smallest,
 awnless, with 2 ribs, cloven at the summit. *Filam.* ca-
 pillary, about the length of the corolla. *Anth.* terminal,
 oblong, cloven at each end. *Germen* oval. *Styles* short,
 distinct. *Stigm.* feathery. *Seed* loose, ovate, polished,
 covered by the corolla. The terminal straight awn of

the *corolla* is totally distinct in nature from the dorsal, jointed, twisted, inconstant awn of an *Agrostis*.

Root fibrous or creeping, annual or perennial. *Stems* 1 or more, simple or branched, jointed, leafy. *Leaves* roughish. *Panicle* erect, compound, dense, lobed, bristly from the copious *awns* of the numerous, small, crowded *flowers*.

1. *P. monspeliensis*. Annual Beard-grass.

Awns straight, thrice as long as the calyx. *Root* fibrous.

P. monspeliensis. *Desfont. Atlant. v. 1. 67. Schrad. Germ. v. 1. 192. Comp. 13. Marsch. Taur. Cauc. v. 1. 48.*

Alopecurus monspeliensis. *Lim. Sp. Pl. 89. With. 121.*

A. aristatus. *Huds. 28.*

A. altera maxima anglica paludosa. *Moris. v. 3. 191. sect. 8. t. 4. f. 3.*

A. maxima anglica. *Raii Syn. 396.*

Phleum crinitum. *Schreb. Gram. v. 1. 151. t. 20. f. 3. Fl. Br. 71. Fl. Græc. v. 1. 46. t. 62.*

Agrostis panicea. *Ait. Hort. Kew. ed. 2. v. 1. 148. Willd. v. 1. 363. Engl. Bot. v. 24. t. 1704.*

A. triaristata. *Knapp t. 23.*

Gramen alopecurum majus, spicâ virescente divulsâ, pilis longioribus. *Barrel. Ic. t. 115. f. 2. Scheuchz. Agr. 155.*

β . *Alopecurus paniceus*. *Lim. Sp. Pl. 90. With. 121.*

Cynosurus paniceus. *Lim. Sp. Pl. ed. 1. 73.*

Gramen alopecurum minus, spicâ virescente divulsâ. *Barrel. Ic. t. 115. f. 1.*

G. alopecurus minus, spicâ longiore. *Scheuchz. Agr. 154.*

Cauda vulpis monspeliensium. *Lob. Ic. v. 1. 45. f.*

In moist pastures near the sea, but rare.

In Hampshire and Essex. *Ray*. Near Cley, Norfolk. *Mr. W. Humphrey, and Mr. Borrer*.

Annual. *July, August*.

Root of several, somewhat downy, fibres. *Stems* generally numerous, simple, smooth, a foot or more in height. *Leaves* spreading, acute, flat, striated, rough at the ribs and margin; their *sheaths* long and smooth, with an oblong *stipula*, rough at the back. *Panicle* pale, with a silky appearance from the long, rough, shining awns of the calyx. *Anth.* short. *Styles* scarcely any. β is a very trifling variety, diminished by want of nourishment, as usual with annual grasses.

2. *P. littoralis*. Perennial Beard-grass.

Awns straight, about the length of the calyx. *Root* creeping.

P. littoralis. *Comp. 13.*

Agrostis littoralis. *Fl. Br.* 78. *Engl. Bot.* v. 18. t. 1251. *With.* 129?
Knapp t. 22. *Dicks. H. Sicc. fasc.* 16. 1.

In muddy salt-marshes, rare.

Near Cley, Norfolk. *Rev. Henry Bryant*. On the Essex coast.

Mr. Dickson. Near the powder magazine, about 4 miles from Woolwich. *Mr. Geo. Jackson*.

Root creeping, branched. *Stems* branched, smooth; decumbent and taking root at their lower joints; about a foot high. *Leaves* rough on both sides, as well as at their edges. *Stipula* slightly downy. *Sheaths* striated, smooth. *Pan.* lobed, purplish, shining, but less silky than the former, the awns being so much shorter. *Withering's* figure, t. 23, represents the foregoing, but wants the awn of the *corolla*, and his description does not answer well to either species.

34. MILIUM. Millet-grass.

Linn. Gen. 33. *Juss.* 29. *Fl. Br.* 75.

Cal. of 2 unequal, concave, tumid, keeled, clasping, awnless valves, containing a single floret. *Cor.* of 2 unequal valves, inclosed in the calyx; the outermost broadest, sometimes awned at the back, finally hardened and permanent. *Awn*, if present, jointed and twisted. *Nect.* cloven, membranous. *Filam.* capillary, not longer than the calyx. *Germ.* ovate. *Styles* combined, or very short. *Seed* ovate, coated with the horny *corolla*.

Root perennial, or annual. *Stems* erect, leafy, jointed. *Panicle* loose or dense, much branched.

The hardened *corolla*, forming a coat to the *seed*, affords a mark of distinction between this genus and *Agrostis*, no less obvious than important, as those most deeply versed in grasses will most readily allow.

1. *M. effusum*. Spreading Millet-grass.

Flowers in a loose spreading panicle, without awns.

M. effusum. *Linn. Sp. Pl.* 90. *Willd.* v. 1. 360. *Fl. Br.* 75. *Engl. Bot.* v. 16. t. 1106. *Curt. Lond. fasc.* 4. t. 12. *Knapp*. t. 19. *Hook. Scot.* 24. *Leers* 18. t. 8. f. 7. " *Fl. Dan.* t. 1143." *Schrad. Germ.* v. 1. 197. *Sincl.* 309.

M. n. 1525. *Hall. Hist.* v. 2. 243.

Gramen miliaceum. *Raii Syn.* 402. *Ger. Em.* 6. f. *Lob. Ic.* 3. f.

G. miliaceum vulgare. *Moris.* v. 3. 197. *sect.* 8. t. 5. f. 10.

G. sylvaticum, paniculâ miliaceâ sparsâ. *Bauh. Pin.* 8. *Theatr.* 140. f. 141. *Scheuchz. Agr.* 133. t. 3. f. 6.

In rather moist shady places, frequent.

Perennial. *June, July*.

Root fibrous, with several creeping shoots. *Stems* erect, slender, 3 or 4 feet high, round, jointed, leafy, smooth. *Leaves* bright green, broad, flat, with a single rib and rough edges; their *sheaths* strongly ribbed, very smooth. *Stipula* oblong, a little jagged. *Panicle* large, erect, lax, widely spreading, of several alternate tufts, or half whorls, of slender, variously compound branches, scarcely rough, except in their upper part. *Fl.* solitary, slightly drooping, ovate. *Cal.* permanently green, roughish, of 2 elliptical, expanded, concave, ribbed, nearly equal valves. *Cor.* nearly the shape and size of the calyx, to which it is opposite, not contrary; at first of a greenish white, polished; after flowering yellowish and horny, the larger valve embracing the other, and both together forming a shining hard coat to the seed. *Awn* none. *Nectary* a deeply cloven membrane. *Anth.* deeply cloven at each end. *Styles* short, combined. *Stigm.* feathery.

2. *M. lendigerum*. Panick Millet-grass.

Flowers in a dense spiked panicle. Corolla awned.

M. lendigerum. *Linn. Sp. Pl.* 91. *Willd. v. 1.* 359. *Fl. Br.* 76. *Engl. Bot. v. 16. t. 1107.* *Fl. Græc. v. 1.* 49. *t. 65.* *Schreb. Gram. v. 2.* 14. *t. 23. f. 3.*

Agrostis australis. *Linn. Mant.* 1. 30.

A. rubra. *Huds. ed. 1.* 26.

A. ventricosa. *Gouan Hort.* 39. *t. 1. f. 2.* *Knapp t. 25.*

Panicum ventricosus. *Huds. ed. 2.* 28.

Panicum serotinum arvense, spicâ pyramidatâ. *Tourn. Inst.* 515. *Raii Syn.* 394.

Gramen panicum serotinum, spicâ laxâ pyramidalis. *Moris. v. 3.* 189. *Herb. Bobart.*

G. serotinum arvense, paniculâ contractâ pyramidalis. *Scheuchz. Agr.* 148.

G. alopecuro accedens, ex culmi geniculis spicas cum petiolis longiusculis promens. *Pluk. Almag.* 177. *Phyt. t. 33. f. 6.*

In fields where water has stagnated, especially towards the sea, but not common.

In the isle of Shepey plentifully. *Huds.* At Weymouth. *Rev. Mr. Lightfoot.* In corn-fields at Gillingham, Norfolk. *Mr. Woodward.* At Cley, Norfolk. *Mr. Rose.*

Annual. *August.*

Stem branched from the bottom, smooth. *Leaves* roughish at the edges, with smooth, striated, slightly tumid, *sheaths.* *Stipula* oblong, torn when old. *Panicle* erect, lobed, but very close, tapering, pale green, bristly, with roughish and angular partial stalks. *Fl.* small, pale green. *Cal.* tumid and polished at the base; its valves compressed, membranous at the edges, rough at the keel; one of them longest, and most pointed, but not awned. *Cor.* much smaller; its outer valve ovate, concave, obtuse, downy, with a jointed, rough, twisting, dorsal *awn*, rather longer

than the calyx, rarely if ever wanting; inner smaller, cloven, hairy at the base. *Nect.* deeply cloven, acute. *Anth.* short. *Seed* coated with the hardened corolla, and enveloped in the shining calyx.

35. AGROSTIS. Bent-grass.

Linn. Gen. 33. *Juss.* 29. *Fl. Br.* 77. *Lam. t.* 41.

Cal. of 2 rather unequal, acute, keeled, folded, clasping, awnless, permanent valves, containing a single floret. *Cor.* of 2 unequal valves, generally larger than the calyx, membranous, ribbed, unchanged after flowering, with a tuft or two of hairs at the base; the larger valve bearing, constantly in some species, a rough, dorsal awn, which in others is most generally wanting; the smaller valve constantly awnless, more membranous, various in size, and occasionally abortive. *Nect.* of 2 minute scales, sometimes combined. *Filam.* capillary, rather longer than the glumes. *Anth.* deeply divided at each end. *Germ.* ovate. *Styles* short. *Stigm.* densely feathery. *Seed* ovate, polished, loose, wrapped in the unaltered corolla.

Habit various, generally slender, with fibrous, mostly perennial, roots, and jointed, leafy, erect, ascending, or prostrate stems. *Leaves* narrow, acute. *Panicle* much branched, generally spreading, of innumerable, solitary, erect, small flowers. *Cal.* roughish, often coloured. *Cor.* most frequently pale, or whitish. *Seed* very minute.

Agrostis, as generally understood by authors, is justly said by Mr. Brown to be an artificial genus, and therefore I should scarcely hesitate to admit *Trichodium* of Michaux and Schrader, as an artificial separation from it, differing only in having a single valve to the corolla. Such Schrader found to be the case with *A. canina*, but I do not, and therefore we have nothing to do with *Trichodium* in a British Flora.

* *Awned.*

1. *A. Spica venti.* Silky Bent-grass.

Awn straight, rigid, many times longer than the corolla. Panicle loosely spreading.

A. Spica venti. *Linn. Sp. Pl.* 91. *Willd. v.* 1. 361. *Fl. Br.* 77. *Engl. Bot. v.* 14. *t.* 951. *Knapp t.* 20. *Leers 19. t.* 4. *f.* 1. *Schrad. Germ. v.* 1. 203. *Fl. Dan. t.* 853.

Avena n. 1480. *Hall. Hist. v.* 2. 228.

Gramen miliaceum majus, glumis aristatis, spadiceis et pallidis. *Raii Syn.* 405.

G. segetum altissimum, paniculâ sparsâ. *Scheuchz. Agr.* 144. t. 3. f. 10. A, B. *Bauh. Theatr.* 33. f. 34.

G. harundinaceum. *Ger. Em.* 5. f.

G. agrorum venti spica. *Park. Theatr.* 1158. f. *Lob. Ic.* 3. f.

In sandy corn-fields, occasionally overflowed, but not very common. In several parts of Norfolk; and near Warrington, Lancashire. Near Kingston upon Thames. *Bishop of Carlisle*. Between Kennington and Camberwell. *Mr. Groult*. At Walthamstow. *Mr. E. Forster*.

Annual. *June, July*.

Root of many thick whorled fibres. *Stems* one or more, 2 or 3 feet high, erect, leafy, smooth, jointed near the base, unbranched. *Leaves* spreading, ribbed; a little downy above; rough beneath; their sheaths long, ribbed, smooth. *Stipula* jagged. *Panicle* large, silky in appearance, leaning to one side, and elegantly waving with the wind; its branches numerous, in alternate bundles, finely subdivided, rough and angular upwards. *Cal.* and *Cor.* polished, often purplish; outer valve of the latter rough with minute tubercles, and remarkable for its long straight awn; inner minutely cloven at the point. *Seed* minute, ovate, pointed, very smooth.

2. *A. canina*. Brown Bent-grass.

Awn incurved, from below the middle of the corolla; inner valve obsolete. Calyx ovate, coloured. Stems decumbent, with prostrate shoots. *Stipula* lanceolate.

A. canina. *Lin. Sp. Pl.* 92. *Willd. v.* 1. 367. *Fl. Br.* 78. *Engl. Bot. v.* 26. t. 1856. *Knapp t.* 21. *Hook. Scot.* 24. *Leers* 19. t. 4. f. 2. *Hoffm. Germ. for* 1800. 34. t. 6.

A. vinealis. *With.* 127.

A. stricta. *Sincl.* 151.

Trichodium caninum. *Schrad. Germ. v.* 1. 198.

Avena n. 1479. *Hall. Hist. v.* 2. 227.

Gramen paniculatum supinum, ad infima culmorum genicula foliorum capillarum fasciculis donatum. *Scheuchz. Agr.* 141. t. 3. f. 9, C.

β. *Huds.* 30, excluding the synonyms.

Agrostis tenuifolia. *Curt. Brit. Gr.* 42, without an awn.

A. fascicularis. *Sincl.* 155.

In meadows and pastures, especially in damp boggy places, common. Perennial. *June, July*.

Root creeping, with downy fibres, and many trailing leafy shoots. *Stems* several, more or less decumbent, and taking root, at the lower joints; from 1 to 3 feet long, leafy, ascending, slender, smooth. *Leaves* roughish on both sides, narrow, especially in the radical tufts, where they are, as Professor Schrader remarks, quite setaceous, and by the presence of such tufts this species is

readily distinguished from the awned varieties of *A. vulgaris*, without adverting to the *corolla*. *Sheaths* striated, smooth. *Stipula* lanceolate, elongated, finally torn; in *vulgaris* this part is extremely short. *Panicle* spreading when in flower, otherwise collected into lobes or close tufts; the branches capillary, elastic, angular, rough, brownish purple. *Fl.* erect, shining. Valves of the *calyx* ovate, pointed, purple; occasionally yellow, *Sincl.* 153.; the outer one largest, with a rough keel; inner smooth. *Cor.* membranous, white or greenish; the larger valve ribbed, notched, about the length of the calyx, or rather shorter, with a jointed incurved *awn*, from below the middle of its keel, extending a little way beyond the point; smaller valve often entirely wanting, though some flowers in every *panicle* usually have it, either diminutive, as in *Engl. Bot.*, or nearly equal to the awned valve, as in a specimen before me. Leers, the most accurate of all observers in this tribe of plants, says this valve is very often wanting, but not always. Such a partial deficiency could hardly afford a specific, much less a generic, distinction. The *awn* varies in length, and is occasionally absent, as in var. β , nothing being more uncertain than the dorsal awns of grasses. The terminal ones, whether of the *calyx* or *corolla*, are much more to be trusted.

3. *A. setacea*. Bristle-leaved Bent-grass.

Awn incurved, from near the base of the corolla; inner valve minute. Calyx lanceolate, tapering, rough. Radical leaves bristle-shaped. Stem nearly erect. Panicle close, oblong.

A. setacea. *Curt. Brit. Gr.* 42. *Lond. fasc.* 6. t. 12. *Fl. Br.* 79.

Engl. Bot. v. 17. t. 1188. *Knapp* t. 24. *Hook. Scot.* 25.

A. alpina. *With.* 128, with erroneous synonyms.

A. canina γ . *Huds.* 31, excluding the syn.

On dry turfy heaths, in the south and west of England.

Mr. Curtis, who first distinguished this grass, received it from his gardener Robert Squibb, from Piddletown heath, Devonshire. The late Earl of Gainsborough, and the present Bishop of Carlisle, observed it in Hampshire; the late Duchess Dowager of Portland at Weymouth; and Mr. D. Turner in the Isle of Wight. Professor Link sent it from Portugal, where he found it common on heaths.

Perennial. *July, August.*

Root rather woody, tufted, with strong downy fibres. Stems 8—12 inches high, a little inclining, slender, nearly or quite smooth, leafy. Leaves pale glaucous green; the radical ones involute, almost capillary, erect, acute, roughish, or downy; those of the stem shorter, broader, with very long smooth sheaths. *Stipula* lanceolate, tender, often torn. *Panicle* erect, oblong, cylindrical, but little spreading at any period; its branches angular,

bristly. *Fl.* erect, pale purplish. *Cal.* of 2 unequal, long and tapering, keeled, scarcely awned, valves, rough at the edges and keel, downy all over. Outer valve of the *corolla* lanceolate, shorter than the calyx, with a rough twisting awn from near the bottom, twice the length of the valve; inner very small, oblong, about equal to the germen. *Anth.* purplish, deeply cloven at each end, prominent. *Styles* distinct.

Very different from *A. alpina* of Willdenow, *Sp. Pl.* v. 1. 368, which is Haller's *Avena* n. 1477; as well as from his *rupestris*, Haller's n. 1478.

** Generally without awns.

4. *A. vulgaris*. Fine Bent-grass.

Panicle spreading; with divaricated, capillary branches. Calyx-valves nearly equal. Stem erect. Stipula abrupt, very short.

A. vulgaris. *With.* 132. *Fl. Br.* 79. *Engl. Bot.* v. 24. t. 1671. *Knapp* t. 26, & t. 115. *Relh.* 27. *Hook. Scot.* 25. *Sincl.* 143. *Schrad. Germ.* v. 1. 206. t. 2. f. 3. *Hoffm. Germ. for* 1800. 36. t. 7.

A. hispida. *Willd.* v. 1. 370.

A. tenuis. *Sibth.* 36.

A. capillaris. *Abbot* 14. *Roth Germ.* v. 2. 85.

A. polymorpha α . *Huds.* 31.

A. stolonifera. *Leers* 20. t. 4. f. 6. *Ehrh. Calam.* 71.

Poa n. 1475. *Hall. Hist.* v. 2. 226.

Gramen miliaceum, locustis minimis, paniculâ ferè arundinaceâ. *Raii Syn.* 402.

β . *Fl. Br.* 80. *Schrad. Germ.* v. 1. 206. t. 3. f. 1.

A. canina. *With.* 127.

γ . *Fl. Br.* 80. *Schrad. Germ.* v. 1. 206.

A. pumila. *Linn. Mant.* 1. 31. *Willd.* v. 1. 371. *Lightf.* 1081. f. in title of v. 2, bad. *Dicks. II. Sicc. fasc.* 18. 3. *Ehrh. Calam.* 105.

Gramen minimum palustre, paniculâ spadiceâ delicatâ, tenuifolium, semine exiguo rotundo. *Scheuchz. Agr.* 131.

δ . *Fl. Br.* 80. *With.* 133. var. 3.

A. vulgaris ϵ . *Schrad. Germ.* v. 1. 207. t. 2. f. 4.

In meadows, pastures, waste ground, and the borders of fields, every where.

Perennial. *July, August.*

Root tufted, strong, somewhat creeping. Stems 12—24 inches high; in γ 2—4 inches only; erect or ascending, leafy, slender, striated, smooth to the touch; their lowermost joints often throwing out roots. Leaves linear, narrow, taper-pointed, rather spreading, rough on both sides, with long, striated, smooth sheaths. Stipula extremely short and abrupt, by which, as Pro-

fessor Schrader long ago noticed, all the varieties of this species, whether awned or not, are readily distinguished from *A. canina*, as also from *alba*. *Panicle* purplish, very delicate, slender, uniformly divaricated, with equidistant, elastic, finely capillary branches, collected into small tufts after flowering; their lower part smooth; upper more or less rough, but the ultimate stalks are smooth. *Fl.* small, erect, shining. Valves of the *calyx* lanceolate, concave, somewhat unequal, with membranous edges; the keel of the larger often roughish. *Cor.* of 2 thin, very unequal, valves; the smaller notched at the summit, hairy at the base; larger 3-ribbed, shorter than the calyx, usually awnless, but sometimes, as in var. β , and not unfrequently in γ , furnished with a dorsal rough awn, about twice its own length. The *anthers* project just beyond the calyx, and are oblong, cloven at each end. *Styles* very short. *Stigm.* densely feathery. *Seed* ovate, tumid, especially in γ , which is often, not always, infected with the smut, or *ustilago*. In δ the *glumes* become, more or less, elongated and leafy, the fructification being transformed into a bud, and the panicle viviparous. This happens chiefly in shady or moist situations, where the whole plant is pale and slender; in dry exposed spots it is dwarf, condensed, of a fine brownish purple all over.

The earliness of this grass appears, according to Mr. Sinclair's observations, its chief agricultural value, the produce being far from abundant.

A. capillaris, *Linn. Sp. Pl.* 93. *Sm. Pl. Ic. t.* 54, is a totally different plant, found in Portugal, by the late Sir T. Gage, Bart.

5. *A. alba*. Marsh Bent-grass.

Panicle condensed at the base of the main divisions; stalks rough. Calyx-valves lanceolate, bristly at the keel. Stem spreading, creeping. Stipula oblong, ribbed.

A. alba. *Linn. Sp. Pl.* 93. *Willd. v.* 1. 371. *Fl. Br.* 81. *Engl. Bot. v.* 17. *t.* 1189. *Hook. Scot.* 25. *Cullum* 23. *Schrad. Germ. v.* 1. 209, α and β . *t.* 2. *f.* 1.

A. mutabilis. *Knapp t.* 28.

A. polymorpha ζ , *palustris*. *Huds.* 32.

A. palustris. *Sincl.* 237.

A. capillaris. *Leers* 20. *t.* 4. *f.* 3. ?

A. stolonifera latifolia. *Sincl.* 113, also *aristata*. 233.

Gramen miliaceum majus, *paniculâ spadiceâ*, n. 11; as also *paniculâ viridi*, n. 12. *Dill. in Raii Syn.* 404.

β . *A. stolonifera*. *Linn. Sp. Pl.* 93. *Herb. Linn. Willd. v.* 1. 369. *Fl. Br.* 80. *Engl. Bot. v.* 22. *t.* 1532. *Mart. Rust. t.* 120. *Knapp t.* 27. & *t.* 116.

A. polymorpha δ . *Huds.* 31.

A. alba. *Leers* 21. *t.* 4. *f.* 5.

Poa n. 1473. *Hall. Hist.* 225.

Gramen montanum miliaceum minus, radice repente. *Raii Syn.* 402.?

G. caninum supinum. *Ger. Em.* 26. f.

G. caninum supinum minus. *Scheuchz. Agr.* 128.

γ . *A. sylvatica*. *Huds. ed.* 1. 28. *Linn. Sp. Pl.* 1665. *Willd.* v. 1. 371.

A. polymorpha η . *Huds.* 32.

Gramen miliaceum sylvestre, glumis oblongis. *Dill. in Raii Syn.* 401.

In moist meadows, and fields inundated in autumn. β in ditches and wet situations, on a clay soil, especially near the sea. γ in woods.

Perennial. *July, August.*

A larger plant than *A. vulgaris*, from which it essentially and manifestly differs, in having an elongated, ribbed, bluntish, mostly downy, finally torn, *stipula*; whereas that of *vulgaris* is scarcely visible at all, or at most not a line in length. I concur with Professor Hooker and Mr. Bicheno in uniting *A. stolonifera* to *alba*, but by no means in perceiving any ambiguity between the latter and *vulgaris*.

A. alba has long, decumbent, more or less branching, *stems*, sending out roots from their lower joints. The *leaves* are broad, flat, taper-pointed, ribbed, very rough on both sides to the touch, especially at the edges. *Sheaths* long, smooth in my specimens, though Professor Schrader informs me they are occasionally rough. *Panicle* 4—6 inches long, alternately lobed, or divided into several large, half-whorled, bundles, of extremely unequal, angular, rough branches; the lowermost particularly crowded, generally much more so than is represented in *Engl. Bot.* *Calyx-glumes* keeled, acute, slightly unequal, rather tumid; their keels either entirely or partially rough with little bristles; their sides smooth; their edges not more membranous than the other part, in which last character they differ from the *vulgaris*. *Cor.* of 2 unequal valves; the larger ribbed, and occasionally awned from a little below the summit. *Styles* very short. *Stigmas* thick, feathery. The *calyx* is either greenish white, or brownish purple, but not so constantly, in different individuals, as to mark a durable variety.

In β the *stem* is more extensively creeping, sometimes floating; but the chief difference consists in the still more dense and tufted lobes of the *panicle*, as in *Engl. Bot.* and *Leers t. 4. f. 5.* The *calyx*, besides, is generally rough all over, with little bristly points; and I had thought, with the accurate Schrader, that this roughness would afford a specific character; but it is wanting in the Liverpool specimens, see *Engl. Bot. t. 1532.*

γ is distinguished by an elongation of the *cal.* & *cor.*, the *flowers* being imperfect, and many of them transformed to leafy buds. The lower branches of the *panicle* are abortive.

A. coarctata, Ehrh. Calam. 133, referred by Schrader to the purple variety, or rather state, of our *alba*, appears extremely different in its narrow involute *leaves*, trailing radical *shoots*, and slender loose *panicle*. I have seen nothing like it in England. Ehrhart's specimen in his *Calamaria* precisely accords with one sent by Dr. Roth as his *A. alpina*; but it is a real *Agrostis*, neither *A. alpina*, nor *A. rupestris* of Willdenow; see *Trichodium* n. 2 & 3 of Schrader; about which I find various errors, not concerning the British Flora.

36. CYNODON. Dog's-tooth-grass.

"Richard in Pers. Syn. v. 1. 85." Br. Pr. 187. Nutt. Gen. Amer. 56. Beauv. Agr. 37. t. 9. f. 1.

Digitaria. Schreb. Germ. v. 1. 165.

Cal. of 2 nearly equal, lanceolate, acute, keeled, awnless, spreading valves, containing a single floret. *Cor.* of two unequal, keeled, compressed, awnless valves; the outermost much the broadest, clasping the other. *Nectary* of 2 minute scales. *Filam.* rather longer than the corolla. *Anth.* cloven at each end. *Germ.* ovate. *Styles* distinct. *Stigm.* feathery. *Seed* ovate, coated with the hardened corolla.

Schrader and Brown have observed occasionally the rudiment of a second flower, like a small bristle.

The *stems* are prostrate and creeping, leafy, with upright flowering-branches. *Fl.* spiked, unilateral, somewhat alternate, on the flat side of a linear triangular *receptacle*, several of which are collected at the top of the branch. The *recept.* is really neither jointed nor scrobiculated, so that this genus cannot be referred to the spiked grasses, which constitute our third section.

1. C. *Dactylon*. Creeping Dog's-tooth-grass.

Spikes four or five, crowded together. Corolla smooth.

C. *Dactylon*. Br. Pr. 187.

Panicum *Dactylon*. Linn. Sp. Pl. 85. Willd. v. 1. 342. Fl. Br. 67.

Engl. Bot. v. 12. t. 850. Fl. Græc. v. 1. 45. t. 60. Knapp t. 13.

Dicks. Dr. Pl. 53. H. Sicc. fasc. 11. 1.

Digitaria *stolonifera*. Schrad. Germ. v. 1. 165.

D. n. 1527. Hall. Hist. v. 2. 244.

Agrostis linearis. Retz. Obs. fasc. 4. 19. Willd. v. 1. 375. Ascertained by Mr. Lambert.

Gramen *repens*, cum *paniculâ* *graminis mannæ*. Raii Syn. 399.

G. *Dactylon*, folio *arundinaceo*, majus et minus. Bauh. Theatr. 111—113. f. Moris. v. 3. 184. n. 3, 4. sect. 8. t. 3. f. 4.

G. Dactylon, radice repente, sive officinarum. *Tourn. Inst.* 520.
Scheuchz. Agr. 104. t. 2. f. 11, l.

G. dactiloides, radice repente. *Ger. Em.* 28. f.

G. Canarium alterum. *Lob. Ic. v. 1.* 23. f.

On the sandy shores of Cornwall abundantly, first noticed by Mr. Newton in the time of Ray.

Perennial. *July, August.*

The *roots* are tough and creeping, almost woody, with smooth fibres. *Stems* also creeping to a great extent, matted, round, jointed, leafy, very smooth. *Leaves* tapering, sharp-pointed, ribbed, hairy, a little glaucous; with long, striated, smooth *sheaths*, and a hairy *stipula*. *Flowering-branches* a span high, leafy, simple, terminating in 4 or 5 nearly equal, crowded, erect, many-flowered, linear *spikes*; the *common stalk* of each triangular, roughish; flat and slightly bordered on one side, along which the nearly sessile, shining, purplish *flowers* are ranged in 2 close alternate rows. The *cor.* is longer than the *calyx*, very much compressed, opposite, not, as I once thought, alternate, with respect to the latter.

37. DIGITARIA. Finger-grass.

Hall. Hist. v. 2. 244. *Juss.* 29. *Nutt. Gen. Amer.* 55. *Beauv. Agr.* 50. t. 10. f. 12.

Syntherisma. *Schrad. Germ. v. 1.* 160.

Cal. single-flowered, of 3 very unequal, close-pressed, awnless valves; the outermost minute, triangular, occasionally wanting; the next largest, as long as the corolla, concave, ribbed; the third innermost, opposite to the latter, hardly one fourth its size, lanceolate, flattish, slightly ribbed. *Cor.* of 2 unequal, elliptical, awnless, finally horny valves; the outer shaped like the larger valve of the calyx, and about as large, inflexed at the edges; inner narrower, flat. *Filam.* capillary, rather longer than the glumes. *Anth.* short, cloven at each end. *Germ.* ovate. *Styles* thread-shaped, about the length of the stamens. *Stigmas* short, feathery, dense. *Seed* ovate, coated by the hardened polished corolla.

Root fibrous, generally annual. *Herbage* coarse. *Leaves* broad, ribbed, with long, warty, often hairy, sheaths. *Spikes* several, alternate, rather close together. *Fl.* on short, divided, partial stalks, unilateral, alternate, in 2 rows, on a zigzag, bordered common stalk.

1. *D. sanguinalis*. Cock's-foot Finger-grass.

Leaves and their sheaths somewhat hairy. Flowers in pairs. Calyx rough at the edges of its largest valve only.

D. sanguinalis. Scop. Carn. v. 1. 52.

D. n. 1526. Hall. Hist. v. 2. 244.

Panicum sanguinale. Linn. Sp. Pl. 84. Willd. v. 1. 342. Fl. Br. 66. Engl. Bot. v. 12. t. 849. Curt. Lond. fasc. 4. t. 7. Knapp t. 12. Mart. Rust. t. 78. Hook. Scot. 21. Schreb. Gram. v. 1. 119. t. 16. Ehrh. Calam. 114.

Syntherisma vulgare. Schreb. Germ. v. 1. 161.

Gramen Dactylon folio latiore. Bauh. Theatr. 114. f. Raii Syn. 399. Scheuchz. Agr. 101. t. 2. f. 11, G, H. Moris. Hist. v. 3. 184. n. 2. sect. 8. t. 3. f. 2.

Ischæmon vulgare. Lob. Ic. v. 1. 24. f. Ger. Em. 27. f.

In sandy cultivated fields, but rare.

In Ray's time it was found at Great Witchingham, Norfolk, and about Elden, Suffolk, by Thomas Willisell. Hudson found it near Guildford. There are specimens in Lightfoot's herbarium, gathered near Brandon, Norfolk, and at Henham, Suffolk. Battersea fields have long been known to produce this grass, which is indubitably a native, though, like all annual plants, variable in its places of growth.

Annual. July, August.

Root fibrous. Stems numerous, bent and decumbent at the base, then ascending, about a foot long, jointed, leafy, striated, smooth. Leaves broad, pointed, striated, wavy at the edges, besprinkled, like their long rather swelling sheaths, with little warts, many of which bear bristly hairs. Spikes from 3 to 8, alternate, spreading, crowded at the top of the stem, many-flowered. Common stalk of each spike flat, wavy, winged, rough-edged, with a flat mid-rib at one side, the other beset with 2 rows of unequally cloven, two-flowered, short, erect partial-stalks. Fl. dark purplish, erect, elliptic-oblong. Largest valve of the calyx with usually five ribs, its edges rough or downy. Stigmas, and often Anthers, violet coloured. The specific name is said to have originated in the use made of this grass in Germany, which is to procure bleeding of the nose, by thrusting its spikes up the nostrils.

Professor Schrader separates from this species, by the name of *Syntherisma glabrum*, what Leers has described, and represented in his t. 2. f. 6. I describe the native English plant, upon which Haller evidently founded his *Digitaria*. Jussieu copied him, even in his error respecting the character; nor did he advert to the bivalve corolla, pointed out by Haller himself, in *Panicum Dactylon*, which forms an exception to their definition of *Digitaria*. I have therefore concurred with Mr. Brown and other able botanists, in applying the name of *Cynodon* to the preceding genus, retaining *Digitaria* for this. The advanced state of our knowledge requires the separation of both from *Panicum*, with whose character they have never been found well to accord.

38. PANICUM. Panick-grass.

Linn. Gen. 32. *Schreb.* 46. *Juss.* 29. *Sm. in Rees's Cycl.* v. 26. *Fl. Br.* 64. *Lam. t.* 43. *Br. Pr.* 189. *Schrad. Germ.* v. 1. 239. *Gertn. t.* 1.

Pennisetum. *Br. Pr.* 195.

Cal. imperfectly two-flowered, of 2 very unequal, ribbed valves; the outermost various, generally triangular, very short, sometimes wanting; inner much larger, concave, elliptical, many-ribbed, for the most part awnless. One *floret* perfect; the other either entirely neuter, or furnished (in some foreign species) with stamens only. *Cor.* in the *former* of 2 unequal, elliptical, membranous, acute valves, both becoming horny, and forming a coat to the seed: in the *latter* of 1 or 2 valves, the outermost concave, of the texture of the calyx, ribbed, sometimes more or less awned; the innermost flat, awnless, often wanting. *Filam.* capillary, the length of the corolla. *Anth.* short, cloven at each end. *Germ.* ovate. *Styles* distinct, awl-shaped, as long as the stamens. *Stigmas* feathery, tufted, short. *Seed* ovate, flattened at one side, coated with the ribbed hardened corolla.

Pennisetum of Richard and Brown differs only in having a number of abortive flower-stalks, improperly called an *involucrum*, as they have no share in the fructification. I therefore, notwithstanding these really great authorities, decline its adoption, there being no natural distinction of habit in its favour.

Panicum is a very extensive genus, of large coarse grasses, mostly annual in Europe, of no agricultural use; the *inflorescence* spiked or panicked; the *seeds* in some instances used for food. The great imperfection of its secondary *floret*, so much resembling the *calyx* in one of its valves, might well lead to an error, which Schreber and Jussieu first corrected.

1. *P. verticillatum.* Rough Panick-grass.

Panicle spiked, cylindrical, lobed, with whorled branches; and several prominent bristles, rough with reversed teeth. Corolla of the perfect floret slightly uneven.

P. verticillatum. *Linn. Sp. Pl.* 82. *Willd.* v. 1. 334. *Fl. Br.* 64. *Engl. Bot.* v. 13. t. 874. *Curt. Lond. fasc.* 4. t. 6. *Knapp.* t. 9. *Graves Br. Gr.* t. 10. *Schrad. Germ.* v. 1. 239. *Host Gram.* v. 2. 11. t. 13. *Ehrh. Calam.* 122.

P. n. 1543. *Hall. Hist.* v. 2. 250.

Gramen paniceum, spicâ asperâ. *Bauh. Theatr.* 139. *f.* Scheuchz. *Agr.* 47. *Raii Syn.* 394.

G. paniceum, spicâ simplici asperâ. *Moris. v.* 3. 189. *sect.* 8. *t.* 4. *f.* 11.

G. geniculatum. *Ger. Em.* 15. *f.* 1. *Bauh. Hist. v.* 2. 469. *f.*

In moist cultivated fields, but rare.

About the banks of the Thames, between London and Putney, in several places. *Mr. Newton.* In Battersea fields, and near Norwich.

Annual. *July, August.*

Root of several stout fibres. *Stems* one or more, from 6 inches to 2 feet high, simple, spreading, jointed, leafy, striated; angular and rough at the top. *Leaves* lanceolate, taper-pointed, harsh on both sides, very rough at the edges; their sheaths long and smooth. *Stipula* of numerous short hairs, continued a little way down the margins of the sheath. *Panicle* compound, 2 inches long, erect, somewhat lobed; the branches short, about 4 in a whorl, each of several flowers, every pair of which is accompanied by about 2 channelled, angular bristles, longer than the whole branch, and rough with minute teeth directed downwards. *Fl.* generally in pairs, oval, each inserted into a little terminal disk, or cup, close to the bristles. *Cal.* pale with green ribs, smooth and even. *Cor.* almost as large as the calyx; both valves very minutely wrinkled, or dotted, at least in the perfect floret, and constituting a rigid shining coat to the seed, inclosed in the permanent, but loose and unaltered, larger valve of the calyx.

2. P. viride. Green Panick-grass.

Panicle spiked, cylindrical, continuous, with numerous prominent bristles, rough with erect teeth. Corolla of the perfect floret slightly uneven.

P. viride. *Linn. Sp. Pl.* 83. *Willd. v.* 1. 335. *Fl. Br.* 65. *Engl. Bot. v.* 13. *t.* 875. *Curt. Lond. fasc.* 4. *t.* 5. *Knapp t.* 10. *Graves Br. Gr. t.* 11. *Schrad. Germ. v.* 1. 240. *Leers* 13. *t.* 2. *f.* 2. *Host Gram. v.* 2. 12. *t.* 14. *Ehrh. Calam.* 113.

P. Crus galli. *Fl. Dan. t.* 852.

Gramen paniceum, spicâ simplici lævi. *Raii Syn.* 393.

G. panici effigie, spicâ simplici. *Ger. Em.* 17. *f.*

In sandy fields, but not common.

In Battersea fields. *Curtis, Sowerby.* On the west side of Norwich, with the preceding.

Annual. *July, August.*

Smaller than the foregoing, but often so like it, that few persons can distinguish them. The spike however is neither lobed, nor whorled. Bristles more numerous, though often, as Ray found them, not so prominent. The most essential distinction, pointed out by Mr. Curtis, consists in the minute teeth of these bristles

being directed forward or upward, not downward; and we can hardly conceive this character to be variable. The neuter *floret* is more frequently wanting in this species. The minute roughness of the *corolla* is like the last. Sometimes the *spike*, though usually green, has a purple tinge.

3. *P. Crus-galli*. Loose Panick-grass.

Panicle erect, branched, bristly. Flowers awned, unilateral. Leaves lanceolate, harsh, naked, without stipulas.

P. Crus-galli. *Linn. Sp. Pl.* 83. *Willd. v. 1.* 337. *Fl. Br.* 65. *Engl. Bot. v. 13. t.* 876. *Curt. Lond. fasc.* 4. *t.* 8. *Knapp t.* 11. *Graves Br. Gr. t.* 12. *Schrad. Germ. v. 1.* 243. *Leers 13. t. 2. f.* 3. *Ehrh. Calam.* 104.

P. n. 1544. *Hall. Hist. v. 2.* 250.

P. sylvestre herbariorum. *Park. Theatr.* 1154. *f.*

P. vulgare. *Ger. Em.* 85. *f.*

Gramen panicum, spicâ divisâ. *Bauh. Pin.* 8. *Theatr.* 136. *f.* *Scheuchz. Agr.* 49. *Raii Syn.* 394. *Moris. v. 3.* 189. *n.* 15. *sect.* 8. *t. 4. f.* 15; also *n.* 16. *f.* 16.

In moist arable land, but rare.

Near Guildford. *Huds.* About Battersea, Putney, and Greenwich. *Ray, Lightfoot, Curtis, &c.*

Annual. *July*.

Root fibrous. *Stems* several, often 2 feet high, stout, leafy, smooth, with some tufts of radical leaves, and a few short, more spreading, stems, at their base. *Leaves* harsh, pointed, neither warty nor hairy. There are no *stipulas* of any kind, one represented in *Engl. Bot.* being an error. *Sheaths* compressed, striated, smooth. *Panicle* erect, rigid, unilateral, with angular rough-edged stalks; its lower branches rather distant, and zigzag; upper crowded; all with tufts of fine smooth bristles, originating in tubercles, at their base; which bristles seem not essentially different from those of Richard's *Pennisetum*, and greatly invalidate the supposed character of that genus, of which our two foregoing species are examples. The larger valve of the *calyx* is ovate, concave, ribbed, bristly, pointed, or slightly awned; smaller cup-shaped, embracing the whole base of the flower. *Cor.* of the perfect floret 2 ovate awnless valves, very smooth, and even, finally horny coating the seed; the larger concave, obscurely ribbed; the inner smaller, flattish: that of the neuter floret of 2 very dissimilar valves; the outermost resembling the outer valve of the calyx, to which it has heretofore been supposed to belong, concave, ribbed, bristly, inflexed at the edges, and terminating in a rough, straight awn, generally short, as in *Engl. Bot.*, but sometimes very long as in Leers, and Morison's *f.* 16; the innermost rather smaller, thinner, flat, notched at the tip, see *Curtis, f.* 5. *Stam.* and *Pist.* in the perfect fl. only, about as

long as the corolla, and formed like those of the 2 species above described.

The Linnæan *P. Crus-corvi* proves not a distinct species from this.

39. AIRA. Hair-grass.

Linn. Gen. 34. *Juss.* 31. *Fl. Br.* 83. *Lam. t.* 44. *Gartn. t.* 1.

Cal. of 2 unequal keeled valves, containing a *spikelet* of 2 perfect *florets*, one of them generally elevated on a short stalk, without any rudiments of a third. *Cor.* of 2 oblong, unequal, clasping valves; the outer one largest, with a dorsal twisting awn, above the base, in several species wanting; inner notched at the point, awnless. *Nect.* a cloven scale. *Filam.* capillary. *Anth.* prominent, pendulous, notched at each end. *Germ.* ovate. *Styles* short, distinct. *Stigm.* feathery, large. *Seed* ovate, loose, covered with the membranous corolla.

Inflorescence paniced, either very loosely, or condensed into a spike. The genus is, as Mr. Brown remarks under his *Eriachne*, *Pr.* 183, entirely artificial, allied to 3 or 4 others, from which it differs in the small number of florets. We can therefore give no characteristic description of its habit, any further than that the *stems* are erect, jointed, and more or less leafy. *Leaves* generally narrow.

* *Corolla* awnless.

1. *A. cristata*. Crested Hair-grass.

Panicle spiked. Calyx longer than its flower-stalk, shorter than the florets. Glumes all pointed.

A. cristata. *Linn. Sp. Pl.* 94. *Fl. Br.* 83. *Engl. Bot. v.* 9. t. 648. *Knapp t.* 30. *Hook. Scot.* 29. *Schrad. Germ. v.* 1. 255.

Poa cristata. *Willd. v.* 1. 402. *With.* 145. *Hull.* 22. *Relh.* 37. *Sibth.* 42. *Abbot* 19. *Host Gram. v.* 2. 54. t. 75. *Leers* 31. t. 5. f. 6. *Ehrh. Phyt.* 32.

Festuca n. 1444. *Hall. Hist. v.* 2. 217.

Gramen pumilum hirsutum, spicâ purpureo-argenteâ molli. *Raii Syn.* 396.

G. spicâ cristatâ, subhirsutum. *Bauh. Prodr.* 8. *Theatr.* 43. *Scheuchz. Agr.* 166. *Moris. v.* 3. 194. *sect.* 8. t. 4. f. 7.

In dry, elevated, or calcareous, pastures, or on walls, not very common.

Perennial. *July, August.*

Roots forming dense tufts; their fibres downy. *Stems* simple, erect, round, about 6 inches high, or more; most jointed and leafy below; a little downy above. *Leaves* rather stiff, linear, narrow,

acute, flat, single-ribbed, with long, clasping, more or less downy or hairy *sheaths*, and a very short, slightly fringed, *stipula*. The edges of the leaves are rough and hairy, as Professor Schrader rightly observes, in opposition to my former descriptions, but this character varies in degree; their upper surface is strongly ribbed. *Panicle* lanceolate, dense, erect, many-flowered, from 1 to 4 or 5 inches long, compound and somewhat interrupted, conspicuous for its shining silvery hue, mixed with pale purple and green; the common stalk densely downy. *Fl.* crowded, erect. *Glumes* all similar, compressed, finely pointed, with membranous edges. *Florets* very rarely 3.

This species is a *Festuca*, except in the small number of florets.

2. *A. aquatica*. Water Hair-grass.

Panicle spreading. *Florets* awnless, even, obtuse, longer than the calyx. *Leaves* flat. *Stipula* oblong.

A. aquatica. *Linn. Sp. Pl.* 95. *Willd. v. 1.* 376. *Fl. Br.* 84. *Engl. Bot. v. 22. t. 1557.* *Curt. Lond. fasc. 1. t. 5.* *Knapp t. 29. Hook. Scot. 29.* *Schrad. Germ. v. 1.* 256. *Host Gram. v. 2.* 30. *t. 41. Fl. Dan. t. 381.* *Ehrh. Calam. 4.*

Poa dulcis. *Salisb. Pr.* 20.

P. n. 1471. *Hall. Hist. v. 2.* 225.

Gramen paniculatum, aquaticum miliaceum. *Vaill. Par. 89. t. 17. f. 7.*

G. miliaceum aquaticum. *Raii Syn.* 402. *Scheuchz. Agr.* 176.

In ditches, pools, and the margins of rivers.

Perennial. *May, June.*

Root creeping, or floating, with long, white, shining fibres. *Stems* floating, branched, leafy, smooth, very long, rising about 12 or 18 inches above the water. *Leaves* linear, bluntish, flat, flaccid, partly floating, bright green, smooth, except at the edges. *Sheaths* lax, slightly compressed, smooth, with a prominent, broad, rather pointed, membranous *stipula*. *Panicle* erect, repeatedly branched, smooth; the branches unequal, aggregate, angular, many-flowered. *Calyx-valves* not on a level, short, abrupt, notched, ribbed at the lower part, purplish, smooth. *Florets* much longer, one on a short stalk; their valves oblong, even, purplish, notched at the end, strongly keeled, never awned. *Anth.* prominent, oblong, yellow. *Styles* and *stigmas* short. The flowers abound with honey. When growing accidentally out of the water, this grass sometimes assumes a very dwarf habit. In natural affinity it comes near *Poa fluitans*, *distans*, and *maritima*.

** *Corolla* awned, hairy at the base.

3. *A. cespitosa*. Turfy Hair-grass.

Panicle spreading. *Florets* about the length of the calyx,

abrupt, hairy at the base; one of them on a hairy stalk. Awn short, from the bottom of the outer valve. Leaves flat.

A. cæspitosa. Linn. *Sp. Pl.* 96. Willd. v. 1. 378. *Fl. Br.* 84. *Engl. Bot.* v. 21. t. 1453. Knapp t. 33. Hook. *Scot.* 29. Schrad. *Germ.* v. 1. 257. Leers 23. t. 4. f. 8. Host *Gram.* v. 2. 31. t. 42. Ehrh. *Calam.* 52. *Fl. Dan.* t. 240.

Avena n. 1487. Hall. *Hist.* v. 2. 230.

Gramen segetum, paniculâ arundinaceâ. Scheuchz. *Agr.* 244. t. 5. f. 2, 3.

G. miliaceum segetale majus. Raii *Syn.* 403.

G. segetale. Ger. *Em.* 5. f.

In moist shady groves, and borders of corn-fields.

Very abundant in Scotland. Knapp, Hooker.

Perennial. June, July.

The fibrous roots make very large and dense tufts. Stems a yard high, with 2 joints, erect, smooth, leafy. Leaves narrow, rigid; furrowed and roughish above; their margins involute by drying; radical ones copious. Sheaths smooth. *Stipula* oblong, acute, often cloven. Panicle large, spreading horizontally, with innumerable capillary, elastic, angular, wavy, rough branches. *Fl.* solitary, very small, purplish, shining, erect. *Cal.* pale and membranous at the edges; purple at the back, with a rough keel. One *floret* sessile; the other on a short hairy stalk, which is more or less extended upwards, above the floret; both beset with hairs at the base, which are about half as long as the keeled, very abrupt, notched valves of the *corolla*. Awn bent, springing from near the base of the outer valve of each floret, and seldom rising above it. *Anth.* purple, short and thick, concealing the still shorter *styles* and *stigmas*. This and the next approach *Arundo* in habit, and even in the essential character of the hairs surrounding each floret. But in *Arundo* those hairs are always more copious, and as long as the glumes. All the following species moreover have a tuft of hair at the base of each floret, but in general so minute, that it could by no means authorize their union with *Arundo*. They rather agree with *Avena* in this character, the nature of their awns, and structure of their glumes.

4. *A. alpina.* Smooth Alpine Hair-grass.

Panicle rather close and upright. Florets the length of the calyx, acute; one of them on a smooth stalk. Awn short, from near the top of the outer valve. Leaves involute-awl-shaped, with smooth sheaths.

A. alpina. Linn. *Sp. Pl.* 96. *Fl. Suec. ed.* 2. 25. Willd. v. 1. 379. *Wahlenb. Lapp.* 34. t. 3. Hook. *Scot.* 29.

A. lævigata. *Engl. Bot.* v. 30. t. 2102. *Comp.* 14.

On the highland mountains, in many places, as well as on the sea shore of Scotland.

On the lofty mountains of Clova, Angusshire, and by the sea side near Dundee. *Mr. G. Don.* Ben Lomond. *Mr. David Don.* Ben Arthur. *Professor Hooker and Mr. Borrer.*

Perennial. *June, July.*

Habit very much like the last, but the *stems* are only half as tall, completely invested with the extremely long, smooth *sheaths* of the short upper *leaves*, which, as well as the radical *leaves*, are firmly involute, and pointed, so as to become awl-shaped. When flattened they are found deeply furrowed on the upper side; but the back, though bluntly ribbed, is very smooth to the touch. *Stipula* oblong, bluntish, often torn. *Panicle* with nearly upright and close branches, much fewer and less spreading than in *A. caespitosa*. The *flowers* however are larger, greener, vastly less numerous; the upper ones, at least in mountainous places, generally viviparous, from the transformation of the *spikelet* to a bud, on whose first leaves the awns still remain; see *Engl. Bot.* The partial stalk, elevating one *floret*, is very short, quite smooth, not downy. *Awn* short, from above the middle of the outer valve of each *floret*, and overtopping its cloven point.

I readily concur with the ingenious Dr. Wahlenberg, in taking this for the real *A. alpina* of Linnæus, though the Lapland specimen in his herbarium is unnamed. Of Wahlenberg's *A. atropurpurea*, Vahl's *alpina*, *Fl. Dan. t. 961*, there is no specimen at all; nor does Linnæus seem to have known this species, which is very different from our *alpina*, the panicle being more like *flexuosa*. Scheuchzer's synonym, *Agr. 222*, cannot, without the inspection of a specimen, be safely referred to either.

5. *A. flexuosa*. Wavy Mountain Hair-grass.

Panicle spreading, triple-forked, with wavy branches. Florets about the length of the calyx, acute. Awn from the middle of the outer valve, longer than the calyx, twisted. Leaves bristle-shaped.

A. flexuosa. *Linn. Sp. Pl. 96.* *Willd. v. 1. 378.* *Fl. Br. 85.* *Engl. Bot. v. 22. t. 1519.* *Knapp t. 31.* *Hook. Scot. 30.* *Schrad. Germ. v. 1. 259.* *Leers 23. t. 5. f. 1.* *Host Gram. v. 2. 32. t. 43.* *Schreb. Gram. v. 2. 57. t. 30.* *Fl. Dan. t. 157.* *Ehrh. Calam. 81.*

Avena n. 1486. *Hall. Hist. v. 2. 229.*

Gramen paniculatum, locustis parvis purpuro-argenteis, majus et perenne. *Raii Syn. 407.*

G. avenaceum paniculatum alpinum, foliis capillaceis brevibus, locustis purpureo-argenteis splendentibus et aristatis. *Scheuchz. Agr. 216. t. 4. f. 16, A, B, C.* *Prodr. 23. t. 4.*

β. Aira montana. *Huds. 35.* *Dicks. H. Sicc. fase. 18. 4.* *Leers 24. t. 5. f. 2; but not of Linnæus.*

A. scabro-setacea. Knapp t. 32.

A. setacea. Huds. ed. 1. 30.

γ. Gramen alpinum nemorosum paniculatum, foliis angustissimis, locustis splendentibus aristatis. Scheuchz. Agr. 218.

G. nemorosum, paniculis albis, capillaceo folio. Bauh. Prodr. 14. Theatr. 97. Scheuchz. Prodr. 24. t. 6. Dill. in Raii Syn. 407. Moris. v. 3. 200. sect. 8. t. 7. f. the last.

In heathy, sandy, rather mountainous places. γ in shady groves. Perennial. July.

Root of many long and strong fibres, woolly in sandy ground. Stem 12 or 18 inches high, erect, slender, smooth, leafy at the base; naked above. Leaves short, slender, truly awl-shaped, or bristle-shaped; in β and γ they are much longer, capillary, more copious, somewhat glaucous, and roughish, reaching a good way up the stem. Panicle loose, erect, divided in a threefold manner, that is, with only opposite branches; the branches and stalks very slender, wavy or zigzag, angular, roughish; in β and γ less wavy and less regularly ternate. Glumes of a shining copper-colour in general, with membranous edges; in β and γ much paler, or greenish. Awn bent and twisting, twice as long as the calyx. Nectary deeply divided, full as long as the germen. Styles spreading, with distant, oblong, feathery stigmas.

β has some marks of a distinct species, in the extreme slenderness, and slight roughness, of its leaves, as well as in the more irregular disposition, and greater straightness, of the branches of its panicle. Nor is its pale colour owing to want of air or light. Yet the flexuosa varies too much to allow of the establishment of a decisive difference. A. montana of Linnæus is very different, with broader leaves, and much smaller flowers, in a more compact panicle. It was not known to Mr. Hudson.

6. A. canescens. Grey Hair-grass.

Panicle rather dense. Florets shorter than the calyx. Awn club-shaped, not longer; hairy at the joint. Leaves bristle-shaped.

A. canescens. Linn. Sp. Pl. 97. Willd. v. 1. 379. Fl. Br. 86. Engl.

Bot. v. 17. t. 1190. Dicks. Dr. Pl. 4. With. 137. t. 24. Knapp t. 34. Schrad. Germ. v. 1. 263. Ehrh. Calam. 34. Fl. Dan. t. 1023.

Avena n. 1483. Hall. Hist. v. 2. 228.

Gramen miliaceum maritimum molle. Dill. in Raii Syn. 405.

G. foliis junceis oblongis, radice albâ. Scheuchz. Agr. 242. t. 4. f. 29, 30.

G. junceum. Dalech. Hist. 424. f. 425.

G. exile durius, Norvegicum aut Danicum. Lob. Advers. Nov. 466. f.

On the sandy sea coasts of Norfolk and Suffolk.

Perennial. July.

Root somewhat creeping, with long capillary fibres. Stems slender,

smooth, a span high, more or less, often inclining, with several joints; leafy at the lower part. *Leaves* very numerous, chiefly radical, in dense tufts, erect, triangular, extremely slender, glaucous, minutely downy. *Stipula* lanceolate, decurrent. *Panicle* 1 to 2 inches long, spreading when in full bloom, but otherwise rather close. *Fl.* small, variegated with purple, white, and a glaucous green. *Anth.* dark purple. The most peculiar character exists in the *awn*, whose lower half is twisted; the upper straight and club-shaped; the joint surrounded with a whorl of minute bristles.

7. *A. præcox*. Early Hair-grass.

Panicle close, erect. Florets the length of the calyx, both sessile. Awn nearly twice as long, from the base of the valve. Leaves bristle-shaped, with angular sheaths.

A. præcox. *Linn. Sp. Pl.* 97. *Willd. v.* 1. 380. *Fl. Br.* 87. *Engl. Bot. v.* 18. *t.* 1296. *Curt. Lond. fasc.* 3. *t.* 7. *Knapp t.* 36. *Graves Br. Gr. t.* 44. *Hook. Scot.* 30. *Schrad. Germ. v.* 1. 262. *Fl. Dan. t.* 383. *Ehrh. Phyt.* 81.

Gramen parvum præcox, spicâ laxâ canescente. *Pluk. Alm.* 177. *Phyt. t.* 33. *f.* 9. *Raii Syn.* 407. *t.* 22. *f.* 2.

G. minimum, spicâ brevi habitiore, nostrum. *Raii Syn. ed.* 2. 253. *Scheuchz. Agr.* 219.

Common on dry gravelly ground.

Annual. *May, June.*

Root of numerous long capillary fibres. *Stems* several, tufted, from 2 to 5 inches high, simple, erect, leafy, smooth. *Leaves* short, bluntish, narrow, channelled, pale green, roughish, with tumid, angular, smooth *sheaths*. *Stipula* lanceolate, closely embracing the stem. *Panicle* erect, an inch long, compound, with angular rough stalks. *Fl.* large in proportion to the panicle, pale green or purplish. *Cal.* with a rough keel. *Cor.* smooth, except at the very bottom, just above which the jointed *awn* of the outer valve of each floret originates, and extends almost twice the length of the calyx. *Anth.* small, pale. *Stigm.* feathery, nearly sessile. *Seed* cylindrical, clothed with the membranous cloven-pointed corolla, which is minutely bristly at the base.

This trifling grass is of no agricultural use. It withers away as summer comes on.

8. *A. caryophyllea*. Silver Hair-grass.

Panicle spreading, triple-forked. Florets not longer than the calyx, both sessile. Awn twice as long, from above the middle of the valve. Leaves bristle-shaped, with ribbed close sheaths.

A. caryophyllea. *Linn. Sp. Pl.* 97. *Willd. v.* 1. 380. *Fl. Br.* 88.

Engl. Bot. v. 12. t. 812. Curt. Lond. fasc. 6. t. 6. Knapp t. 35. Hook. Scot. 30. Stillingfl. Misc. t. 5. Graves Br. Gr. t. 45. Schrad. Germ. v. 1. 261. Host Gram. v. 2. 33. t. 44. Fl. Dan. t. 382.

Avena n. 1482. *Hall. Hist. v. 2. 228.*

Gramen paniculatum minimum molle. Scheuchz. Agr. 215. t. 4. f. 15.

G. paniculatum, purpuro-argenteum, locustis parvis, annuum. Moris. v. 3. 200. sect. 8. t. 5. f. 11. Raii Syn. 407.

Caryophyllus arvensis glaber minimus. Bauh. Prodr. 105. f.

On barren sandy heaths or hillocks, common.

Annual. *June, July.*

Root small, fibrous. Stems 4 to 6 inches high, with a few slender leaves about the lower part, whose sheaths are smooth, purplish, ribbed and striated, but not tumid and angular like the preceding. Stipula lanceolate, taper-pointed. Panicle capillary, with mostly ternate branches, which are nearly smooth, often purple, and a little zigzag. Fl. smaller, and far more numerous, than the last, shining with purple, green, and white.

The whole plant is soon dried up, and can yield nothing but a little early food for sheep.

40. HOLCUS. Soft-grass.

Sm. in Rees's Cycl. v. 18. Fl. Br. 88. Schrad. Germ. v. 1. 247. sect. 1. Leers t. 7. f. 6, 7.

Cal. of 2 unequal, keeled, ribless, awnless valves, containing a spikelet of 2 florets; one of them perfect; the other with an abortive germen. Cor. of 2 unequal valves; the larger ovate, keeled, awned at the back in one or both florets, the awn incurved; smaller much narrower, awnless. Nect. a cloven, smooth, membranous scale. Filam. 3 in each floret. Anth. notched at each end. Styles short, widely spreading. Stigm. large, feathery. Seed coated with the hardened permanent corolla.

Root perennial. Stem erect, leafy. Fl. panicled, numerous.

I concur with my learned friend Mr. Brown in separating from this genus the *Sorghum* of old authors, whose characters I have given under that article in Rees's *Cyclopædia*. Linnæus combined that and other things, under his *Holcus*, a name retained by Mr. Brown for the genus *Sorghum*; the only point in which we differ.

1. *H. lanatus.* Meadow Soft-grass.

Calyx woolly. Lower floret perfect, awnless; upper with an arched awn. Leaves downy on both sides. Root fibrous.

Holcus lanatus. *Linn. Sp. Pl.* 1485. *Willd. v. 4.* 933. *Fl. Br.* 89. *Engl. Bot. v. 17. t.* 1169. *Curt. Lond. fasc. 4. t.* 11. *Knapp t.* 37. *Sincl.* 41. *Hook. Scot.* 28. *Schrad. Germ. v. 1.* 251. *Leers* 219. *t. 7. f.* 6. *Host Gram. v. 1. 2. t.* 2. *Schreb. Gram. v. 1.* 145. *t. 20. f.* 1.

Avena n. 1484. *Hall. Hist. v. 2.* 229.

Gramen pratense paniculatum molle. *Bauh. Theatr.* 27. *f. Prodr.* 5. *f. Scheuchz. Agr.* 234. *t. 4. f.* 24, A, B.

G. miliaceum pratense molle. *Raii Syn.* 404.

Abundant in meadows and pastures.

Perennial. *June, July.*

Root tufted, not creeping. *Stems* erect, simple, $1\frac{1}{2}$ or 2 feet high; smooth above; clothed in the lower part with soft deflexed hairs, as are also the *sheaths* of the no less soft and downy *leaves*. *Stipula* short and blunt. *Panicle* thrice compound, erect, spreading, but rather dense, whitish, or purplish, with downy stalks. *Calyx-valves* dotted, hoary, or downy, nearly equal in length, but the innermost broadest. *Florets* shorter than the calyx, as is likewise the *awn* of the barren one; but the essential specific difference, pointed out by Scheuchzer, between this and the next, consists in the arched curvature of the *awn*, like a fish-hook. That appendage is also twisted and recurved when dry, turning inward when moist. *Seed* coated by the hardened polished *corolla*.

2. *H. mollis*. Creeping Soft-grass.

Calyx partly naked. Lower *floret* perfect, awnless; upper with a sharply-bent prominent awn. *Leaves* slightly downy. *Root* creeping.

H. mollis. *Linn. Sp. Pl.* 1485. *Willd. v. 4.* 933. *Fl. Br.* 89. *Engl. Bot. v. 17. t.* 1170. *Curt. Lond. fasc. 5. t.* 8. *Knapp t.* 38. *Sincl.* 43. *Hook. Scot.* 28. *Schrad. Germ. v. 1.* 249. *Leers* 218. *t. 7. f.* 7. *Host Gram. v. 1. 3. t.* 3. *Schreb. Gram. v. 1.* 149. *t. 20. f.* 2.

Avena n. 1485. *Hall. Hist. v. 2.* 229.

Gramen caninum paniculatum molle. *Scheuchz. Agr.* 235. *t. 4. f.* 25.

G. miliaceum aristatum molle. *Raii Syn.* 404.

In pastures, shady copses, and hedges.

Perennial. *July.*

Root widely creeping, difficult of extirpation, but not very common or troublesome in arable land. Whole plant more slender than the former, and less downy. *Panicle* more loose and smoother, with conspicuous *awns*, which in drying bend at a right angle, and extend beyond the calyx. The upper *floret* is said to be occasionally perfect, as well as the lower.

Villars refers both these grasses to *Aira*, and Curtis inclines to the same opinion; but however miscellaneous that genus may be, they differ from it in having a permanent hardened *corolla*,

forming a shining coat to the seed, which difference deserves more attention than it has generally received.

3. *H. avenaceus.* Oat-like Soft-grass.

Calyx smooth. Barren floret lowest, with a sharply-bent prominent awn; fertile one slightly elevated, scarcely awned. Leaves rather harsh. Root knotty.

H. avenaceus. *Scop. Carn. v. 2. 276. Wiggers Holsat. 72. Fl. Br. 90. Engl. Bot. v. 12. t. 813. Sibth. 40. Knapp t. 39. Sincl. 49. Hook. Scot. 28. Schrad. Germ. v. 1. 247.*

Avena elatior. *Linn. Sp. Pl. 117. Huds. 53. Curt. Lond. fasc. 3. t. 6. Mart. Rust. t. 7. Cullum 42. Leers 40. t. 10. f. 4. Schreb. Gram. v. 1. 25. t. 1.*

A. n. 1492. Hall. Hist. v. 2. 231.

A. nodosa. Cullum 41.

Gramen nodosum, avenaceâ paniculâ. Bauh. Prodr. 3. f. Raii Syn. 406. Scheuchz. Agr. 237. t. 4. f. 27, 28.

G. avenaceum, paniculâ acerosâ, semine papposo. Dill. in Raii Syn. 406. Giss. 93. append. 48.

G. bulbosum nodosum. Lob. Ic. v. 1. 23, middle fig.

G. caninum nodosum. Ger. Em. 23. f.

G. avenaceum elatius, jubâ longâ splendente. Moris. v. 3. 214. sect. 8. t. 7. f. 37.

G. aven. elat. radice tuberculis præditâ. Moris. ibid. f. 38.

In pastures, hedges, thickets, and by road-sides, common.

Perennial. *June, July.*

Root more or less knotty, partly from the swollen joints of the base of the stem, with downy fibres. Stem 3 feet high, smooth, simple, jointed; the joints sometimes downy. Leaves deep green, rough-edged, and rather harsh to the touch, with long, striated sheaths. *Stipula* short, abrupt. *Panicle* erect, or a little drooping; its branches rough, half-whorled, directed to one side. *Calyx-valves* lanceolate, acute, concave, very unequal. *Fl.* of the same shape, but larger; the lower one most perfect, and most conspicuously awned; their inner valves narrow, membranous, and flat. *Anth.* linear, cloven, hanging out at one side. *Styles* very short. *Stigmas* long, spreading horizontally, feathery on the upper side. *Seed* nearly cylindrical, coated with the hardened corolla.

Professor Schrader (like Sir Thomas Cullum in his unfinished and unpublished *Flora*) distinguishes the most bulbous state of this grass as a species, by the name of *H. bulbosus*. It is but just to record that Linnæus, by a note in his copy of Scheuchzer, seems to have had a similar intention. Yet I am persuaded that a dry or fluctuating soil causes the production or increase of these bulbs, as in *Phleum pratense nodosum*; and moreover that the occasional downiness of the joints may be attributed to the same cause. In natural affinity this plant is certainly an *Avena*. The awns vary in length as in many other instances.

41. HIEROCHLOE. Holy-grass.

Gmel. Sib. v. 1. 100. Br. Pr. 208. Sm. in Rees's Cycl. v. 18. Hook.

Scot. 28. Beauv. Agr. 62. t. 12. f. 5.

Holcus, sect. 2. Schrad. Germ. v. 1. 252.

Cal. of 2 somewhat unequal, ovate, keeled, acute, awnless, thin, membranous valves, containing a *spikelet* of 3 *florets*; the terminal one perfect; lateral ones barren. *Cor.* of 2 unequal, permanently membranous, valves; the outer largest, ovate, firmer than the calyx, ribbed, often rough, sometimes awned at the back; inner much narrower, filmy, awnless, cloven or notched at the summit, inflexed at the margins. *Nect.* a membranous scale, various in shape. *Filam.* capillary, 2 in the perfect floret; 3 in each barren one. *Anth.* linear, prominent, pendulous. *Germ.* ovate, small. *Styles* short, close together, distinct. *Stigmas* longer than the corolla, linear, feathery. *Seed* ovate, pointed, small, loose, the *corolla* remaining unchanged.

A very natural genus of grasses, as Mr. Brown observes, "natives of the colder regions of both hemispheres." All the known species are remarkable for a fragrant scent when drying, resembling that of *Anthoxanthum*, but superior in degree, which is esteemed in Sweden to have a narcotic effect. Mr. Brown, with his usual acuteness, traces a further affinity to our Vernal-grass, in the 2 *stamens* of the perfect *floret* of *Hierochloe*, and in the rudiments of 2 lateral neuter *florets* in *Anthoxanthum*. Such he considers what the writer of this, and all preceding botanists, have taken for the awned valves of the *corolla*, our *nectary* being the supposed *corolla* of his central, and only perfect, *floret*. I have the greatest deference even for the theoretical speculations of my ingenious and candid friend; but this, considering the structure of the parts, and the analogy of other grasses, appears too paradoxical. It is, however, like all that comes from him, worthy of consideration; and may possibly be confirmed by a deeper insight into the real nature of the parts of fructification in this very peculiar natural order, in which, above all others perhaps, an indetermination of structure is remarkable. The generic distinction between this genus and *Holcus* is confirmed by the loose *seed* and unhardened *corolla*, which characters did not escape the learned Schrader. All the species seem to be perennial, bearing either flat or involute, smooth *leaves*, and paniced, yellowish *flowers*, with a silvery gloss. They turn brown by age or drying, but retain their polish.

1. *H. borealis*. Northern Holy-grass.

Panicle somewhat unilateral, with smooth flower-stalks.

Perfect floret awnless; barren ones slightly awned. Nectary in two deep, unequal, linear segments. Leaves flat.

H. borealis. Ræm. & Schultes Syst. Veg. v. 2. 513. Hook. Scot. 28.

H. n. 33. Gmel. Sib. v. 1. 101.

Holcus borealis. Schrad. Germ. v. 1. 252.

H. odoratus. Linn. Fl. Suec. 363. Willd. Berol. 48. Wahlenb. Lapp. 31. Fl. Dan. t. 963. Sincl. 47.

Poa n. 53. Linn. Fl. Lapp. ed. 1. 29. ed. 2. 30.

Gramen Mariæ Borussorum. Loes. Pruss. 111. t. 26.

In valleys among the Highlands of Scotland.

Discovered by the late Mr. G. Don, in a narrow mountain valley called Kella, Angusshire. Hooker.

Perennial. May, June.

Root creeping extensively. Stems 12—18 inches high, erect, leafy, smooth. Leaves rather broad, flat, naked; rough at the edges; those on the stem with very long sheaths, though the uppermost leaf is often diminished almost to nothing. Stipula short and broad, rather acute. Panicle erect, with slender wavy branches, directed most to one side. Fl. erect, broadly ovate, tumid, greenish yellow, variegated with purple or brown. Florets not quite filling the calyx. Awns not prominent.

I have not examined British specimens, so as to make a full authentic description of our native plant, but the above particulars agree with the foreign specimens in my possession. This species and Professor Schrader's *australis* are both glued upon the same paper in the Linnæan herbarium, without any indication where they were gathered, or any mark of distinction between them. A very accurate German botanist Mr. Schkuhr first distinguished them by the nectary, which in the *australis* is roundish; and one of its barren florets moreover has a large prominent awn. To these characters we may add that the glumes are all rather longer and more lanceolate, the flowers less tumid. Both species are doubtless included under *Holcus odoratus*, Linn. Sp. Pl. 1485; but the Swedish and Lapland plant appears, by what Swartz always sent to Schrader, to be *Hierochloe borealis*, which is evidently figured in *Flora Danica*.

H. borealis is said to be used, at high festivals, for strewing the churches in Prussia, as *Acorus Calamus* has, time out of mind, been employed in the Cathedral and streets of Norwich, on the mayor's day.

42. MELICA. Melic-grass.

Linn. Gen. 34. Juss. 31. Fl. Br. 91. Lam. t. 44. Gärtn. t. 80. Beauv. Agr. 68. t. 14. f. 4, 5.

Cal. of 2 unequal, expanded, concave, ribbed, membranous, awnless valves, containing 1 or 2 perfect *florets*, with the stalked rudiments of 1 or 2 more. *Cor.* of 2 unequal, firmer, and finally cartilaginous, oblong, awnless valves; the outer one largest, concave, ribbed, either fringed or beardless; inner flat, with 2 marginal ribs. *Nect.* cup-shaped, at the base of the germen. *Filam.* capillary, hardly so long as the corolla. *Anth.* prominent, pendulous. *Germ.* roundish. *Styles* elongated, distant. *Stigmas* short, tufted. *Seed* ovate, loose, covered with the loose hardened corolla.

Perennial harsh grasses, with slender oblong *panicles*, of elegant, often drooping, *flowers*, greatly varied in the different species.

1. *M. uniflora*. Wood Melic-grass.

Petals beardless. Panicle branched, drooping toward one side. Flowers erect. Spikelet with only one perfect floret.

M. uniflora. *Retz. Obs. fasc. 1. 10.* *Willd. v. 1. 383.* *Fl. Br. 91.* *Engl. Bot. v. 15. t. 1058.* *Curt. Lond. fasc. 5. t. 10.* *Mart. Rust. t. 64.* *Knapp t. 41.* *Graves Br. Gr. t. 49.* *Hook. Scot. 31.* *Schrad. Germ. v. 1. 269.* *Fl. Dan. t. 1144.*

M. nutans. *Huds. 37.* *Rel. Rudb. 18. f. 2.*

M. Lobelii. *Villars Dauph. v. 2. 89. t. 3.*

Gramen avenaceum nemorense, glumis rarioribus ex fusco xerampelinis. *Raii Syn. 403.*

G. avenaceum locustis rarioribus. *Bauh. Theatr. 155.* *Moris. v. 3. 215. sect. 8. t. 7. f. 49, bad.*

In groves and thickets, frequent.

Perennial. *May, June.*

Root creeping. *Stem* 18 inches high, smooth, slender, unbranched, leafy. *Leaves* deep green, flat, thin, taper-pointed, with fine rough ribs and edges. *Sheaths* nearly or quite smooth, half as long as the leaves. *Stipula* short, variable, usually elongated into a point opposite to the leaf, which, as Schrader remarks, is a rare circumstance. *Panicle* branched; the branches few, capillary, rough, leaning to one side. *Fl.* upright, tremulous, elegant, variegated with green, white, and deep reddish brown, quite smooth in every part, except the inner valve of the *corolla*, which is finely downy. The only perfect floret is sessile; neuter one on a stout bent stalk, its *glumes* small, abrupt and shapeless. *Seed* covered with the pale, polished, ribbed, hardened outer valve of the *corolla*, but quite unconnected with it.

2. *M. nutans*. Mountain Melic-grass.

Petals beardless. Panicle close, drooping, nearly simple.
Flowers pendulous. Spikelet with two perfect florets.

M. nutans. *Linn. Sp. Pl.* 98. *Willd. v. 1.* 382. *Fl. Br.* 92. *Engl. Bot. v. 15. t.* 1059. *Curt. Lond. fasc.* 6. *t.* 4. *Mart. Rust. t.* 65. *Knapp t.* 42. *Rel. Rudb.* 18. *f.* 1. *Hook. Scot.* 30. *Graves Br. Gr. t.* 50. *Schrad. Germ. v. 1.* 267. *Schreb. Gram. v. 2.* 62. *t.* 6. *f. A.* *Host Gram. v. 2.* 9. *t.* 10. *Leers* 24. *t.* 3. *f.* 4.

M. montana. *Huds.* 37.

Poa n. 1472. *Hall. Hist. v. 2.* 225.

Gramen avenaceum, locustis rubris, montanum. *Scheuchz. Agr.* 171. *t.* 3. *f.* 16, D—F. *Bauh. Theatr.* 155. *f.* *Prodr.* 20. *f.* *Raii Syn.* 403. *Moris. v. 3.* 215. *sect.* 8. *t.* 7. *f.* 48, bad.

G. avenaceum locustis rubris. *Park. Theatr.* 1151. *f.*

In mountainous woods in the north of England, and in Scotland.
Perennial. *June, July.*

Root creeping, as in the preceding. *Leaves* smoother, and rather narrower, with an extremely short *stipula*. *Panicle* for the most part simply racemose; sometimes divided in the lower part. *Fl.* of the colour of the last, but more pendulous, and essentially different in having two perfect *florets*, besides one or two abrupt, long-stalked, neuter ones. The outer valve of the *corolla*, in the former, is strongly and copiously ribbed; the inner very thick, and minutely downy, at the margin.

3. *M. cærulea*. Purple Melic-grass.

Petals beardless, acute. Panicle close, erect, compound.
Flowers upright, cylindrical.

M. cærulea. *Linn. Mant.* 2. 325. *Willd. v. 1.* 383. *Fl. Br.* 93. *Engl. Bot. v. 11. t.* 750. *Curt. Lond. fasc.* 5. *t.* 11. *Knapp t.* 40. *Hook. Scot.* 31. *Schrad. Germ. v. 1.* 269. *Host Gram. v. 2.* 7. *t.* 8.

Aira cærulea. *Linn. Sp. Pl.* 95. *Huds.* 33. *Leers* 22. *t.* 4. *f.* 7. *Fl. Dan. t.* 239.

Molinia cærulea. *Beauv. Agr.* 68. *t.* 14. *f.* 6.

Arundo n. 1518. *Hall. Hist. v. 2.* 241.

Gramen pratense serotinum, paniculâ longâ purpurascente. *Raii Syn.* 404. *Moris. v. 3.* 201. *sect.* 8. *t.* 5. *f.* 22.

G. arundinaceum enode minus sylvaticum. *Scheuchz. Agr.* 209.

G. paniculatum autumnale, paniculâ ampliore, e viridi nigricante. *Ib.* 207. *t.* 4. *f.* 11, 12.

In barren sandy boggy ground, especially about turf pools on mountainous heaths.

Perennial. *August.*

A hard coarse reedy grass, varying greatly in luxuriance, rather artificially referred to this genus, having more the habit, though not the fructification, of *Arundo*. The *root* consists of many

strong fibres. *Stems* rather bulbous at the base, with a single joint near the bottom. *Leaves* taper-pointed, rough, except at the back; besprinkled with hairs on the upper surface, particularly towards the top of the *sheath*. *Panicle* oblong, of numerous, compound, close, furrowed, wavy, scarcely rough, branches. *Fl.* dull violet-coloured, or brown, smooth. *Cal.* lanceolate, acute, single-ribbed, compressed, unequal. Outer valve of the *cor.* of a similar figure; inner abrupt. *Anth.* violet-coloured. Stalk of the *spikelet* much elongated, with 1 perfect *floret*, sessile at its base; another on a level with the shorter valve of the *cal.*, and 1 or 2 neuter ones higher up. *Seed* loose, polished, invested with the hardened *cor.*, in which this grass differs from *Aira*, whose *petals* remain membranous.

Shady situations render the *panicle* pale, brownish, or whitish. The *stems* are said to be used for brooms, or even baskets, where better materials are rare.

43. SESLERIA. Moor-grass.

Scop. Carn. ed. 1. 189. Juss. 31. Fl. Br. 93. Schrad. Germ. v. 1. 271. Lam. t. 47.

Cal. of 2 nearly equal, keeled, pointed, slightly awned valves, containing 2 or 3 perfect *florets*. *Cor.* of 2 lanceolate, keeled, acute, partly awned, valves; the outermost undivided, toothed; inner cloven. *Filam.* capillary, rather longer than the *cor.* *Anth.* prominent, linear, notched at each end. *Germ.* small, ovate. *Styles* more or less combined. *Stigm.* long, linear, downy. *Seed* loose, covered with the permanently membranous *cor.*

Root generally perennial. *Stems* simple. *Leaves* chiefly radical, linear, keeled, bluntish. *Fl.* spiked, blueish, or whitish.

1. *S. cærulea*. Blue Moor-grass.

Spike ovate-oblong, imbricated. Bracteas alternate. Outer valve of the corolla with three teeth.

S. cærulea. Scop. Carn. ed. 2. v. 1. 63. Fl. Br. 94. Engl. Bot. v. 23. t. 1613. Knapp t. 43. Hook. Scot. 31. Schrad. Germ. v. 1. 273. Host Gram. v. 2. 69. t. 98. Arduin. Spec. 2. 18. t. 6. f. 3, 4, 5. Fl. Dan. t. 1506.

S. n. 1446. Hall. Hist. v. 2. 217.

Cynosurus cæruleus. Linn. Sp. Pl. 106. Willd. v. 1. 414. Huds. 59. Mart. Rust. t. 20. Dicks. H. Sicc. fasc. 6. 3. Ehrh. Calam. 14. Wulf. in Jacq. Misc. v. 2. 66. Jacq. Ic. Rar. t. 21.

Gramen parvum montanum, spicâ crassiore purpuro-cæruleâ brevi. Raii Syn. 399.

G. glumis variis. *Bauh. Theatr.* 158. *f.* *Prodr.* 21. *f.* *Scheuchz. Agr.* 83. *t.* 2. *f.* 9, A, B.

On moist alpine limestone rocks.

In many parts of Westmoreland. Common in the Scottish Highlands. *Knapp, Hooker*. Very common about Settle, Yorkshire. *Dr. Windsor*.

Perennial. *April—June*.

Root long and strong, forming dense tufts. *Stem* about a span high, without branches or joints, smooth, for the most part naked. *Leaves* rather firm, spreading or recurved, single-ribbed, striated, bluntish, with a short cartilaginous tip; rough chiefly at the edges and keel near the extremity. *Sheaths* short. *Stipula* obsolete. *Spike* erect, blueish grey, shining, about an inch long, somewhat branched or paniced, with notched or jagged, short *bracteas*. *Glumes* all more or less awned. *Calyx* as well as the outer valve of the *corolla*, fringed; the latter terminating in a short central *awn*, and a short tooth (Schrader says sometimes 2) on each side; inner valve flat, cloven, with inflexed margins, downy at the outer edges.

An elegant and singular grass, flowering too early to be often seen by mountain travellers. Professor Schrader has much enriched this genus, describing 6 German species, one of which, with an annual root, is *Cenchrus capitatus*, *Linn. Sp. Pl.* 1488, *Fl. Græc.* v. 1. 81. *t.* 100. referred to *Sesleria* by the learned Host. I have had no opportunity of investigating its structure, which has never, till now perhaps, been rightly understood.

44. GLYCERIA. Sweet-grass.

Br. Pr. 179. *Beauv. Agr.* 96. *t.* 19. *f.* 7.

Poa, sect. 2. *Hook. Scot.* 32.

Cal. of 2 unequal, awnless, concave valves, containing a linear-oblong *spikelet* of numerous, awnless, alternate, two-ranked, perfect *florets*, unconnected by any fibres, or web, at their base. *Cor.* of 2 unequal valves; the outer cylindrical, ribbed and furrowed, scarcely keeled, entire, more or less abrupt, and often membranous, at the point, inflexed at the edges; inner narrower, obtuse, or notched, flat, membranous, with 2 nearly marginal ribs. *Nect.* a tumid scale, notched or cloven, at one side of the germen. *Filam.* capillary, longer than the *cor.* *Anth.* pendulous, linear, deeply cloven at each end. *Germen* ovate. *Styles* distinct, various in length. *Stigmas* spreading, feathery, large, repeatedly branched or compound. *Seed* cylindrical-oblong, with a furrow at one side, loose, covered with the unchanged *corolla*.

Root perennial, in some species annual. *Stems* leafy, knotty. *Fl.* paniced, numerous.

I venture to admit into Mr. Brown's genus of *Glyceria*, founded on *Festuca*, (or *Poa*), *fluitans* alone, such of our former *Poa* as agree with that grass in having linear spikelets, cylindrical furrowed florets, and for the most part branched stigmas, which last character is considered by that learned author as one of the most essential. It occurs however in *Poa annua*, *trivialis*, *pratensis*, and perhaps in other indisputable species of that genus, whose characters will be given hereafter. As to the present tribe, the writer of this has long been convinced of their natural relationship to each other, and their ill agreement with *Poa*, and proposes the above characters, founded on the shape of the florets more especially, as no less obvious than invariable.

1. *G. aquatica*. Reedy Sweet-grass.

Panicle erect, repeatedly branched, spreading. Florets numerous, obtuse, with seven ribs. Nectary cloven, acute.

Poa aquatica. Linn. *Sp. Pl.* 98. Willd. v. 1. 385. Fl. Br. 95. Engl. Bot. v. 19. t. 1315. Curt. Lond. fasc. 5. t. 12. Knapp t. 44. Hook. Scot. 32. Schrad. Germ. v. 1. 278. Host Gram. v. 2. 44. t. 60. Fl. Dan. t. 920. Leers 26. t. 5. f. 5.

P. n. 1454. Hall. Hist. v. 2. 220.

Gramen aquaticum majus. Raii Syn. 411. Ger. Em. 6. f. Lob. Ic. v. 1. 4. f.

G. palustre paniculatum altissimum. Bauh. Theatr. 38. Scheuchz. Agr. 191. t. 4. f. 1.

G. paniculatum aquaticum latifolium. Moris. v. 3. 201. sect. 8. t. 6. f. 25.

In ditches, pools, and the margins of running streams, common. Perennial. July.

Root creeping, jointed, with whorled fibres. Stems 5 or 6 feet high, smooth, a little compressed. Leaves broad, flat, single-ribbed, linear, with a short point, rough at the edges and keel only. Panicle large, repeatedly compound; its branches alternately half whorled, angular, rough. Spikelets erect, more linear than in Engl. Bot., of from 5 to 10, or more, florets, whose outer valve is blunt and strongly ribbed, cylindrical, not keeled; sometimes minutely downy. Common calyx even. Nectary abrupt, of 2 short acute lobes. Styles a little distant, longer than their feathery stigmas, which are repeatedly subdivided, as in the next species.

A coarse grass, but not unacceptable to cattle, making a great part of the hay in marshy lands. It is sometimes viviparous, but sparingly. Leers is not correct in his figure of the stigmas.

2. *G. fluitans*. Floating Sweet-grass.

Panicle oblong, branched, divaricating. Spikelets close-pressed. Florets numerous, obtuse, seven-ribbed, with short intermediate ribs at the base. Nectary obtuse, tumid.

G. fluitans. *Br. Pr.* 179.

Festuca fluitans. *Linn. Sp. Pl.* 111. *Willd. v. 1.* 426. *Huds.* 46. *Curt. Lond. fasc. 1. t. 7.* *Mart. Rust. t. 113.* *Fl. Dan. t. 237.* *Host Gram. v. 2. 55. t. 77.* *Schreb. Gram. v. 1. 37. t. 3.* *Leers 35. t. 8. f. 5.*

Poa fluitans. *Scop. Carn. ed. 2. v. 1. 73.* *Fl. Br.* 96. *Engl. Bot. v. 22. t. 1520.* *Knapp t. 45.* *Salisb. Pr. 21.* *Hook. Scot. 32.* *Schrad. Germ. v. 1. 280.*

P. n. 1453. *Hall. Hist. v. 2. 219.*

Gramen aquaticum, cum longissimâ paniculâ. *Bauh. Hist. v. 2. 490. f. Raii Syn. 412.*

G. aquaticum fluitans, multiplici spicâ. *Bauh. Theatr. 41. f. Scheuchz. Agr. 199. t. 4. f. 5.*

G. fluviatile. *Ger. Em. 14. f.*

G. loliaceum fluviatile, spicâ longissimâ divisâ. *Moris. v. 3. 183. sect. 8. t. 3. f. 16.*

G. mannæ esculentum prutenicum. *Loes. Pruss. 108. t. 21, bad.*

In stagnant waters, and slow streams, frequent.

Perennial. *June—August.*

Root long and creeping, or partly floating. *Stems* ascending, round, striated, leafy, smooth, hollow, tender, partly decumbent on the surface of the water, as are many of the long, linear, obtuse, flat, smooth *leaves*. *Sheaths* long, compressed, very smooth. *Stipula* pointed, often torn, decurrent. *Panicle* nearly erect, long and narrow, doubly but sparingly branched, the branches roughish, rather turned to one side, for the most part erect, but while flowering strongly divaricated for a time. *Spikelets* erect, long, linear, nearly cylindrical, of 8—12, rather lax, florets. *Cal.* membranous, obtuse, with a green keel, but no lateral ribs; one valve much the largest. Outer valve of the *cor.* cylindrical, obtuse; membranous, and often notched, at the summit; minutely downy under a high magnifier, furnished with no prominent keel, but with 7 equal, parallel, roughish ribs, besides a short intermediate one, on each side of the central rib, at the bottom; inner valve flat, inflexed at the edges, with a marginal rib, as in most of the true grasses, the summit cloven. *Nect.* thick and glandular, scarcely lobed. *Anth.* much contracted after flowering. *Germ.* elliptical. *Styles* distinct. *Stigmas* large and bushy, being, as Curtis and Brown remark, repeatedly compound. *Seed* elliptic-oblong, with a deep furrow at one side.

Loesel describes the mode of collecting the *seeds* for food, of which

a more ample account may be seen in the *Fl. Londinensis*. They are said to be very sweet, especially before they arrive at maturity; whence the name of Manna grass, which, no doubt, suggested to Mr. Brown the generic name. The fine sharp bran is said to kill intestinal worms in horses.

The *flowers*, like those of *Aira aquatica*, have a sweet taste. The *nectary* is really a secretory gland.

3. *G. distans*. Reflexed Sweet-grass.

Panicle branched, spreading; the branches finally reflexed.

Florets about five, obtuse, obscurely five-ribbed, polished.

Root fibrous.

Poa distans. Linn. *Mant.* 32. Willd. *v.* 1. 401. *Fl. Br.* 96. *Engl. Bot.* *v.* 14. *t.* 986. *With.* 141. *t.* 25. *Knapp t.* 47. *Hook. Scot.* 33. *Schrad. Germ.* *v.* 1. 282. *Host Gram.* *v.* 2. 46. *t.* 63.

P. retroflexa. *Curt. Lond. fasc.* 6. *t.* 10.

P. salina. *Pollich Palat.* *v.* 1. 89.

Aira aquatica β . *Huds.* 34.

On sandy waste ground towards the sea, in many parts of England and Scotland. Curtis noticed it on Hampstead hill.

Perennial. *July, August.*

Root fibrous, not creeping. *Stems* several, a foot high, round, leafy; decumbent at the base. Whole plant slightly glaucous, smooth. *Leaves* tapering to a sharp point. *Stipula* rather short, obtuse, notched; that of the upper leaves often pointed. *Panicle* erect, with several series of half-whorled, angular, slender, rough branches, rigidly bent downward in a very remarkable manner. *Spikelets* linear, while young somewhat elliptical, variegated with purple. *Florets* smooth and shining, rarely more than 5, slightly distant. Outer valve of the *corolla* quite cylindrical, without any keel, but marked with 5 blunt, more or less evident, ribs, which are commonly purple, and the interstices glaucous; the point is abrupt and membranous; inner valve slightly notched. *Nectary* deeply cloven. *Styles* short. *Stigmas* large and densely feathery; according to Mr. Curtis "branched."

4. *G. maritima*. Creeping Sea Sweet-grass.

Panicle branched, rather close; erect after flowering. Florets about five, somewhat pointed, slightly five-ribbed.

Root creeping.

Poa maritima. *Huds.* 42. *Willd. Sp. Pl.* *v.* 1. 396. *Fl. Br.* 97. *Engl. Bot.* *v.* 16. *t.* 1140. *Knapp t.* 46. *Dicks. H. Sicc. fasc.* 11. 2. *Hook. Scot.* 33. *Schrad. Germ.* *v.* 1. 281. *Roth Beitr. fasc.* 1. 6. *Fl. Dan.* *t.* 251.

Gramen paniculatum maritimum vulgatissimum. *Raii Syn.* 409.

G. caninum maritimum paniculatum. *Ib.* 410.

In salt marshes on the coast, frequent.

Perennial. *July—October*.

Root creeping, by which it differs essentially from the last. *Herbage* more glaucous. *Leaves* involute, sharp-pointed, with rather tumid *sheaths* and a short *stipula*. Branches of the *panicle* spreading whilst in flower, then erect, rarely divaricated, never deflexed. *Florets* quite cylindrical, rather pointed, but not constantly so, their five ribs less evident than in the last-described, nor is there any prominent keel. *Nect.* deeply and acutely cloven, tumid at the base. *Stigm.* apparently like the last. I have not examined them in a recent state, the particular structure of that organ not having been resorted to for important distinctions, till Mr. Brown described it in my second species of *Glyceria*. Mr. Curtis indeed, as well as Mr. Sowerby, faithfully represented what they saw in the respective plants, and according to them the *stigmas* of many grasses appear to be repeatedly subdivided.

5. *G. procumbens*. Procumbent Sea Sweet-grass.

Panicle lanceolate, unilateral, two-ranked, close, with rough stalks; the main one cylindrical. *Florets* about five, bluntish, five-ribbed.

Poa procumbens. *Curt. Lond. fasc. 6. t. 11. Fl. Br. 98. Engl. Bot. v. 8. t. 532. Knapp t. 49. Hook. Scot. 33.*

P. rupestris. *With. 146. t. 26.*

Gramen maritimum, paniculis asperis cristatis. Bocc. Mus. v. 1. 135; loliaceis, t. 95.

In waste ground near the sea.

At the foot of St. Vincent's rocks, and near the floating dock, Bristol, as also on the coast of Essex. *Curtis*. On Scarborough pier. *Sir T. Frankland, Bart.* Just over the bridge at Yarmouth. *Mr. D. Turner*. I have the same from Amsterdam, and *Boccone's* synonym shows this plant to be found also in Sicily.

Annual. *July, August*.

Root fibrous. Whole plant glaucous and rigid. *Stems* several, more or less prostrate, a span or more in length, leafy, smooth. *Leaves* flat, ribbed; rough above; smooth beneath. *Sheaths* long, tumid, ribbed, smooth. *Stipula* rather pointed, often torn. Branches of the *panicle*, as well as the *spikelets*, two-ranked, turned all one way. Valves of the *cal.* blunt, very unequal; the outermost with 3 principal ribs. Outer valve of the *cor.* cylindrical, with 5 ribs, the central one most prominent towards the summit, which is purplish, membranous, and obtuse; inner valve narrow, bristly at the lateral ribs. *Nect.* divided, sheathing the germen. *Styles* very short. *Stigmas* branched and compound. *Seed* elliptic-oblong, pointed, flattened, loose.

6. *G. rigida*. Hard Sweet-grass.

Panicle lanceolate, unilateral, two-ranked, close, with smooth stalks; the main one bordered. Florets about seven, acute, scarcely ribbed.

Poa rigida. *Linn. Sp. Pl.* 101. *Willd. v.* 1. 396. *Fl. Br.* 99. *Engl. Bot. v.* 20. *t.* 1371. *Curt. Lond. fasc.* 2. *t.* 4. *Knapp t.* 48. *Hook. Scot.* 33. *Schrad. Germ. v.* 1. 283. *Host Gram. v.* 2. 53. *t.* 74.

Gramen exile duriusculum, in muris et aridis proveniens. *Raii Syn.* 410.

G. paniculâ multiplici majus. *Bauh. Prodr.* 6. *f.* bad. *Theatr.* 31. *f.* 32, bad. *Scheuchz. Agr.* 271. *t.* 6. *f.* 2.

G. minus duriusculum. *Ger. Em.* 4. *f.* bad.

G. loliaceum murorum duriusculum, spicâ erectâ rigidâ. *Moris. v.* 3. 182. *sect.* 8. *t.* 2. *f.* 9.

G. filiceum rigidiusculum. *Vaill. Par.* 92. *t.* 18. *f.* 4.

On walls and dry gravelly banks, not uncommon.

Annual. *June*.

Root fibrous, woolly. *Stems* several, 3—5 inches high, peculiarly rigid and wiry, as is also the, not inelegant, *panicle*. *Leaves* short, narrow and pointed; rough on the upper side. *Sheaths* ribbed, smooth. *Stipula* elongated, blunt and mostly torn. *Florets* cylindrical, minutely pointed, furnished with a slight keel near the summit, but rarely with any traces of ribs. *Calyx* acute, strongly keeled. *Anth.* short, prominent. *Styles* scarcely any. *Stigmas* large, tufted.

The whole plant generally assumes a brown or purplish hue, remaining bleached and dry after Midsummer. Professor Schrader speaks of it as very rare in Germany, nor does Haller mention this species at all. Ehrhart published a most unnatural cultivated dried specimen, at no. 2 of a collection, whose title I know not, and which was never perhaps continued.

45. POA. Meadow-grass.

Linn. Gen. 34. *Juss.* 32. *Fl. Br.* 95. *Lam. t.* 45.

Cal. of 2 unequal, awnless, acute, ovate, folded, keeled valves, containing an ovate, imbricated *spikelet*, of several awnless, alternate, 2-ranked, perfect *florets*, often connected at their base by a condensed web, of long, white, cottony, filaments. *Cor.* of 2 unequal valves; the outer ovate, acute, strongly keeled, compressed, sometimes ribbed, entire, more or less membranous at the summit, as well as at the edges, which are flat, not inflexed; inner narrower, with 2 nearly marginal ribs, the edges membranous, inflexed, the summit cloven. *Nect.* a deeply-cloven scale. *Filam.* capillary, longer than the corolla. *Anth.*

pendulous, oblong, cloven at each end. *Germen* ovate. *Styles* very short. *Stigmas* spreading, feathery, in several species repeatedly branched. *Seed* elliptic-oblong, acute, somewhat angular, loose, covered with the unchanged corolla, and sometimes woolly at the base with the permanent web above described.

Root either fibrous or creeping, in most instances perennial. *Stems* leafy, knotty. *Leaves* flat, linear. *Fl.* loosely panicle, numerous. Several species are among the most valuable pasture grasses.

1. *P. compressa*. Flat-stalked Meadow-grass.

Panicle unilateral, rather dense. Stem compressed. Root creeping. Spikelets ovate-oblong. Florets connected by a web.

P. compressa. *Linn. Sp. Pl.* 101. *Willd. v.* 1. 397. *Fl. Br.* 99. *Engl. Bot. v.* 6. t. 365. *Knapp* t. 57. *Hook. Scot.* 34. *Schrad. Germ. v.* 1. 303. *Host Gram. v.* 2. 51. t. 70. *Leers* 30. t. 5. f. 4. *Fl. Dan.* t. 742.

P. n. 1455. *Hall. Hist. v.* 2. 220.

Gramen pratense paniculatum medium. *Dill. in Raii Syn.* 409.

G. paniculatum, radice repente, culmo compresso. *Vaill. Par.* 91. t. 18. f. 5. *Scheuchz. Agr.* 198.

On the tops of walls, and in dry barren ground, frequent.

Perennial. *June—September.*

Root moderately creeping, with downy fibres. *Stems* obliquely ascending in the lower part, then erect and often crowded together, near a foot high, remarkably compressed, by which this species may readily be known, as also by a sudden contraction where the *panicle* begins. The *branches* of the latter are acutely angular, rough, spreading considerably while in flower, but close and erect both before and after. *Leaves* short, narrow, roughish, especially at the edges, with long, compressed *sheaths*, and a short obtuse *stipula*. The whole plant is more or less glaucous. *Calyx-glumes* 3-ribbed. *Florets* from 3 to 8 or 9, connected at the base by a mass of white folded threads, as fine and soft as a spider's web, which may be drawn out to a considerable length. The outer valve of the *cor.* has 5 not very conspicuous ribs, and is rough at the keel; purplish upwards; silvery and membranous at the margin. *Stigmas* slender.

Schrader's remarks seem to imply that the web is occasionally wanting, in which I apprehend some mistake.

This grass, though not succulent, is eaten by all cattle, but cannot be cultivated in moist or manured ground. Its produce any where is far from abundant.

2. *P. alpina*. Alpine Meadow-grass.

Panicle loosely spreading. Spikelets heart-shaped, four- or five-flowered. Florets rather sickle-shaped, hairy at the base, without a web. Lower stipulas very short; upper oblong, acute.

P. alpina. *Lim. Sp. Pl.* 99. *Willd. v.* 1. 386. *Fl. Br.* 100. *Engl. Bot. v.* 14. *t.* 1003. *Knapp t.* 50. and *t.* 117. *Lightf.* 96. *Hook. Scot.* 34. *Schrad. Germ. v.* 1. 292. *Host Gram. v.* 2. 49. *t.* 67. *Wahlenb. Lapp.* 39.

P. n. 1456. *Hall. Hist. v.* 2. 220.

Gramen alpinum paniculatum majus, paniculâ speciosâ variegatâ. *Scheuchz. Agr.* 186. *Prodr.* 20. *t.* 3.

β. *Fl. Dan. t.* 807, fl. viviparous.

Gramen alpinum latifolium, paniculâ laxâ foliaceâ, &c. *Scheuchz. Agr.* 212. *t.* 4. *f.* 14.

On lofty mountains.

Common in the Highlands of Scotland. *Hooker*. On Corbie Craig near the river Esk, 5 miles from Forfar. *Mr. G. Don*. The late Mr. J. T. Mackay sent it from the place last mentioned, as well as from Ben Lawers, and other mountains of Breadalbane, chiefly in a viviparous state.

Perennial. *July, August*.

Root fibrous, tufted, not creeping. *Stem* 4—12 inches high, erect, the lower joint only being sometimes bent; leafy below; naked, round, striated, and smooth at the top, with frequently a tinge of purple. *Leaves* linear, rather broad, flat, many-ribbed, bluntish with a small point, rough at the edges and sometimes on the upper side; a little glaucous beneath: radical ones numerous, tufted, some of them narrower, spreading, with smooth lax sheaths, and short blunt stipulas; those of the stem having much longer sheaths, each crowned with a lanceolate, often torn, stipula. *Panicle* spreading, short, somewhat ovate, or triangular, its branches angular, wavy, nearly smooth, mostly in pairs, repeatedly subdivided. *Spikelets* so broad as to be often almost heart-shaped, usually of 4 florets, in cultivated specimens of 6. I have never seen 9 or 11, as observed by Schrader. *Glumes* concave, keeled, moderately compressed, green at the back, purple at the sides, membranous and white at the edges, those of the calyx 3-ribbed, much resembling the outer valve of the cor., except that the lower half of the latter is silky, especially the keel, and the base of each floret bears several longish straight hairs, but the complicated web is wanting; inner valve finely fringed at the ribs. *Stigmas* feathery, but according to Mr. Sowerby's observation, slender, and I cannot ascertain whether they are compound or not. The whole panicle often consists of buds instead of real florets, particularly in wet seasons. There is also a densely tufted variety, represented in Mr. Knapp's *t.* 117.

3. *P. laxa*. Wavy Meadow-grass.

Panicle drooping, loosely spreading, zigzag. Spikelets ovate, three-flowered. Florets connected by a web. Stipulas all lanceolate.

P. laxa. "Hænke Sudet. 118." Willd. v. 1. 386. Schrad. Germ. v. 1. 291. Wahlenb. Lapp. 40. Hook. Scot. 34.

P. flexuosa. Fl. Br. 101. Engl. Bot. v. 16. t. 1123. Don H. Brit. 6. P. n. 1457. Hall Hist. v. 2. 221.

Gramen alpinum paniculatum minus, paniculâ spadiceo-viridi, elegans. Scheuchz. Agr. 163. Prodr. 19. t. 4.

G. paniculatum alpinum parvum, paniculâ spicatâ spadiceo-viridi, elegans. Scheuchz. It. 6. 457. f. 16.

In the Highlands of Scotland.

Found on Ben Nevis by the late Mr. J. T. Mackay, a most excellent observer, who sacrificed his health and life to the too ardent pursuit of botany and horticulture. See Engl. Bot.

Perennial. July.

Root slightly creeping. Whole plant more dwarf, slender, and delicate than the last, pale and somewhat glaucous. The leaves are narrow, roughish above. Stipulas all lanceolate and acute. Panicle rather close, with us more or less zigzag, especially the lower part. Spikelets not heart-shaped, but all ovate, of 3 florets, rarely 4, or 2, glaucous, coloured like those of *P. alpina*, but paler, and essentially distinguished from that species by the connecting complicated web at their bases, while the keel only of each, not the sides, is silky.

Having now ascertained, by Swiss specimens, the true synonyms of this rare species, I adopt its original name, as pointed out by Professor Schrader.

Mr. Don found this grass most frequently viviparous.

4. *P. bulbosa*. Bulbous Meadow-grass.

Panicle close, slightly zigzag. Spikelets four-flowered. Florets hairy at the keel, connected by a web. Leaves finely serrated. Stem bulbous at the base.

P. bulbosa. Linn. Sp. Pl. 102, α and γ . Willd. v. 1. 399. Fl. Br. 102. Engl. Bot. v. 15. t. 1071. Huds. 41. Knapp t. 53. Schrad. Germ. v. 1. 294. Host Gram. v. 2. 47. t. 65.

P. n. 1461. Hall. Hist. v. 2. 222.

G. xerampelinum, miliacêâ pertenui ramosâque sparsâ paniculâ. Scheuchz. Agr. 185; but not of Vaill. Par. 91.

G. vernum, radice ascalonicâ. Vaill. Par. 91. t. 17. f. 8.

On the sandy sea shore, and perhaps some other dry barren ground. Near Clapham in Surrey. Huds. ed. 1. 34. On the denes near Yarmouth. Mr. Stone and Mr. D. Turner. At Little Hampton,

Sussex. *Mr. Borrer.* At Lowestoft, Suffolk, on the low sandy ground between the middle part of the town and the beach, plentifully.

Perennial. *April, May.*

Root a tuft of small, ovate, white scaly *bulbs*, as truly such as the bulbs of a Lily or Garlick, and, like them, throwing out fibrous radicles from their base; which happens when the autumnal rains fix them in the moistened sand. Early in spring a dense crop of linear, keeled, slightly glaucous *leaves*, serrated with fine sharp marginal teeth, is produced, affording a grateful pasturage for cattle, and withering by the time when summer feed abounds. Their *sheaths* are broad, smooth, partly striated, rather lax, often purplish. *Stipulas* all lanceolate, acute, of a moderate length, considerably decurrent. *Stem* 4 or 5 inches high. *Panicle* ovate-oblong, less spreading and lax than in either of the two last, and scarcely at all zigzag. *Spikelets* of hardly more than 4 *florets*, usually of 3, ovate, pale, variegated with green and a violet purple, somewhat shining, externally smooth, except the rough keel of the *calyx*. Outer valve of the *cor.* ovate and acute, as in the last, silky near the margin, hairy at the keel with a continuation of the complicated, not very copious, web, which connects the bases of the *florets*; inner strongly fringed. *Stigmas* slender, and, as far as I can judge, simply feathery.

I find no difference between this grass and what abounds in Germany, France and Italy, in the early spring, except that the latter, in the streets of Rome, is usually viviparous, which circumstance has not been observed in England. *Morison's sect. 8. t. 5. f. 14.* *Ger. Em. 3. f. 1,* and *Barrel. Ic. t. 272. and t. 703. f. 1,* represent this; and possibly *f. 2.* of the plate last quoted may be the much larger oriental variety, preserved in the Linnæan herbarium, and alluded to in *Engl. Bot.* as a distinct species. It looks very different, having long and narrow *leaves*, but is certainly what Linnæus intended by his variety β . I have other viviparous specimens, which evince a most Proteus-like nature in *Poa bulbosa*, if they really belong to it; but this question is here out of place.

Mr. Knapp's t. 53 has accidentally the root of some other species subjoined.

5. *P. trivialis.* Roughish Meadow-grass.

Panicle spreading. *Spikelets* three-flowered. *Florets* lanceolate, five-ribbed, connected by a web. *Stipula* oblong. *Stem* and *leaves* roughish. *Root* fibrous.

P. trivialis. *Linn. Sp. Pl. 99.* *Willd. v. 1. 387.* *Fl. Br. 103.* *Engl. Bot. v. 15. t. 1072.* *Curt. Lond. fasc. 2. t. 6.* *Knapp t. 54.* *Sincl. 21.* *Hook. Scot. 35.* *Schrad. Germ. v. 1. 296.* *Host Gram. v. 2. 45. t. 62.*

P. dubia. Leers 28. t. 6. f. 5.

P. scabra. Ehrh. Calam. 72.

Gramen pratense paniculatum majus. Bauh. Theatr. 28. f. Scheuchz. Agr. 177. t. 3. f. 17, A. latiore folio. Raii Syn. 409.

β. *Poa setacea.* Huds. ed. 1. 34.

In meadows and pastures, especially such as are rather moist, very common.

Perennial. June—October.

Roots fibrous, tufted. Stems several, about 18 inches high, erect, leafy, with several knots; the naked part cylindrical, roughish to the touch, as are the edges and backs of the flat, slightly spreading, lax, linear, deep-green leaves. In their long compressed sheaths also a slight roughness is sometimes perceptible. *Stipula* acute, oblong, or lanceolate, $1\frac{1}{2}$ or 2 lines long, as noticed by Scheuchzer, Hudson and Curtis, by which this species is invariably distinguished from the following. Scheuchzer's synonyms of each, misapplied by Linnæus and all his followers, see *Fl. Br.*, are at length settled by the accurate Schrader. Haller, I have authority to say, did not well discriminate these two grasses; and Linnæus has recorded under *P. pratensis*, his own ignorance of their distinctions, and those of 2 others, which Willdenow has strangely perverted, so as to include the widely different *P. annua*, and exclude *alpina*, which indeed is not less distinct. Panicle large, spreading, with half-whorled, horizontal, wavy, angular, rough, compound, but very unequal, branches. Spikelets ovate, of three, sometimes only two, florets, whose glumes are rough at the keel. Outer valve of the corolla lanceolate, acute, concave, moderately compressed, rather longer than the calyx, keeled; smooth, with 2 lateral ribs, at each side; membranous at the point; inner lanceolate, acute, scarcely cloven, or if so, the minute segments are convolute and combined, its edges inflexed, smooth. The bases of the florets are attached to the receptacle and to each other by a few long, very slender, convoluted filaments, which may be pulled out to a considerable extent. Nectary ovate, deeply cloven, acute. Anthers deeply divided at each end, with spreading lobes. Germ. ovate. Styles very short. Stigmas large, spreading, feathery, repeatedly subdivided, as in the genus *Glyceria*. Seed lanceolate, triangular.

Mr. Curtis, deeply versed in the practical economy of grasses, declares this to be one of the most valuable for pasturage and hay, yielding abundantly, though not particularly early; and of the most excellent quality.

The variety β, of which I have an original specimen, is only a starved plant, with short and slender leaves.

6. *P. pratensis.* Smooth-stalked Meadow-grass.

Panicle spreading. Spikelets four-flowered. Florets lan-

ceolate, five-ribbed, connected by a web. Stipula short and obtuse. Stem and leaves smooth. Root creeping.

P. pratensis. *Linn. Sp. Pl.* 99. *Willd. v.* 1. 388. *Fl. Br.* 104. *Engl. Bot. v.* 15. *t.* 1073. *Curt. Lond. fasc.* 2. *t.* 5. *Knapp t.* 55. *Dicks. H. Sicc. fasc.* 14. 3. *Sincl.* 17. *Hook. Scot.* 35. *Schrad. Germ. v.* 1. 298. *Host Gram. v.* 2. 41. *t.* 61.

P. glabra. *Ehrh. Calam.* 62.

Gramen pratense paniculatum medium. *Bauh. Theatr.* 30. *f.* *Scheuchz. Agr.* 180. *Raii Syn.* 409.

G. pratense minus. *Ger. Em.* 2. *f.*

β . *Poa angustifolia*. *Linn. Sp. Pl.* 99. *Willd. v.* 1. 387. *Leers* 27. *t.* 6. *f.* 3. *Dicks. H. Sicc. fasc.* 14. 4.

G. pratense paniculatum majus, angustiore folio. *Raii Syn.* 409. *Moris. v.* 3. 201. *sect.* 8. *t.* 5. *f.* 19. *Scheuchz. Agr.* 178. *t.* 3. *f.* 17, B.

γ . *Poa subcærulea*. *Engl. Bot. v.* 14. *t.* 1004, *excl. the reference to Withering*.

P. humilis. *Ehrh. Calam.* 115. *Comp.* 16. *Fl. Br.* 1387, *excluding the references to Willdenow, Haller and Scheuchzer*.

P. cærulea. *Knapp t.* 118. *Sincl.* 19.

P. pratensis β , *alpina*. *Huds.* 39.

P. pratensis β , *minor*. *Hook. Scot.* 35.

In meadows and pastures, whether moist or dry, common.

β . In woods. γ . In mountainous situations, in Wales, Anglesea, Westmoreland, Cumberland and Scotland.

Perennial. *May, June*.

Root creeping, with horizontal runners. General aspect of the plant very like the last, with which it has been usually confounded, but the *stem* and *leaves* betray no roughness when drawn through the hand. The *florets* are mostly 4, sometimes 5, very rarely but 2, their connecting web very copious, as well as long and complicated, their keel often silky. The outer valve of the *calyx* has very prominent lateral ribs. But the clear and essential mark of this species, compared with the last, consists in its very short, abrupt, pointless *stipula*, which in every leaf, of every variety, proves constant and invariable. Scheuchzer, Hudson and Curtis have all observed this, we believe independently of each other, and following botanists have confirmed the truth of their remarks. The *stigmas* of *P. pratensis* are as much branched as those of *P. trivialis*. *P. pratensis* of Leers, 28. *t.* 6. *f.* 4, cited with doubt in *Fl. Br.*, is referred by Schrader to his *serotina*, *v.* 1. 299.

β differs chiefly in the narrowness of its *leaves*, which are involute, and somewhat rigid, with roughish *sheaths*, especially the lower ones. All authors, since the publication of *Fl. Br.*, have concurred with me in making it a variety only.

γ is remarkable for a glaucous hue of the whole herbage, less evident in Ehrhart's own specimen of his *P. humilis*, which is certainly my *subcærulea*. The stem is but a span high; the leaves short, broad and flat. The panicle is much smaller and less branched than in the common *pratensis*; the spikelets similar, except in their glaucous colour, more pointed calyx, and rather more turgid and less angular florets, 3 in number, whose connecting web is extremely copious, so as to be visible without pulling them asunder. Nevertheless, I submit to the opinion of the accurate Schrader, who has, like myself, examined specimens, and is a competent judge. The stipulas of the above 3 varieties are all alike.

As an object of agriculture *P. pratensis* is not less valuable than the *trivialis*. It is earlier in leaf, and will thrive with less moisture, though the latter produces, at last, a better crop. Mr. Curtis and several other able botanists have rendered great service to the farmer in directing his attention to such objects, and it is undoubtedly worth his while to be select in seed for grass lands. But, after all, Nature is supreme in the accommodation of particular grasses to certain soils and situations, and whatever we may sow, unless we have well studied her laws, she finally triumphs.

7. *P. annua*. Annual Meadow-grass.

Panicle widely spreading. Spikelets ovate, five-flowered. Florets a little remote, five-ribbed, without a web. Stems oblique, compressed.

P. annua. *Linn. Sp. Pl.* 99. *Willd. v.* 1. 390. *Fl. Br.* 105. *Engl. Bot. v.* 16. *t.* 1141. *Curt. Lond. fusc.* 1. *t.* 6. *Mart. Rust. t.* 98. *Stillingfl. t.* 7. *Knapp t.* 52. *Hook. Scot.* 35. *Schrad. Germ. v.* 1. 304. *Host Gram. v.* 2. 46. *t.* 64. *Leers* 29. *t.* 6. *f.* 1. *Ehrh. Calam.* 106.

P. n. 1466. *Hall. Hist. v.* 2. 223.

Gramen pratense paniculatum minus. *Bauh. Theatr.* 30. *f.* 31. *Scheuchz. Agr.* 189. *t.* 3. *f.* 17, E.

G. pratense minus, seu vulgatissimum. *Raii Syn.* 408.

G. pratense minimum album. *Moris. v.* 3. 201. *sect.* 8. *t.* 5. *f.* 21.

G. minimum album. *Ger. Em.* 3. *f.*

In meadows, pastures, waste and cultivated ground, every where, except in alpine situations.

Annual. *April—November*.

Root fibrous. Stems several, pale, very smooth, somewhat compressed, leafy, jointed, branched at the base, spreading in every direction, and taking root at many of their lower joints; their length from 3 to 12 inches. Leaves of a fine light green, spreading, linear, bluntish, flaccid, roughish at the edges only, flat, except a crumpled portion here and there, characteristic of the

species, though not absolutely peculiar to it. *Sheaths* long, compressed, smooth. *Stipula* oblong and acute at the upper leaves; shorter, obtuse, and jagged at many of the lower ones. *Panicle* smaller than in the two last, more lax, its outline, as Haller remarks, triangular; its branches most directed to one side, all nearly smooth. *Spikelets* variegated with green and white, ovate, externally smooth and polished. *Florets* 5 or 6; their outer *valves* 5-ribbed, silky at the edges and back; inner notched, rough-edged. There is no web or hairiness at the base. *Anth.* short. *Styles* distant, very short. *Stigmas* very large and repeatedly compound, as in *Glyceria fluitans*.

A good grass for fodder, abundant in proportion to the richness of the soil, easily raised, but not durable.

8. *P. glauca*. Glaucous Meadow-grass.

Panicle spreading. Spikelets ovate. Florets from two to five, obscurely five-ribbed, bluntish; silky at the keel and lateral ribs; hairy at the base, without a web. Stipulas of the lower leaves very short and blunt.

P. glauca. *Fl. Dan. t.* 964. *With.* 148. *Fl. Br.* 1388. *Comp.* 16. *Engl. Bot. v.* 24. *t.* 1720. *Hull* 23. *Wahlenb. Lapp.* 41.

P. cæsia. *Knapp t.* 56.

P. n. 1468. *Hall. Hist. v.* 2. 224, from its discoverer, Prof. Lachenal.

P. montana. *Allion. Pedem. v.* 2. 245.

P. nemoralis β . *Hook. Scot.* 35.

Gramen paniculatum angustifolium montanum, paniculâ densâ, locustis parvis muticis. *Scheuchz. Agr.* 180.

β . *Wahlenb. Lapp.* 41.

Poa cæsia. *Fl. Br.* 103. *Comp.* 16. *Engl. Bot. v.* 24. *t.* 1719. *Hook. Scot.* 34.

On the mountains of Wales, Scotland, and the north of England.

On Snowdon. *Mr. Griffith*. Brought from Scotland, and cultivated in Chelsea garden. *Mr. Fairbairn*. Plentiful on the Scottish alps. *Hooker*. On Ingleborough, Yorkshire. *Dr. Windsor*.

β . Received from Scotland, and long cultivated in Chelsea garden. *Mr. Fairbairn*. On Ben Lawers, and other Highland mountains. *Mr. J. T. Mackay*. Brought from Ben Lawers by Mr. D. Turner and Professor Hooker, to whom I am obliged for a wild specimen.

Perennial. *June, July*.

The whole plant, in both varieties, is with us extremely and permanently glaucous; in Lachenal's specimens less so, especially the leaves. Root tufted, fibrous. Stems erect, 12—15 inches high, leafy, furnished with from 2 to 4 joints; round, striated, and almost perfectly smooth in the naked part above the leaves, which is only occasionally angular and rough-edged near the top. Leaves linear, bluntish, flat, single-ribbed, roughish to the

touch, except at the back towards the base. *Sheaths* striated, somewhat swelling, roughish, though sometimes in a very slight degree; the upper ones as long as their respective leaves, or longer. *Stipula* mostly very short and blunt, not projecting out of the sheath; but at the uppermost leaf, in both varieties, it is sometimes greatly elongated, lanceolate, acute, and externally downy. *Panicle* upright, spreading; the branches 2, 3, or more, together, simple or variously compound, angular, rough with minute bristly teeth, especially near the flowers. *Spikelets* ovate, erect, variegated with glaucous-green, purple, and silvery white. *Calyx-glumes* ovate-lanceolate, very acute, strongly keeled, smooth, except the upper part of the keel; membranous at the edges; the inner one largest, with a short rib near the keel at each side; the outer single-ribbed. *Florets* 2 or 3 in the first variety; 4, 5, or more, in the second, β , always longer than the calyx. Outer valve of the *corolla* ovate-lanceolate, either smooth or minutely downy, hairy at the base; furnished with 5 ribs including the keel, which, like the 2 nearly marginal ribs, is clothed half way up with close silky hairs, the intermediate ribs being smooth; and often so little prominent as to be discoverable only by holding the glume against the light; inner valve oblong, slightly cloven, with inflexed edges, often rough at the fold. *Nect.*, according to Mr. Sowerby, of 2 notched scales, but I suspect it to vary in this respect, as it does in size. *Styles* scarcely any. *Stigmas* large, feathery, and distinctly compound even in a dried specimen.

β has broader *leaves*, and 4 or 5 *florets*, even in a wild specimen from Mr. Turner; in cultivated ones there are often six, in which case their common stalk is hairy, particularly close to each floret; but this is essentially different from the folded web connecting the florets in other species. The *calyx* is often broader, and quite ovate, in this variety, but there are imperceptible gradations. The two varieties however remain constant, through a long course of cultivation, and I have specimens of the original *glauca*, raised from seed in Mr. Griffith's garden, quite unaltered. Dr. Wahlenberg observed the leaves of *glauca* to be often involute when dried; ours seldom exhibit this character. All things considered, I agree with the very able botanist last named in reducing these two grasses, however different in aspect, to one species; and am happy to concur also with my valued friend Professor Hooker in the same opinion; but not in referring *P. glauca* to the very distinct and well-marked *P. nemoralis*, though as Dr. Wahlenberg says it is an *intermediate* species, he cannot mean a doubtful one, between the latter and *P. trivialis*.

9. *P. nemoralis*. Wood Meadow-grass.

Panicle spreading, capillary. Calyx-glumes lanceolate, ta-

per-pointed, each three-ribbed. Spikelets lanceolate, Florets about three, five-ribbed, acute; silky at the keel and lateral ribs; hairy at the base, without a web. Stipulas very short, notched.

P. nemoralis. *Linn. Sp. Pl.* 102. *Willd. v. 1.* 399. *Fl. Br.* 106. *Engl. Bot. v. 18. t.* 1265. *Knapp t.* 58. *Hook. Scot.* 35. *Schrad. Germ. v. 1.* 301. *Host Gram. v. 2.* 51. *t.* 71. *Leers 30. t. 5. f.* 3. *Fl. Dan. t.* 749. *Ehrh. Calam.* 5.

P. angustifolia β . *Huds.* 41.

P. n. 1469. *Hall. Hist. v. 2.* 224.

Gramen paniculatum angustifolium alpinum, locustis rarioribus et angustioribus, non aristatis. *Scheuchz. Agr.* 164. *Prodr.* 18. *t.* 2. *It.* 2. 135. (*ed. Lond.* 62.) *obs.* 45. *t.* 18. *f.* 3.

β . *Poa angustifolia* α . *Huds.* 40.

P. pratensis, var. 2. *With.* 142. *Hull* 21.

In groves and woods.

Most plentiful in the north of England, where it is very common; as also in woods on a chalky soil in the south.

Perennial. *June, July.*

Root fibrous, scarcely creeping. Whole plant very slender and delicate, $1\frac{1}{2}$ or 2 feet high. *Stems* several, erect, slightly compressed, smooth, striated, leafy, with 4 or 5 joints. *Leaves* almost all on the stem, grass-green, narrow, flat, with 3 principal ribs and many intermediate ones; more or less rough, especially the mid-rib and edges; tapering to a fine slender point; the lowermost smooth at the back. *Sheaths* hardly so long as the leaves, compressed, nearly smooth. *Stipula* very short in all the leaves, and inclosed within the sheath, but visibly notched along the margin. *Panicle* erect, or slightly drooping to one side, very slender, with numerous, half-whorled, angular, rough, wavy, compound branches. *Spikelets* erect, pale green and white, with a purplish tinge; their general surface shining, and nearly smooth. *Cal.* of 2 unequal, lanceolate, taper-pointed, almost awned valves, each with 3 ribs; the keel, or central rib, rough; the margin of the larger, or innermost, much dilated and membranous. *Florets* 2 or 3, rarely 4. Outer valve of the *cor.* lanceolate, acute, with 5 ribs, of which the 2 marginal ones and the keel are finely silky at their lower part, the 2 intermediate ones smooth, and not very conspicuous, unless the glume be held against the light; inner valve narrow, rough-edged, cloven at the point. The base of each *floret* is sometimes, not always, hairy, but there is no complicated web. *Stigmas* large and tufted. Mr. Sowerby found the *nectary* of 2 acute cloven scales.

β is of a firmer habit, less slender in every part, with a more dense *panicle*, and sometimes more numerous *florets*. An original specimen proves it Mr. Hudson's *P. angustifolia*, of which he subsequently made *nemoralis* a subordinate variety. But it is not

angustifolia of Linnæus, which belongs to *pratensis*. Neither is it *trivialis* of Leers, whose considerable web indicates an affinity to *pratensis* also. Morison's *sect. 8. t. 5. f. 19*, is, more safely perhaps, transferred from the present plant to that species.

In Switzerland *P. nemoralis* often bears, on the *stems*, rigid bristly tufts like radicles, analogous to the mossy balls of the Dog-Rose, and like them probably the effect of the puncture of some insect. See *Bocc. Mus. t. 59. Scheuchz. It. 1. 38. t. 5. f. 1*. This has not been noticed in Britain. Schrader makes it his var. β ; but it is rather an accident than a variety.

46. TRIODIA. Heath-grass.

Br. Pr. 182. Kunth Nov. Gen. et Spec. v. 1. 155. t. 47, 48. Beauv. Agr. 76. t. 15. f. 9.

Cal. of 2 nearly equal, clasping, awnless, acute, ovate, concave, keeled, valves, containing an ovate, imbricated, tumid *spikelet*, about its own length, of several two-ranked perfect *florets*, variously hairy at the base, but without any complicated web. *Cor.* of 2 unequal, ovate, rigid, concave valves, closely pressed together transversely; the outer obscurely many-ribbed, not keeled; flat and expanded at the edges; deeply cloven at the summit, with an intermediate dorsal tooth, or awn, longer or shorter than the lateral points; inner smaller, lining the cavity of the outer, fringed; cloven or notched at the point. *Nect.* of 2 scales. *Filam.* capillary. *Anth.* prominent, pendulous. *Germen* oval, flat. *Styles* short, distinct. *Stigm.* cylindrical, feathery. *Seed* loose, oval, depressed, convex on the outside, concave on the inner, closely pressed between the unchanged valves of the corolla.

Hard, rigid, perennial grasses, with leafy *stems*. Inflorescence variously paniced.

1. *T. decumbens*. Decumbent Heath-grass.

Panicle nearly simple, close, erect. Florets four; their middle tooth shortest. Calyx smooth. Stipula hairy.

Festuca decumbens. Linn. Sp. Pl. 110. Willd. v. 1. 424. Huds. 47. Fl. Dan. t. 162. Leers 34. t. 7. f. 5. Ehrh. Calam. 16. Dicks. H. Sicc. fasc. 11. 3.

F. n. 1434. Hall. Hist. v. 2. 213.

Poa decumbens. With. 147. Fl. Br. 107. Engl. Bot. v. 11. t. 792. Hook. Scot. 36. Knapp t. 59. Schrad. Germ. v. 1. 305. Host Gram. v. 2. 52. t. 72.

Melica decumbens. Web. Gott. 3.

Gramen avenaceum parvum procumbens, paniculis non aristatis.
Raii Syn. 408. *Pluk. Phyt. t.* 34. *f.* 1. *Mont. Prodr.* 53. *t.* 2.
f. 1, & *t.* p. 53. *f.* 77.

G. triticeum palustre humilius, spicâ muticâ brevior. *Moris. v.* 3.
 177. *sect.* 8. *t.* 1. *f.* 6.

G. montanum avenaceum, locustis muticis tumentibus, pilosum.
Scheuchz. Agr. 170. *t.* 3. *f.* 16. A, B, C.

In spongy bogs, on barren, sandy, mountainous ground, frequent.
 Perennial. *July.*

Root slightly creeping, with strong fibres. Whole plant harsh and rigid, lying close to the ground except when in flower. *Stem* from 4 to 12 inches long, jointed, bent, leafy, very smooth. *Leaves* linear, striated, rather glaucous, smooth, except towards the points, where the rib and edges are very rough. *Sheaths* striated, hairy, especially at the top. *Stipula* a row of hairs. *Panicle* of a few large, turgid, purplish *spikelets*, its branches few, way. The *corolla* has 2, or more, dense tufts of shining bristles at its base, with 2 intermediate depressions. The middle tooth is flattened, and close-pressed, not extended into a bristly *awn*.

When able botanists have much differed about the genus of any plant, it is likely to prove a new one, as is the case with this grass. Several species of the same genus are found in New Holland, and some on the mountains of South America. Whatever the other species of the learned DeCandolle's *Danthonia* may be, this undoubtedly belongs to Mr. Brown's very natural genus of *Triodia*, which is enough for our purpose. It could not, when properly examined, be placed either in *Festuca* or *Poa*; still less, as some have thought, in *Bromus* or *Melica*.

47. BRIZA. Quaking-grass.

Linn. Gen. 35. *Juss.* 32. *Fl. Br.* 108. *Lam. t.* 45. *Gærtn. t.* 1.

Cal. of 2 nearly equal, awnless, obovate, or almost orbicular, obtuse, expanded, concave, slightly keeled valves, containing a broad-ovate, or triangular, obtuse, compressed *spikelet* of many awnless, two-ranked, perfect *florets*. *Cor.* of 2 unequal, awnless, obtuse valves; the outer orbicular, or obovate, expanded, concave, sometimes gibbous, contracted or inflexed at the edges; without rib or prominent keel; inner much smaller, flatter, oval, or obovate, entire or notched, inflexed at the edges; both permanent, embracing the *seed*. *Nect.* a cloven scale. *Filam.* capillary, longer than the glumes. *Anth.* oblong, cloven at each end, pendulous. *Germe*n ovate. *Styles* very short. *Stigmas* feathery, long, cylindrical. *Seed* nearly orbicular, flat, pressed closely between the

valves of the corolla, and coated with the outer one, to which it is firmly united.

Root annual, or perennial. *Stems* erect, leafy. *Leaves* flat. *Spikelets* loosely paniced, for the most part elegantly pendulous and tremulous; membranous and shining when dry.

1. *B. minor*. Small Quaking-grass.

Spikelets triangular, seven-flowered. *Calyx* longer than the *florets*. *Stipula* lanceolate, elongated.

B. minor. *Linn. Sp. Pl.* 102. *Willd. v. 1.* 403. *Fl. Br.* 108. *Engl. Bot. v. 19. t.* 1316. *Fl. Græc. v. 1.* 58. *t.* 74. *Schrad. Germ. v. 1.* 308. *Host Gram. v. 2.* 22. *t.* 28.

B. aspera. *Knapp t.* 61.

Gramen tremulum minus, paniculâ amplâ, locustis parvis triangulis. *Raii Syn.* 412.

G. tremulum minus, locustâ deltoide. *Moris. v. 3.* 203. *sect. 8. t.* 6. *f.* 47.

In cultivated fields in the south of England, very rare.

Near Bath. *Mr. Alchorne. Huds.* Between Penzance and Marketjew, Cornwall, 1774. *Lightf. in his herbarium.* Sent from thence by Mr. Penneck, in 1803. *Mr. Sowerby.* In Jersey. *Sherard.* In Guernsey. *Yalden.*

Annual. *July.*

Root fibrous, small, downy. Whole plant of a light bright green, smooth, except the edges of the *leaves*; a span or more in height, with one or more *stems*. *Stipula* long, acute, decurrent. *Panicle* spreading, with numerous, fine, capillary, rigid, zigzag branches. *Spikelets* green and white, often with a purple tint, shining. *Calyx* extending beyond the lowest *florets*. Outer valve of the *corolla* gibbous at the base; inner acutely cloven. *Seed* orbicular, depressed, when ripe firmly attached to the outer valve of the *corolla*.

Poa n. 1449. *Hall. Hist. v. 2.* 218. *Gramen tremulum minus paniculâ parvâ.* *Bauh. Prodr.* 4. *f.* *Moris. f.* 46, appears, by Haller's account, a mere variety of the following.

2. *B. media*. Common Quaking-grass.

Spikelets ovate, about seven-flowered. *Calyx* shorter than the *florets*. *Stipula* very short and blunt.

B. media. *Linn. Sp. Pl.* 103. *Willd. v. 1.* 404. *Fl. Br.* 109. *Engl. Bot. v. 5.* 340. *Mart. Rust. t.* 39. *Knapp t.* 60. *Hook. Scot.* 37. *Schrad. Germ. v. 1.* 309. *Host Gram. v. 2.* 22. *t.* 29. *Fl. Dan. t.* 258. *Leers 25. t.* 7. *f.* 2.

Poa n. 1448. *Hall. Hist. v. 2.* 218.

Gramen tremulum. *Raii Syn.* 412.

G. tremulum majus. Bauh. Theatr. 22. f. Scheuchz. Agr. 204. t. 4. f. 8.
G. tremulum vulgare minus, locustis rotundioribus. Moris. v. 3.
 203. sect. 8. t. 6. f. 45.

In pastures common.

Perennial. May, June.

Root fibrous, tufted. Stem 12 or 18 inches high, leafy at the bottom chiefly, smooth; straight and slender in the upper part. Leaves deep green. Panicle very slender and tremulous, the branches and spikelets tinged with purplish brown. Florets about 7, the lower ones projecting a little beyond the calyx, which renders the spikelet ovate. I have from Mr. J. E. Bowman a beautiful Welch specimen, whose florets are 12 or more, green and white, with 3 ribs towards each margin, more conspicuous than in the common kind; yet there are scarcely sufficient grounds to make it a species, at least not without a comparison of more specimens.

48. DACTYLIS. Cock's-foot-grass.

Linn. Gen. 35. *Juss.* 31. *Fl. Br.* 110. *Lam. t.* 44.

Cal. of 2 unequal, linear-lanceolate, taper-pointed, keeled, compressed valves, containing a spikelet of several florets. *Cor.* of 2 unequal, lanceolate, keeled, compressed valves; the outer one more or less awned, flat and membranous at the edges; inner about as long, but narrower; 2-ribbed, folded, acutely cloven at the point. *Nect.* of 2 lanceolate, pointed scales, tumid at the base. *Filam.* capillary, longer than the *cor.* *Anth.* cloven at each end. *Germ.* roundish. *Styles* very short, distinct. *Stigmas* spreading, oblong, feathery. *Seed* oblong, with a longitudinal furrow, covered by the unchanged corolla, but loose, not attached to it.

Too near to *Festuca*.

Root perennial. Stem leafy, simple or branched. Flowers in dense unilateral panicked tufts.

1. *D. glomerata.* Rough Cock's-foot-grass.

Panicle distantly branched. Flowers in dense globular tufts, unilateral. Corolla somewhat awned, five-ribbed, taper-pointed.

D. glomerata. *Linn. Sp. Pl.* 105. *Willd. v.* 1. 408. *Fl. Br.* 111. *Engl. Bot. v.* 5. t. 335. *Mart. Rust. t.* 14. *Knapp t.* 62. *Hook. Scot.* 37. *Sincl.* 9. *Schrad. Germ. v.* 1. 311. *Schreb. Gram. v.* 1. 72. t. 8. f. 2. *Host Gram. v.* 2. 67. t. 94. *Leers* 21. t. 3. f. 3. *Fl. Dan. t.* 743.

Bromus glomeratus. *Scop. Carn. v.* 1. 76.

B. n. 1512. *Hall. Hist. v. 2. 238.*

Gramen asperum. *Bauh. Hist. v. 2. 467. f. Raii Syn. 401.*

G. *spicatum*, folio aspero. *Bauh. Prodr. 9. f. Theatr. 45. f. Scheuchz. Agr. 299. t. 6. f. 15. Moris. v. 3. 202. sect. 8. t. 6. f. 38.*

In meadows, hedges, and shady places, common.

Perennial. *June—August.*

Root fibrous, tufted. *Stem* erect, straight, 2 feet high; leafy below; naked and roughish above. *Leaves* linear, flat, acute, dull green, spreading, striated, harsh, rough-edged. *Sheaths* rough, keeled, compressed. *Stipula* elongated, mostly torn. *Panicle* alternately branched; branches angular, stiff, very rough, spreading, especially the lowermost, each bearing a compound, ovate or globular, dense tuft, of unilateral, bristly, crowded *spikelets*. *Calyx* membranous, very unequal; the outer valve 3-ribbed, rough at the keel. *Florets* 3 or 4, rarely solitary; common stalk smooth. Outer valve of the *cor.* 5-ribbed, rough at the keel, with a short awn-like point; inner fringed at the ribs. *Anth.* pale violet, pendulous.

In shady places, orchards, &c., this is a harsh coarse grass, not very acceptable to cattle; but when cultivated on dry open land, its quality becomes excellent, and the crop of tufted radical leaves abundant.

49. SPARTINA. Cord-grass.

Schreb. Gen. 43. Muhlenb. Gram. 53. Beauv. Agr. 25. t. 7. f. 6. Limnetis. Richard.—Nuttall Gen. 38.

Cal. single-flowered, of 2 unequal, compressed, lanceolate, keeled, clasping valves; the outer one sometimes smallest, narrow and pointless; sometimes largest, with a rough, straight, terminal awn; inner cloven at the summit, with more or less of an intermediate tooth, or point. *Cor.* about the length and shape of the *cal.* of 2 lanceolate, bluntish, clasping, compressed, awnless valves, the innermost rather the longest. *Nect.* none. *Filam.* capillary, not so long as the *cor.* *Anth.* erect, linear, entire at the top, cloven at the base. *Germ.* elliptic-lanceolate. *Styles* combined a great part of their whole length, separate at the top. *Stigmas* feathery, slender, various in length. *Seed* oblong, compressed, clothed with the unaltered corolla, but quite loose.

Hard, rigid, smooth, perennial, maritime grasses, with compound, close, unilateral *spikes* of numerous *flowers*. This genus is closely allied to *Dactylis*, under which it has been included by Linnæus and most botanists; but a comparison of their characters, given above, will prove them

very distinct. Schreber places *Spartina* in *Triandria Monogynia*; but a partial, or temporary, combination of the 2 styles of true Grasses is so common, and so various in species of the same genus, that it is best not to take it too strictly. There can be no reason to change the great Schreber's original name for *Limnetis*.

1. *S. stricta*. Twin-spiked Cord-grass.

Spikes two or three, erect, with very smooth stalks. Glumes downy. Outer valve of the calyx smallest.

Dactylis stricta. Soland. in Ait. II. Kew. ed. 1. v. 1. 104. Willd. v. 1. 407. Fl. Br. 110. Engl. Bot. v. 6. t. 380. With. 149. t. 27. Knapp t. 63.

D. Cynosuroides. Huds. 43. Loeffl. It. Hisp. 115.

Spartum Essexianum, spicâ geminâ clausâ. Dill. in Raii Syn. 393.

In muddy salt-marshes, on the eastern coast.

About the mouths of rivers in Kent and Essex, found by Merret, Buddle, and Sherard. Dillenius. Plentiful in the isle of Shepey. Bishop of Carlisle. At Aldborough, Suffolk. Mr. Woodward and Mr. Davy.

Perennial. August.

Root creeping, with strong fibres. Whole plant hard, tough and rigid. Stems 10—20 inches high, several together, simple, ascending, round, leafy from top to bottom, smooth, jointed. Leaves numerous, straight, spreading, taper-pointed, keeled, channelled, striated, of a dull green, smooth; involute when dry. Sheaths striated, smooth, very long, investing each other far above their respective knots; their lower part remaining of a fibrous spongy texture, after the upper part and its leaf are gone. Stipula short and jagged. Spikes 2, rarely 3, rising just above the short uppermost leaf, erect, straight, close together. Common stalk simple, angular, with a linear hollow to receive each spikelet, but not jointed. Spikelets imbricated, in 2 rows, lateral, lanceolate, their glumes all more or less downy or silky. Outer valve of the calyx narrow, acute; inner much broader and longer; membranous and cloven at the top, with a short, thick, horny, intermediate point. Floret solitary. Valves of the cor. less downy, acute, entire, finely striated. Nect. none, as Schrader also observes. Germen lanceolate. Styles combined about 3 fourths of their length. Stigmas slender, prominent.

50. CYNOSURUS. Dog's-tail-grass.

Linn. Gen. 36. Juss. 31. Fl. Br. 111. Lam. t. 47. Gärtn. t. 1.

Spikelets in pairs; one entirely neuter, of numerous, two-ranked, lanceolate, concave, pointed or awned, empty

glumes; the other parallel to it, of several *florets*. *Cal.* of 2 equal, lanceolate, membranous, concave, single-ribbed, keeled, taper-pointed, awned valves, containing two or three perfect *florets*, the first sessile, the rest stalked, with an occasional rudiment of more. *Cor.* wanting in the neuter spikelet; in the perfect one of 2 unequal lanceolate valves; the outermost concave, keeled, more or less awned at the summit, the awn straight; inner two-ribbed, inflexed at the edges, cloven at the point, awnless. *Nect.* of 2 acute scales. *Filam.* capillary, shorter than the glumes. *Anth.* linear, cloven at each end. *Germen* elliptical. *Styles* very short, distinct. *Stigmas* long, cylindrical, feathery. *Seed* loose, invested with the unchanged corolla, elliptic-oblong, with a furrow along the upper side.

The *corolla* is certainly not, as Schrader defines it, united with the *seed*, though Schreber's account of its "closely enfolding the *seed* and not separating," might suggest such an idea; for Schrader, so exact in what he observes with his own eyes, does not describe the *seed*, as seen by himself, in any of his species. In fact, the substance of the *corolla* remains unchanged, and the *seed* is as little attached to it, in either of our species, as in any grass whatever.

Roots annual, or perennial. *Stems* erect, leafy. *Spikes* dense, simple or compound, assuming a crested appearance from the neuter *spikelets*, mostly concealing the perfect ones.

1. *C. cristatus*. Crested Dog's-tail-grass.

Spike simple, linear. Neuter spikelets without awns.

C. cristatus. *Linn. Sp. Pl.* 105. *Willd. v.* 1. 411. *Fl. Br.* 111. *Engl. Bot. v.* 5. t. 316. *Mart. Rust. t.* 106. *Knapp t.* 64. *Stillingfl. t.* 11. *Hook. Scot.* 37. *Sincl.* 27. *Schrad. Germ. v.* 1. 314. *Host Gram. v.* 2. 68. t. 96. *Schreb. Gram. v.* 1. 69. t. 8. f. 1. *Leers* 49. t. 7. f. 4. *Fl. Dan. t.* 238.

C. n. 1545. *Hall. Hist. v.* 2. 251.

Gramen cristatum. *Bauh. Hist. v.* 2. 468. f. *Bauh. Prodr.* 8. f. *Raii Syn.* 398. *Ger. Em.* 29*.

G. pratense cristatum. *Bauh. Theatr.* 42. f. 43. *Scheuchz. Agr.* 79. t. 2. f. 8. A, C.

G. cristatum anglicum. *Moris. v.* 3. 194. *sect.* 8. t. 4. f. 6.

In dry pastures, parks and lawns, every where.

Perennial. *June, July.*

Root tufted, with long simple fibres. *Stems* several, 12—18 inches high, simple, rigid, round, smooth, most leafy in the lower part; remaining brown and withered, with their dry empty spikes,

through the latter part of summer, and making too conspicuous a figure on lawns about houses. *Leaves* bright green, short, narrow, smooth; with long, smooth, striated *sheaths*. *Stipula* rather short and abrupt. *Spike* erect, rigid, linear, green, unilateral, about 2 inches long, with a wavy, rough stalk. *Anth.* prominent, pendulous, purple. Outer valve of the *corolla* with a short awn. *Glumes* all permanent, especially the neuter *spikelets*. *Seed* elliptic-oblong, acute, filling the valves of the *corolla*. A valuable grass in pastures, for sheep and deer, thriving on dry open ground, and, according to Mr. Sinclair, still better in watered meadows. Yet it is certainly not suited to marshy, boggy, or low land.

2. *C. echinatus*. Rough Dog's-tail-grass.

Spike compound, ovate. Neuter spikelets awned. Awns of the *corolla* full as long as the *glume*.

C. echinatus. *Linn. Sp. Pl.* 105. *Willd. v. 1.* 412. *Fl. Br.* 112. *Engl. Bot. v. 19. t.* 1333. *Fl. Græc. v. 1.* 61. *t.* 78. *Knapp t.* 65. *Sincl.* 211. *Schrad. Germ. v. 1.* 315. *Host Gram. v. 2.* 67. *t.* 95. *C. n.* 1546. *Hall. Hist. v. 2.* 251?

Gramen alopecuroides, spicâ asperâ. *Bauh. Prodr.* 10. *f. Theatr.* 58. *f.* 59. *Scheuchz. Agr.* 80. *t. 2. f.* 8. B, D. *Raii Syn.* 397.

G. paniceum, spicâ asperâ latiore. *Moris. v. 3.* 189. *sect. 8. t. 4. f.* 13.

On sandy ground in the south of England, towards the sea.

Common in Jersey. *Sherard.* Near Sandwich. *Hudson.* Near Hastings, but very sparingly. *Bishop of Carlisle.* *Sussex. Mr. Sowerby.*

Annual. *July.*

Root with downy fibres, as usual in grasses inhabiting a loose sand.

Stems one or more, smooth, round, leafy, 10—20 inches high.

Leaves roughish, broad at their base, tapering to a sharp point.

Sheaths two-edged, swelling, roughish. *Stipulas* lanceolate, the

uppermost longest. *Spike* dense, various in luxuriance, distinguished by the elegantly pectinated neuter *spikelets* at the back,

and bristly with the long rough *awns* of the perfect ones in front.

The late Mr. Davall suspected the larger-spiked variety, *Barrel.*

Ic. t. 123. *f.* 2, might be a distinct species. It is the Swiss plant,

and approaches *C. elegans* of Desfontaines, *Atlant. v. 1. t.* 17.

Ours has a smaller spike, with much fewer flowers.

51. FESTUCA. Fescue-grass.

Linn. Gen. 36. *Juss.* 32. *Fl. Br.* 113. *Lam. t.* 46.

Cal. of 2 very unequal, lanceolate, acute, pointed, concave, keeled valves, containing an oblong, compressed, imbricated *spikelet*, of many alternate, two-ranked, more or less awned, perfect *florets*. *Cor.* of 2 unequal valves; the outer

generally nearly cylindrical, entire, pointed or awned, keeled, concave, scarcely compressed, more or less ribbed, longer than the calyx, a little inflexed at the edges; inner narrower, elliptic-oblong, two-ribbed, cloven or abrupt at the summit, the margins membranous, folded in at each rib, which is, for the most part, downy externally. *Nect.* of 1, deeply divided, or of 2 separate, sometimes cloven, acute scales. *Filam.* capillary, shorter than the *cor.* *Anth.* linear, pendulous, notched at each end. *Germen* turbinate. *Styles* distant, short. *Stigmas* feathery. *Seed* oblong, with a longitudinal furrow, acute, quite loose, though closely enveloped in the unchanged corolla.

Root annual, or perennial. *Stems* erect, or spreading, leafy, knotty. *Leaves* generally narrow. *Fl.* paniced, often purplish, nearly or quite erect.

Schreber and Schrader, great authorities, assert the *seed* to be attached to the *corolla*, as well as closely enveloped in its glumes. But on a careful examination of many of the most genuine species, this does not prove correct. There is no connection, or union of the parts in question; nor is the *corolla* at all hardened, enlarged, or altered, as it always is when united with the ripening *seed*.

1. *F. ovina.* Sheep's Fescue-grass.

Panicle unilateral, rather close. Florets cylindrical, pointed or awned; smooth at the base, and at the edges of the inner valve. Stem square. Leaves folded, bristle-shaped. Stipula short and obtuse.

F. ovina. *Linn. Sp. Pl.* 108. *Willd. v.* 1. 419. *Fl. Br.* 113. *Engl. Bot. v.* 9. t. 585. *Mart. Rust. t.* 102. *Knapp t.* 66. *Hook. Scot.* 38. *Schrad Germ. v.* 1. 319. *Host Gram. v.* 2. 60. t. 84. *Leers* 32. t. 8. f. 3.

Gramen foliolis junceis brevibus majus, radice nigrâ. *Bauh. Prodr.* 11. *Theatr.* 73. *Scheuchz. Agr.* 279. t. 6. f. 8.

β. *Festuca rubra.* *With.* 153; *from the author.*

γ. *F. cæsia.* *Engl. Bot. v.* 27. t. 1917. *Comp.* 17.

δ. *F. tenuifolia.* *Sibth. Oxon.* 44. *Schrad. Germ. v.* 1. 318.

F. ovina β. *Leers* 33. t. 8. f. 4.

F. ovina. *Ehrh. Calam.* 53.

F. duriuscula. *Villars Dauph.* 98; *from the author.*

Gramen capillaceum locustellis pennatis non aristatis. *Raii Syn.* 410. *Pluk. Phyt. t.* 34. f. 2. *Scheuchz. Agr.* 275. t. 6. f. 6.

G. foliolis junceis brevibus minus. *Bauh. Theatr.* 73. f.; though the glumes are said in the description to be awned.

G. loliaceum, foliolis brevibus junceis, minus. *Moris*. v. 3. 182. sect. 8. t. 3. f. 13.

In dry open pastures, very common.

Perennial. *June*.

Root of numerous, long, capillary, smooth, blackish fibres. *Stems* from 6 to 12 inches high, erect, slender, rather rigid, smooth; leafy below; square in the upper part. *Leaves* chiefly radical, very numerous, composing dense tufts, linear, acute, folded, or involute, so as to be quite bristle-shaped, or capillary, roughish, of a dull, sometimes glaucous, green. *Sheaths* angular, or furrowed. *Stipula* very short; attended at each side with more or less of a polished tubercle at the top of the sheath, like a knot. *Panicle* small, erect, slightly branched. *Florets* 4 or 5, nearly cylindrical, acute, or awned, the keel scarcely prominent; the upper part roughish with minute tubercles; their inner valve smooth at the ribs, or edges. The var. β has a more purple panicle than usual; the florets in δ have no awns. γ is remarkable for a very glaucous hue in the herbage and glumes, which is unchanged by many years' culture. But several circumstances have of late convinced me, that such a hue will not always, as I once thought, afford a specific character, and I concur with my friend Professor Hooker in abolishing this as a species.

2. *F. vivipara*. Viviparous Fescue-grass.

Panicle unilateral, rather close. Florets compressed, keeled, awnless, somewhat downy, as well as the edges of their inner valve, and the calyx. Stem square. Leaves folded, bristle-shaped, smooth.

F. vivipara. *Fl. Br.* 114. *Engl. Bot.* v. 19. t. 1355. *Knapp* t. 67. *Sincl.* 131. *Don H. Brit.* 154.

F. ovina β . *Linn. Sp. Pl.* 108. *Willd.* v. 1. 419. *Hook. Scot.* 38.

F. ovina γ . *Schrad. Germ.* v. 1. 320.

Gramen sparteum montanum, spicâ foliaceâ gramineâ, majus et minus. *Raii Syn.* 410. t. 22. f. 1.

G. paniculatum sparteum alpinum, paniculâ angustâ, spadiceo-viridi, proliferum. *Scheuchz. Agr.* 213. *Prodr.* 21. t. 1.

On the tops of the loftiest mountains.

On Ingleborough, Skiddaw, Snowdon, and most of the Scottish mountains.

Perennial. *July*.

The *root*, *leaves*, and general habit, nearly agree with the last, of which most botanists have esteemed this plant a variety. Though, of course, aware of the strange alterations which take place in viviparous grasses, I have been induced to make a species of this, on account of the diversity of shape in the outer valve of each floret, which is not cylindrical, but ovate, compressed and keeled, as well as all over downy. These characters are seen in the very

few *spikelets* which are not viviparous. In those that are, the lowermost *florets* are greatly elongated, and strongly ribbed, the upper gradually transformed into leaves, so that each *spikelet* becomes a bud; for it is not the case with this, as in many other viviparous grasses, that the seed merely vegetates in the husk, like corn in a wet harvest. There are, in fact, no organs of impregnation, nor any form or traces of a real *seed*. Botanists who can examine the plant at leisure, in its wild state, may perhaps meet with specimens bearing some perfect *flowers*, and the *corolla* will then settle the question. I leave it to their decision. Mr. Sinclair, who has well described the progress of this grass, justly asserts that it remains entirely viviparous in a garden. What he terms the *germen*, I presume to be the rudiment, or heart, of the bud, or *gemma*, originating in the upper *floret* of each *spikelet*.

The folded edges of the inner valve of the *corolla*, when it can be found, are always downy.

3. *F. duriuscula*. Hard Fescue-grass.

Panicle unilateral, spreading. Florets longer than their awns. Stem round. Upper leaves flat. Root fibrous.

F. duriuscula. Linn. *Sp. Pl.* 108. Willd. v. 1. 421. Fl. Br. 115. Engl. Bot. v. 7. t. 470. Knapp t. 68. Hook. Scot. 38. Schrad. Germ. v. 1. 328. Host Gram. v. 2. 59. t. 83. Leers 33. t. 8. f. 2. Sincl. 31.

F. heterophylla. Haënke in Jacq. Coll. v. 2. 93. Willd. v. 1. 421.

F. nemorum. Leyss. in Act. Soc. Nat. Scrut. Hal. v. 1. 368. Roth Germ. v. 2. 129. Schrader, & Davall.

F. n. 1438. Hall. Hist. v. 2. 214. Davall.

Gramen pratense, paniculâ duriore laxâ, unam partem spectante. Raii Syn. 413. t. 19. f. 1. Scheuchz. Agr. 285.

β. Huds. 45. Fl. Br. 115. Schrad. Germ. v. 1. 328.

Festuca dumetorum. Linn. *Sp. Pl.* 109. Willd. v. 1. 422. Fl. Dan. t. 700. Sincl. 135.

In pastures, dry meadows, waste ground, and thickets, common. Perennial. June, July.

At least twice the size of either of the preceding. Root fibrous, scarcely creeping, though sometimes throwing out short lateral shoots. Stem $1\frac{1}{2}$ or 2 feet high, erect, leafy, round, striated, smooth. Leaves roughish at the edges and keel; the lower ones long, very slender, rigid, acute, compressed, striated; upper broader, and flat. Sheaths close, smooth. Stipula very short, cloven. Panicle oblong, much spreading when in flower; the branches acutely angular, rough. Spikelets at first cylindrical, but becoming flattened by the expansion of the glumes. Calyx sharp-pointed. Florets keeled and considerably compressed, generally smooth, from 4 to 6 or 7, the uppermost often imperfect; the outer valve tipped with a straight rough awn, scarcely half

its own length; inner roughish at the marginal ribs, slightly cloven at the point. *Stigmas* cylindrical. In β the outer valve of the *corolla*, not the *calyx*, is finely downy; but there is no other difference.

Whether Haller's n. 1437 may be referred likewise to this species, the best Swiss botanists have always been in doubt.

Mr. Swayne has made a favourable report of this grass, as yielding a good and early crop, acceptable to all kinds of cattle, which Mr. Sinclair confirms.

4. *F. rubra*. Creeping Fescue-grass.

Panicle unilateral, spreading. Florets longer than their awns. Leaves downy on the upper side, more or less involute. Root extensively creeping.

F. rubra. Linn. *Sp. Pl.* 109. Willd. v. 1. 420. *Fl. Br.* 116. *Engl. Bot.* 29. t. 2056. *Stillingfl.* t. 9. *Schrad. Germ.* v. 1. 329. *Host Gram.* v. 2. 59. t. 82. *Ehrh. Calam.* 83.

F. repens, a variety of *duriuscula*. *Knapp* t. 119.

F. duriuscula β . *Hook. Scot.* 38.

Gramen alpinum pratense, paniculâ duriore laxâ spadiceâ, locustis majoribus. *Scheuchz. Agr.* 287. t. 6. f. 9.

β . *Festuca cambrica*. *Huds.* 45. *With.* 155.

γ . *F. glabra*. *Lightf.* 1085. *Huds.* 648.

δ . *F. glauca*. *Winch Guide*, v. 2. *pref.* 2.

In mountainous pastures, and on alpine precipices, as well as on the sandy sea coast, in many parts of England.

β . On the ledges of Clogwin y Garnedth, the highest rock of Snowdon. *Herb. Banks.*

γ . At Ardbiglen in Galloway. *Herb. Lightf.*

Perennial. *July*.

The creeping *root*, which on the sea coast often extends to many feet, or even yards, in length, may surely be depended on as the specific character of this species. At least such is the opinion of Professor Schrader, confirmed by the long practical experience of Mr. Sinclair. The *leaves* also, at least the upper ones, are broader; and yet rather involute than, at any time, compressed. Their upper side is furrowed and downy; the under smooth. *Panicle* often a little glaucous, but I can find no distinctive characters in the fructification, except the notched *nectaries*, as drawn by Mr. Sowerby, should be constant. The downiness of the *florets* varies, as in *F. duriuscula*.

5. *F. bromoides*. Barren Fescue-grass.

Panicle nearly erect, racemose. Florets tapering, shorter than their awns, rough at the top. Leaves tapering, shorter than their sheaths. Upper half of the stem naked.

F. bromoides. *Linn. Sp. Pl.* 110. *Willd. v.* 1. 418. *Fl. Br.* 117. *Engl. Bot. v.* 20. *t.* 1411. *Knapp t.* 69. *Rel. Rudb.* 17. *f.* 3. *Hook. Scot.* 39. *Schrad. Germ. v.* 1. 325. *Ehrh. Calam.* 6.

Gramen paniculatum bromoides minus, paniculis aristatis, unam partem spectantibus. Raii Syn. 415. *Pluk. Phyt. t.* 33. *f.* 10.

G. bromoides, paniculâ heteromallâ longioribus aristis donatâ. Scheuchz. Agr. 290. *t.* 6. *f.* 10 ; according to specimens sent by the author to Sherard, now at Oxford.

On walls, and barren sandy ground.

Annual ; some say biennial. *June*.

A pale, smooth, slender, insignificant grass, of short duration, at least after flowering. *Root* of many small brown fibres. *Stems* several, 4—12 inches high, bent at some of the lowest joints ; leafy about the lower part ; naked, erect, angular, and very smooth above. *Leaves* narrow, tapering, sometimes hairy on the upper side, often involute ; the upper ones much shorter than their angular, furrowed, lax sheaths. *Stipula* very minute. *Panicle* of a few long-stalked spikelets, turned most to one side. Outer valve of the *calyx* extremely narrow, acute ; inner 3-ribbed, awned. *Florets* slender, cylindrical, each with a tapering rough point, and a long upright *awn* ; inner valve very thin and pellucid, roughish at the edges near the summit only, the green lateral ribs smooth. *Germen* elliptic-oblong. *Styles* scarcely any. *Stigmas* feathery, minute. *Seed* oblong, deeply channelled above, convex beneath, downy at the point, quite unconnected with the glumes, which remain unaltered. Schrader describes the flowers of this and the following with only one *stamen*, which we have not observed in England. Mr. Sowerby has drawn 3 in the present species, as has Leers in the next.

6. *F. Myurus*. Wall Fescue-grass.

Panicle drooping, elongated, rather close. Florets tapering, shorter than their awns, rough at the top. Leaves awl-shaped. Stem leafy to the very summit.

F. Myurus. Linn. Sp. Pl. 109. *Willd. v.* 1. 422. *Fl. Br.* 118. *Engl. Bot. v.* 20. *t.* 1412. *Knapp t.* 70. *Hook. Scot.* 39. *Schrad. Germ. v.* 1. 327. *Host Gram. v.* 2. 66. *t.* 93. *Leers* 34. *t.* 3. *f.* 5. *Ehrh. Calam.* 15.

F. n. 1443. *Hall. Hist. v.* 2. 216.

Gramen murorum, spicâ longissimâ. Raii Syn. 415. *Ger. Em.* 29.* *f.* bad.

G. avenaceum murorum, spicâ longissimâ. Moris. v. 3. 215. *sect.* 8. *t.* 7. *f.* 43.

G. festuceum myurum, minori spicâ heteromallâ. Barrel. Ic. t. 99. *f.* 1. *Scheuchz. Agr.* 294. *t.* 6. *f.* 12.

On walls, and barren sandy ground, frequent.

Annual ; according to Schrader biennial. *June, July*.

Nearly akin to the last, with which every part of the fructification agrees; but the whole plant is larger and stouter; the *stem* clothed with *leaves* to the top; and the *panicle* four times as long, rendering the plant very conspicuous when waving in the wind on the ridge of some ruined wall. It is perhaps "the trembling rye-grass" of poets.

Scheuchzer's figure represents a variety with more downy or hairy *spikelets* than I have ever seen, though they are sometimes rough with minute points, nearly all over.

7. *F. uniglumis*. Single-husked Fescue-grass.

Panicle erect, nearly simple. Florets tapering, compressed, awned. One valve of the calyx very short.

F. uniglumis. Soland. in *Ait. Hort. Kew. ed. 1. v. 1. 108. Fl. Br. 118. Engl. Bot. v. 20. t. 1430. Knapp t. 71. Dick. H. Sicc. fasc. 17. 1.*

F. avenacea sterilis humillima, spicâ unam partem spectante. Petiv. Conc. Gram. 101. Dill. in Raii Syn. 413. under n. 3. t. 17. f. 2; but the citation of Raii Syn. ed. 2. belongs to Bromus diandrus.

Lolium bromoides. Huds. 55. With. 169. Hull. 27.

On the sandy sea coast, chiefly of Sussex.

In Mersey island near Colchester, Essex. Dale. At Southend. Mr. E. Forster.

Biennial. June.

Root fibrous, slightly downy. Stems several, from 6 to 14 inches high, erect, leafy nearly to the top, simple, very smooth. Leaves acute, somewhat involute; very smooth at the back; furrowed, and often hairy, on the upper side. Sheaths longer than the leaves, ribbed, smooth; the uppermost large and inflated. Stipula short, obtuse. Panicle rather close; its stalks all compressed, dilated upwards, rough-edged. Spikelets erect, or a little turned to one side. Florets keeled, not cylindrical. Awns long, rough, often purplish. One valve of the calyx is so minute as to be scarcely discernible, by which character this species is readily known from all our other grasses, though it agrees in that respect with *Stipa membranacea* of Linnæus. The latter is a true *Festuca*, scarcely differing from this, indeed, except in being larger, with longitudinally furrowed flower-stalks. I believe it to be only a more luxuriant state of the same plant.

8. *F. gigantea*. Tall Fescue-grass.

Panicle drooping, twice compound, spreading. Florets from three to six, ovate-lanceolate, shorter than their awns. Stipula abrupt, auricled, clasping the stem.

F. gigantea. Villars Dauph. v. 2. 110. Fl. Br. 120. Engl. Bot. v. 26. t. 1820. Hook. Scot. 39.

F. avenacea sterilis elatior, spicis aristatis in gyrum contortis. *Rel. Rudb.* 17. f. 21.

Bromus giganteus. *Linn. Sp. Pl.* 114. *Willd.* v. 1. 435. *Huds.* 51. *Curt. Lond. fasc.* 5. t. 7. *Knapp* t. 87. *Schrad. Germ.* v. 1. 362. *Schreb. Gram.* v. 1. 88. t. 11. *Host Gram.* v. 1. 6. t. 6. *Leers* 39. t. 10. f. 1. *Ehrh. Phyt.* 52. *Weigel Obs.* 11. t. 1. f. 5.

B. n. 1510. *Hall. Hist.* v. 2. 238.

Gramen avenaceum glabrum, paniculâ e spicis raris strigosis compositâ, aristis tenuissimis. *Raii Syn.* 415.

G. bromoides aquaticum latifolium, paniculâ sparsâ tenuissimè aristatâ. *Scheuchz. Agr.* 264. t. 5. f. 17.

G. sylvaticum glabrum, paniculâ recurvâ. *Vaill. Par.* 93. t. 18. f. 3.

β. *Hook. Scot.* 39.

Festuca triflora. *Engl. Bot.* v. 27. t. 1918. *Comp.* 18.

Bromus triflorus. *Linn. Sp. Pl.* 115. *Willd.* v. 1. 436. *Fl. Dan.* t. 440. *Sm. Tr. of Linn. Soc.* v. 8. 276.

Gramen bromoides paniculâ sparsâ, locustis minoribus aristatis. *Scheuchz. Agr.* 511. t. 5. f. 19.

In woods and hedges that are rather moist.

β. In more dry or barren ground.

At Saham, Norfolk. *Mr. Crowe*. On the banks of the Esk, near Forfar. *Hooker*.

Perennial. *July, August.*

Root tufted, of many strong, partly woolly, fibres. *Stems* three or four feet high, erect, simple, leafy, round, striated, smooth, with several joints. *Leaves* nearly upright, a foot long, lanceolate, taper-pointed, dark green, broad, flat, with a mid-rib which is pale underneath, and several parallel, lateral, roughish ribs; the interstices striated; edges rough. *Sheaths* striated, smooth and naked, not hairy; the upper ones longer than their leaves; lower short. *Stipula* very short, brown or purplish, often jagged, with an acute auricle at each side, clasping the stem. *Panicle* a little drooping, twice compound, the primary branches 2 or 3 together, the rest alternate, all angular and rough. *Spikelets* alternate, drooping, ovate, not half an inch long without the awns, generally of 4 or 5 perfect *florets*, with the rudiments of another. *Valves* of the *calyx* lanceolate, keeled, pointed; the outer narrow, sometimes awl-shaped, without any lateral ribs; inner with 3 rough ribs, including the keel. *Outer valve* of the *corolla* ovate-lanceolate, scarcely keeled, 5-ribbed at the upper part, smooth, acute, and often cloven, at the summit, the mid-rib extended into a capillary, rough, whitish, often wavy, *awn*, half as long again as the glume; inner valve very thin, a little concave, cloven at the point, its lateral ribs smooth to the naked eye, but appearing under a magnifier finely downy, as in others of this genus, not coarsely fringed as in *Bromus*. *Nectary* acutely cloven. *Germen* elliptic-oblong. *Styles* short. *Stigmas* feathery, oblong, scarcely compound. *Seed* oblong, dark brown,

r purplish, covered with the unchanged corolla, but I believe not combined with either glume.

β is a much more delicate, paler, and narrower-leaved grass, about 2 feet high, with a smaller, more upright, *panicle*; the outer valve of the *calyx* sometimes a mere bristle. But though reckoned distinct by Linnæus and Scheuchzer, it proves, when carefully examined, to be marked by no real specific character, the number of *florets* being undoubtedly variable.

9. *F. calamaria*. Reed Fescue-grass.

Panicle repeatedly compound, spreading, erect. Florets from two to five, oblong, cylindrical, keeled, angular, pointed; inner valve folded in the middle.

F. calamaria. *Fl. Br.* 121. *Engl. Bot.* v. 14. t. 1005. *Knapp* t. 72. *Hook. Scot.* 39. *Wade Pl. Rar. Hib.* 7.

F. sylvatica. *Villars Dauph.* v. 2. 105. *Schrad. Germ.* v. 1. 337. *Host Gram.* v. 2. 56. t. 78.

Poa sylvatica. *Pollich* v. 1. 83; *excl. Haller's syn.*

P. trinervata. *Ehrh. Calam.* 36. *Schrad. Spicil.* 3. *Willd. Sp. Pl.* v. 1. 389. "*Fl. Dan.* t. 1145."

Gramen paniculatum nemorosum latifolium glabrum, paniculâ nutante, non aristatâ. *Till. Pis.* 75; in the Sherardian herbarium from the author.

β . *Hook. Scot.* 40.

Festuca decidua. *Bellardi MSS. Engl. Bot.* v. 32. t. 2266. *Comp.* 18.

In mountainous woods of Scotland, Ireland, and the north-west part of England.

Root fibrous, tufted. Stems several, upright, 2 or 3 feet high, leafy, round, smooth; sheathed at the bottom with many short, blunt-pointed, polished scales. Leaves lanceolate, or linear, flat, taper-pointed, erect, striated, many-ribbed, rough at the edges, and sometimes on both sides; their length from 6 to 18 inches; their colour a deep green. Sheaths cylindrical, striated, roughish upwards; those of the upper leaves very long. Stipula short, jagged; the uppermost a little pointed. Panicle spreading while in flower, afterwards close; the branches slender, angular, smooth except the ultimate ones. Spikelets small in comparison with the herbage, erect, often tinged with purple or brown. Cal. of one awl-shaped, and one linear valve, both pointed, but rather membranous than awned at the tip. Outer valve of the corolla lanceolate, but inflexed at the edges, roughish upwards, keeled, with a remote rib at each side, the point elongated, membranous, with scarcely any traces of an awn, though sometimes strongly keeled to the tip of the membrane, and in β slightly awned occasionally; inner valve cloven, its 2 ribs smooth, and brought so nearly together by a central fold of the

membrane, as often to assume the appearance of a simple keel; in β they are sometimes rough. *Nect.* cloven. *Germen* oval. *Styles* very short. *Stigmas* cylindrical, feathery, small.

β is a smaller plant, with much narrower *leaves*, and scarcely more than 2 perfect *florets*, the upper ones falling off early, for want of strength. I am entirely obliged to my friend Prof. Hooker, for suggesting it to be a variety only, differing from the original species as *F. triflora* does from *gigantea*.

10. *F. loliacea*. Spiked Fescue-grass.

Spike two-ranked, drooping. Spikelets nearly sessile, linear-oblong. Florets cylindrical, awnless, pointed, with five slight ribs at the top.

F. loliacea. *Huds. ed.* 1. 38. *With.* 157. *Fl. Br.* 122. *Engl. Bot.* v. 26. t. 1821. *Curt. Lond. fasc.* 6. t. 9. *Knapp* t. 74. *Hook. Scot.* 40. *Willd. Sp. Pl.* v. 1. 426. *Schrad. Germ.* v. 1. 341. *Sincl.* 61.

F. elongata. *Ehrh. Calam.* 93.

F. fluitans β . *Huds.* 47.

Poa n. 1452. *Hall. Hist.* v. 2. 219.

Gramen loliaceum vulgare, spicis rariùs dispositis. *Moris.* v. 3. 182. *sect.* 8. t. 2. f. 2.

In rich moist pastures and meadows, not uncommon.

Perennial. *June, July.*

Many botanists have taken this grass for a variety of our *Glyceria fluitans*, and more perhaps have overlooked it for *Lolium perenne*; yet it is certainly distinct from both, as Mr. Curtis has well demonstrated. The *root* is fibrous. *Stems* several, erect, 2 feet high, simple, leafy, round, very smooth, of a pale green like the rest of the plant. *Leaves* linear, narrow, flat, smooth; with long smooth *sheaths*; and extremely short *stipulas*, embracing the *stem* at each side with a small acute auricle, as in *F. gigantea*. *Spike* a span long, or more, generally unbranched, of many alternate, nearly or quite sessile, oblique, smooth, pale, upright, compressed *spikelets*, on a wavy, angular, *common stalk*, channelled alternately to receive them, and rough at the angles, which droops more or less in the upper part. *Valves* of the *calyx* very unequal; the smaller lodged in each channel of the stalk, linear-lanceolate, varying in size, sometimes wanting; larger opposite, many-ribbed, bluntish. *Florets* 10 or 12, cylindrical; smooth below; compressed and keeled at the summit, with 2 slight ribs at each side, and roughish, ending in an acute membrane, sometimes attended by a small point, like the rudiment of an *awn*; inner valve nearly as large, downy at the ribs. *Germen* obovate. *Styles* very short. *Stigmas* densely feathery along the upper side. The *seeds* are rarely perfected.

11. *F. pratensis*. Meadow Fescue-grass.

Panicle nearly upright, branched, spreading, turned to one side. Spikelets linear, compressed. Florets numerous, cylindrical, obscurely ribbed. Nectary four-cleft. Root fibrous.

F. pratensis. Huds. ed. 1. 37. Fl. Br. 123. Engl. Bot. v. 23. t. 1592. Curt. Lond. fasc. 6. t. 7. Mart. Rust. t. 84. Knapp t. 73. Hook. Scot. 40. Schrad. Germ. v. 1. 332.

F. elatior. Linn. Fl. Suec. 32. Host Gram. v. 2. 57. t. 79. Schreb. Gram. v. 1. 34. t. 2. Leers 35. t. 8. f. 6. Ehrh. Calam. 44.

F. fluitans γ . Huds. 47.

Poa n. 1451. Hall. Hist. v. 2. 219.

Gramen paniculatum elatius, spicis longis muticis squamosis. Raii Syn. 411; but not Barrel. Ic. t. 25.

G. loliaceum, paniculâ multiplici et spicatâ. Scheuchz. Agr. 200. t. 4. f. 6.

In rather moist pastures and meadows.

Perennial. June, July.

Root fibrous, tufted. Stems several, erect, about 2 feet high, simple, leafy, round, very smooth, bent at the lowest joint only. Leaves linear, pointed, spreading, flat, striated; rough at the edges, sometimes on the upper side, especially the uppermost. Sheaths striated, very smooth. Stipula very short and obtuse, often torn, decurrent, clasping the stem. Panicle nearly erect, simply or doubly branched, the branches inclining to one side, solitary or in pairs, unequal, with compressed, rough stalks; all closed together after flowering. Valves of the calyx rather acute, keeled, smooth; the larger ovate-lanceolate, with 3 or 5 ribs; smaller single-ribbed. Spikelets linear, of 8 or 9 florets. Outer valve of the corolla cylindrical, keeled, more or less purple, smooth, except the keel, obscurely 5-ribbed at the upper part, ending in a membranous point, which, in the upper florets chiefly, is often cloven, and attended by a short awn; inner valve cloven, its marginal ribs downy. Nectary with 4 divaricated points. Germen obovate, with short distant styles, and thick feathery stigmas. Seed lanceolate, channelled along the upper side, loose, acute.

A hardy early grass, affording a plentiful crop. Curtis.

12. *F. elatior*. Tall Fescue-grass.

Panicle somewhat drooping, much branched, spreading loosely every way. Spikelets ovate-lanceolate. Florets numerous, cylindrical, somewhat awned, obscurely ribbed. Nectary four-cleft. Root creeping.

F. elatior. Linn. Sp. Pl. 111. Fl. Br. 124. Engl. Bot. v. 23. t. 1593. Curt. Lond. fasc. 6. t. 8. Hook. Scot. 40. Sincl. 255, 257. Schrad. Germ. v. 1. 333.

F. arundinacea. Schreb. *Spicil.* 57. Ehrh. *Calam.* 125. Villars *Dauph.* v. 2. 106. t. 4.

Bromus littoreus. Willd. *Sp. Pl.* v. 1. 14. Host *Gram.* v. 1. 7. t. 8. *Sincl.* 259.

B. n. 1511. Hall. *Hist.* v. 2. 238.

Gramen arundinaceum aquaticum, paniculâ avenaceâ. Raii *Syn.* 411.

G. paniculatum nemorosum, latiore folio, glabrum, paniculâ nutante non aristatâ. Dill. in Raii *Syn.* 411; but the plant of Micheli is *F. calamaria*, n. 9.

G. loliaceum, spicâ divisâ, pratense majus. Moris. v. 3. 183. sect. 8. t. 2. f. 15.

G. arundinaceum, locustis viridi-spadiceis loliaceis, brevius aristatis. Scheuchz. *Agr.* 266. t. 5. f. 18.

Dover Grass. Herb. Sherard.

In moist meadows, osier-grounds, and the borders of ditches and ponds, much less frequent than the last.

Perennial. June, July.

Root somewhat creeping, with downy fibres, penetrating deeply into the mud or clay. Stem about four feet high, reedy, striated, smooth, leafy. Leaves linear-lanceolate, twice or thrice as broad as the preceding, and much longer, many-ribbed, smooth, except at the edges. Sheaths very long, smooth. Stipula much like the last. Panicle a foot or more in length, repeatedly compound, spreading in every direction. Every part is nearly twice the size of *F. pratensis*. Spikelets ovate, less compressed, rather more glaucous, and less purple. Fl. sometimes with considerable awns, generally with the rudiments of them, just below the cloven membranous summit of the outer valve of the corolla. Nect. with 4 upright points.

A coarse but nutritious grass, making sometimes a considerable part of the crop of marshland hay.

13. *F. sylvatica*. Slender Wood Fescue-grass.

Spike simple, drooping. Spikelets nearly cylindrical, turned to one side. Awns longer than their glumes. Leaves hairy. Root fibrous.

F. sylvatica. Huds. ed. 1. 38. Mart. *Rust.* t. 114. Knapp t. 76. Dicks. *H. Sicc. fasc.* 13. 9. Lightf. 103.

F. pinnata β. Huds. ed. 2. 48.

F. gracilis. "Moench. *Meth.* 191." Schrad. *Germ.* v. 1. 343.

Bromus sylvaticus. Pollich v. 1. 118. Fl. Br. 136. Engl. Bot. v. 11. t. 729. Tr. of Linn. Soc. v. 4. 300. Hull 26. Hook. Scot. 40. *Sincl.* 273. Pourret *Act. Tolos.* v. 3. 308. Host *Gram.* v. 1. 17. t. 21.

B. gracilis. Weig. *Obs.* 15. t. 1. f. 11. Roth *Germ.* v. 2. p. 1. 145. Willd. *Sp. Pl.* v. 1. 438. Ehrh. *Calam.* 107.

B. pinnatus. *Fl. Dan.* t. 161.

Triticum n. 1432. *Hall. Hist.* v. 2. 213.

Gramen avenaceum dumetorum spicatum. *Raii Syn.* 394.

G. loliaceum corniculatum latifolium, spicis teretiusculis angustis et glabris. *Scheuchz. Agr.* 36.

In dry copses, thickets, and hedges, not rare.

Perennial. *July*.

Root fibrous, tufted. *Stems* 2 feet high, or more, round, leafy, simple, smooth or a little hairy; very slender, naked, and somewhat inclining at the top. *Leaves* spreading, flat, pointed, ribbed, rough, more or less hairy, bright green; tawny or yellow towards autumn, but lasting long. *Sheaths* close, hairy. *Stipula* short, blunt, notched, or torn. *Spike* simple, from 3 inches to a span long, drooping at the top, rarely divided at the bottom. *Spikelets* alternate, sessile, slender, an inch or more in length, generally hairy, inclining more or less to one side; their *common stalk* wavy, angular, scarcely rough. *Calyx-glumes* unequal, lanceolate, many-ribbed, hairy; the smaller pointed; larger awned. *Florets* from 6 to 9, or more, imbricated, somewhat cylindrical; keeled, ribbed, fringed, and hairy at the upper part, with a terminal *awn*; inner valve linear, flat, abrupt, inflexed at the ribs, which are strongly fringed. *Nect.* of 2 acute scales. *Germen* elliptical. *Styles* very short. *Stigmas* small, feathery. *Seed* linear, channelled, quite unconnected with the glumes which unfold it.

The perfectly loose *seed* has determined me to adopt the opinion of those eminent botanists, who, contrary to my former determination, still refer this plant and the following to *Festuca*. The narrow cylindrical *florets*, and terminal *awns*, strengthen this opinion; though the inner valve of the *corolla* is, in *F. sylvatica*, more strongly fringed than is proper to the present genus. The original name, given by Hudson, is, however, more conveniently retained for this species, than for my *F. calamaria*, n. 9, as having been so generally in use.

14. *F. pinnata*. Spiked Heath Fescue-grass.

Spike simple, erect, two-ranked. *Spikelets* nearly cylindrical. *Awns* shorter than their glumes. *Leaves* nearly smooth. *Root* somewhat creeping.

F. pinnata. *Huds.* 48. *Dicks. H. Sicc. fusc.* 13. 8. *Knapp* t. 75. *Schrad. Germ.* v. 1. 342.

Bromus pinnatus. *Linn. Sp. Pl.* 115. *Willd.* v. 1. 438. *Fl. Br.* 137. *Engl. Bot.* v. 11. t. 730. *Tr. of Linn. Soc.* v. 4. 301. *Rel. Rudb.* 11. *Sincl.* 275. *Pollich* v. 1. 117. *Weig. Obs.* 14. t. 1. f. 10. *Host Gram.* v. 1. 18. t. 22. *Leers* 39. t. 10. f. 3.

Triticum n. 1431. *Hall. Hist.* v. 2. 212.

Gramen spicâ brizæ majus. Bauh. Prodr. 18. f. Theatr. 133. f. Raii Syn. 392. Moris. v. 3. 205.

G. loliaceum corniculatum. Scheuchz. Agr. 35.

In open fields and heaths on a chalky soil.

Not uncommon in Yorkshire, Oxfordshire, and Kent.

Perennial. July.

Root scaly, slightly creeping. Whole plant more rigid, and less hairy than the last, the *spike* more elegant, erect, and smooth, with more numerous *florets*, whose *awns* are shorter than the glumes, and sometimes scarcely evident. The inflexed edges of the inner valve of the *corolla* almost meet, covering the *seed*, though quite unconnected therewith; their ribs are less strongly fringed than in *F. sylvatica*.

52. BROMUS. Brome-grass.

Linn. Gen. 36. *Juss.* 32. *Fl. Br.* 125. *Lam. t.* 46.

Cal. of 2 unequal, ovate or lanceolate, acute, compressed, awnless, many-ribbed valves, containing an ovate, or oblong, compressed, imbricated *spikelet*, of many alternate, two-ranked, awned, perfect *florets*. *Cor.* of 2 unequal valves; the outer elliptical, rarely lanceolate, concave, scarcely compressed, more or less ribbed, longer than the calyx, flat, or a little inflexed, at the edges; cloven at the summit; awned at the back just below the summit; *awn* tapering, wavy, direct, generally as long as the glume, or longer, decurrent at the base; inner glume nearly as long as the outer, but much narrower, two-ribbed, cloven or entire at the summit, its margins membranous, folded in at each rib, which is strongly fringed with rather distant bristles, curved upward. *Nect.* a deeply divided scale, or of 2 distinct entire ones. *Filam.* capillary, shorter than the *cor.*, sometimes but 2. *Anth.* generally short, pendulous, notched at each end. *Germ.* ovate. *Styles* distant, lateral. *Stigmas* densely feathery. *Seed* elliptic-oblong, depressed, downy at the summit, concave or channelled on the upper side, which is united to the unchanged inner valve of the *corolla*, the other valve being usually loose.

Root mostly annual or biennial; perhaps always one or the other in the genuine species. *Stems* one or more, erect, simple, leafy. *Herbage* more or less downy, or hairy. *Panicle* somewhat branched, many-flowered.

1. *B. secalinus.* Smooth Rye Brome-grass.

Panicle spreading; slightly subdivided below. *Spikelets*

ovate, of about ten, distinct, somewhat cylindrical, smooth florets. Awns wavy, shorter than the glumes. Leaves slightly hairy.

B. secalinus. *Linn. Sp. Pl.* 112. *Willd. v. 1.* 428. *Fl. Br.* 125. *Engl. Bot. v. 17. t.* 1171. *Tr. of Linn. Soc. v. 4.* 281. *Knapp t.* 79. *Hook. Scot.* 41. *Schrad. Germ. v. 1.* 347. *Host Gram. v. 1.* 10. *t.* 12. *Ehrh. Calam.* 45. *Leers* 36. *t.* 11. *f.* 2, not excellent.

B. polymorphus γ . *Huds.* 49.

B. vitiosus. *Weig. Obs.* 4. *t.* 1. *f.* 2.

Festuca avenacea, spicis habitioribus, glumis glabris. *Raii Syn.* 414.

F. graminea, glumis glabris. *Scheuchz. Agr.* 251. *t.* 5. *f.* 10.

Gramen avenaceum, locustis majoribus squamatis, segetale majus. *Moris. v. 3.* 212. *sect.* 8. *t.* 7. *f.* 16.

In cornfields.

Annual. *July—September.*

Root fibrous, downy. *Stem* 3 feet high, round, smooth, with 4 or 5 somewhat downy knots. *Leaves* linear, pointed, flat, with many minutely hairy ribs; the edges, and upper side, besprinkled with longer hairs. *Sheaths* striated, smooth and naked. *Stipula* short and blunt. *Panicle* erect; the lower branches whorled, and somewhat compound; upper alternate and simple; all angular and rough, spreading as the seed ripens. *Spikelets* ovate-oblong; their *florets* imbricated whilst in bloom; minutely downy towards the edges and summit; convex at the back, without any keel; obscurely 2-ribbed at each side; subsequently, by the inflexion of their edges, the florets become cylindrical, and their common stalk appears between them. The *awns* are sometimes much shorter than the glumes, inserted below the bluntish cloven point, and more or less wavy. The inner *valve* is very obtuse, its ribs strongly toothed, or fringed, with distant bristles. *Styles* from the opposite sides of the germen, below the top. *Seed* elliptic-oblong; convex and loose at the back; channelled along the front, or upper surface, to which the channelled permanent inner valve of the *corolla* is closely attached. As the *seed* ripens, the *spikelets* become pendulous.

A useless, and rather troublesome, weed in arable land.

2. *B. velutinus.* Downy Rye Brome-grass.

Panicle spreading; scarcely subdivided. *Spikelets* ovate-oblong, of from ten to fifteen crowded, elliptical, downy florets. *Awns* as long as the glumes. *Leaves* slightly hairy.

B. velutinus. *Schrad. Germ. v. 1.* 349. *t.* 6. *f.* 3. *Hook. Scot.* 41.

B. multiflorus. *Sm. Tr. of Linn. Soc. v. 4.* 283. *Fl. Br.* 126. *Engl. Bot. v. 27. t.* 1884. *Knapp t.* 80.

Festuca graminea, glumis hirsutis. *Bauh. Pin.* 9. *Theatr.* 143, f. *Scheuchz. Agr.* 250. t. 5. f. 9.

F. spicis habitioribus, glumis incanis. *Petiv. Concord. Gram. n.* 106. *Dill. in Raii Syn.* 414.

In cornfields, rare.

Between Edinburgh and New Haven.

Annual. *July.*

Scarcely so tall as the foregoing. *Panicle* with almost entirely simple branches, and fewer *spikelets*, which are larger, and their *glumes* clothed all over with soft pubescence. *Florets* never becoming separated, or cylindrical, but remaining contiguous, or crowded; though rather less so, and at the same time more numerous, in our specimen than in those sent by Professor Schrader, on whom I am obliged to rely for its not being *B. multiflorus* of Weigel, which he declares to be *arvensis*.

Haller confounded this and the preceding under his *n.* 1502.

3. *B. mollis*. Soft Brome-grass.

Panicle erect, rather close, compound. *Spikelets* ovate, downy. *Florets* imbricated, depressed, ribbed. *Awns* as long as the *glumes*. *Leaves* and *sheaths* very soft and downy.

B. mollis. *Linn. Sp. Pl.* 112. *Willd. v.* 1. 429. *Fl. Br.* 126. *Engl. Bot. v.* 15. t. 1078. *Tr. of L. Soc. v.* 4. 284. *Curt. Lond. fasc.* 1. t. 8. *Mart. Rust. t.* 99. *Knapp t.* 77. *Hook. Scot.* 41. *Sincl.* 59. *Schrad. Germ. v.* 1. 351. *Host Gram. v.* 1. 16. t. 19. *Schreb. Gram. v.* 1. 60. t. 6. f. 1, 2. *Leers* 37. t. 11. f. 1. *Weig. Obs.* 7. t. 1. f. 4. *Ehrh. Calam.* 55.

B. polymorphus α. *Huds.* 48.

B. hordeaceus. *Linn. Sp. Pl. ed.* 1. 77.

B. n. 1504. *Hall. Hist. v.* 2. 236.

Festuca avenacea hirsuta, paniculis minùs sparsis. *Raii Syn.* 413.

Gramen avenaceum pratense, paniculâ squamatâ et villosâ. *Moris. v.* 3. 213. *sect.* 8. t. 7. f. 18.

G. avenaceum, locustis villosis angustis candicantibus et aristatis. *Scheuchz. Agr.* 254. t. 5. f. 12.

In fields and pastures every where, as well as on waste ground, walls, and banks.

Biennial. *June.*

Root fibrous, whitish. *Stem* 2 feet high, or more, in good ground, much more dwarf, scarcely 2 or 3 inches, in dry barren places, when it becomes *B. nanus* of Weigel, *Obs.* 8. t. 1. f. 9, as we have it from himself. The *leaves* are very soft to the touch, hoary with fine, short, dense hairs, as are also the *sheaths*, but the *stem* more frequently smooth, with downy joints, or knots. *Stipula* short, with an obtuse point. *Panicle* 2 or 3 inches long, hoary and downy all over, a little spreading when in full flower,

but otherwise erect and close; its branches half-whorled; the uppermost simple; some of the rest more or less subdivided; all angular and downy. *Spikelets* numerous, nearly erect in every stage of growth, ovate, acute, rather tumid. *Glumes* downy in every part, except occasionally at the base; those of the *calyx* elliptical, acute; the larger with 5 or 7 strong ribs, sometimes more; the smaller with 3. *Florets* 7—10, rarely fewer, closely imbricated in every state, elliptical, concave and depressed, not at all cylindrical; the outer valve with 7 strong ribs, membranous at the margin, blunt and deeply cloven at the extremity, with a strong straight *awn* continued from the midrib, and about the length of the glume. *Styles* distant. *Seed* large, elliptical, depressed, nearly flat, united with both valves of the *corolla*, the inner one being obovate, entire, strongly fringed. This grass makes a part of the general crops of hard-land hay, but according to Mr. Sinclair, its crop of herbage is small and of little value.

4. *B. racemosus*. Smooth Brome-grass.

Panicle nearly erect, spreading, slightly branched. *Spikelets* ovate-oblong, naked. *Florets* imbricated, depressed, ribbed. *Awns* as long as the glumes. *Leaves* somewhat downy.

B. racemosus. *Linn. Sp. Pl.* 114. *Willd. v. 1.* 436. *Fl. Br.* 128. *Engl. Bot. v. 15.* t. 1079. *Tr. of Linn. Soc. v. 4.* 286. *Knapp t.* 78. *Hook. Scot.* 41. *Schrad. Germ. v. 1.* 352.

B. pratensis. *Ehrh. Calam.* 116. *Engl. Bot.* 1984, at the bottom. *Comp.* 19.

B. arvensis. *Knapp t.* 82. *Dicks. H. Sicc. fasc.* 18. 5. *Engl. Bot. v. 13.* t. 920, excluding the synonyms. *Sincl.* 55.

Festuca avenacea, *spicis strigosioribus, e glumis glabris compactis*. *Raii Syn.* 414. *Buddle's Herbarium*.

Grænen avenaceum pratense, glumâ tenuiore glabrâ. *Moris. v. 3.* 213. *sect. 8. t. f.* 19. *Bobart's Herbarium*. *Dill. in Raii Syn.* 414.

G. avenaceum hirsutum annuum, paniculâ ampliore, magisque sparsâ, locustis crassioribus glabris et aristatis. *Till. Pis.* 74. *Sherard's Herb. from the author*.

G. loliaceum alpinum, spicâ exili, rarioribus locustis. *Ponted. Comp.* 46. *Herb. Sherard*.

In meadows and pastures.

At Holkham, Norfolk. *Mr. Crowe*. Earsham, Norfolk. *Mr. Woodward*. Boyton, Wilts. *Mr. Lambert*. Also at Buttersea, and in various other parts of Britain.

Annual, or Biennial. *June*.

A very distinct species from the preceding, more slender in habit, and much less downy, not at all soft to the touch. The *panicle*

is generally simple, its branches longer, and less divided, rough with minute bristles, not downy. *Spikelets* larger, more turgid, rough to the touch, but naked and shining. Outer valve of the *corolla* marked with 2 green ribs at each side, which are scarcely at all prominent, nor are there furrows between them as in *B. mollis*. No one who has seen the plants together can mistake them. The *florets* vary in number from 5 to 10. Authentic specimens, and Professor Schrader's accurate inquiries, have enabled me to correct the synonyms of this species, and of *B. arvensis* hereafter described. Much of the mass of error, which had always enveloped this genus, was by similar means cleared away in the 4th vol. of the Linnæan Society's Transactions; but the confusion among German authors, who had in vain undertaken its particular illustration, could be set right by a consummate botanist of that country only.

5. *B. squarrosus*. Corn Brome-grass.

Panicle drooping, scarcely branched. *Spikelets* ovate-oblong. *Florets* about twelve, imbricated, depressed, ribbed. *Awns* widely spreading. *Leaves* downy.

B. squarrosus. *Linn. Sp. Pl.* 112. *Willd. v.* 1. 430. *Huds.* 49. *Fl. Br.* 129. *Engl. Bot. v.* 27. *t.* 1885. *Tr. of L. Soc. v.* 4. 288. *Hook. Scot.* 42. *Schrad. Germ. v.* 1. 350. *Villars Dauph. v.* 2. 115. *Host Gram. v.* 1. 11. *t.* 13.

Avena n. 1501. *Hall. Hist. v.* 2. 235.

Festuca graminea, *glumis vacuis*. *Scheuchz. Agr.* 251. *t.* 5. *f.* 11.

Gramen phalaroides majus acerosum, *nutante spicâ*. *Barrel. Ic.* *t.* 24. *f.* 1.

G. festuceum majus, *locustis crassis lanuginosis*, *aristis recurvis longissimis*. *Buxb. Cent.* 5. 19. *t.* 38. *f.* 1.

In cornfields, a doubtful native.

Near Glastonbury, Somersetshire, and Marshfield, Sussex. *Huds.*

In various parts of Scotland, Mr. G. Don. *Hooker.*

Annual. *July.*

Root small, fibrous. *Stem* a foot high, simple, smooth, striated, leafy except at the upper part. *Leaves* linear, narrow, many-ribbed, besprinkled with soft hairs. *Sheaths* clothed with hairs pointing downwards, like the two last species. *Stipula* short, blunt, hairy. *Spikelets* few, pendulous, large and tumid, full an inch long. *Calyx* strongly ribbed. *Florets* from 8 to 12 or 15, closely imbricated. Outer valve of the *corolla* elliptical, concave, somewhat inflexed at the edges, with 3 or 4 crowded very evident ribs at each side, the whole surface either minutely downy, more or less, or densely hairy, as described by Buxbaum and Host; the summit deeply cloven, furnished at the cleft with a strong, dorsal, rough, tapering, twisting *awn*, about the

length of the glume, strongly divaricated when dry; inner valve obtuse, entire, not one third so broad as the outer, strongly fringed with distant bristles, and attached to the upper concave side of the *seed*. *Nectary* permanent at the base of the *seed*, on the opposite convex side.

Having never been able to see, in any collection, a native British specimen of this species, and having received *B. secalinus* from Sussex as *squarrosus*, by means of an old friend of Mr. Hudson's, I have always doubted the accuracy of his report. If Mr. G. Don had ever seen the true plant, his correct eye could not have confounded it with any other; and yet that it should be found "in various parts of Scotland," though generally confined to the south of Europe, seems, as Professor Hooker hints, not probable.

6. *B. arvensis*. Taper Field Brome-grass.

Panicle spreading, drooping, compound, half-whorled. Spikelets lanceolate, acute. Florets about eight, imbricated, smoothish, with two close ribs at each side. Leaves hairy.

B. arvensis. *Linn. Sp. Pl.* 113. *Fl. Suec. n.* 97. *Willd. v.* 1. 434. *Fl. Br.* 130. *Engl. Bot. v.* 28. *t.* 1984. *Tr. of Linn. Soc. v.* 4. 289. *Rel. Rudb.* 15. *f.* 2. *Hook. Scot.* 42. *Schrad. Germ. v.* 1. 356. *Host Gram. v.* 1. 12. *t.* 14. *Leers* 38. *t.* 11. *f.* 3. *Villars Dauph. v.* 2. 116. *Ehrh. Calam.* 64.

B. spiculi-tenuata. *Knapp t.* 81.

B. versicolor. *Pollich. v.* 1. 109.

B. verticillatus. *Cavan. Ic. v.* 6. 66. *t.* 590.

B. multiflorus. *Weig. Obs. 2. t.* 1. *f.* 1, according to a specimen. *Schrad.*

B. n. 1509. *Hall. Hist. v.* 2. 238.

Festuca elatior, paniculis minus sparsis, locustis oblongis strigosis aristatis purpureis splendentibus. *Raii Syn. ed.* 2. 261. *ed.* 3. 414. *Herb. Sherard.*

F. graminea effusa jubâ. *Scheuchz. Agr.* 262. *t.* 5. *f.* 15.

Aegilops major, caule et foliis arundinaceis, locustis glabrioribus et angustioribus, e fusco xerampelinis. *Dill. Giss.* 130. *append.* 60. *Herb. Sherard.*

In cornfields, rare.

Near Southampton. *Sherard*. In Durham, near the coast. *Mr. Knapp*, & *Mr. W. Backhouse*. Not uncommon in Scotland. *Hooker*.

Annual. *July*.

Stem about 3 feet high, sending out fibrous roots from its lowest joints, erect, simple, except now and then at the base, smooth, leafy, with 4 or 5 hairy knots. *Leaves* spreading, many-ribbed, hairy, rough-edged. *Sheaths* long, ribbed, either nearly smooth,

or thickly clothed with soft deflexed pubescence. *Panicle* very large and conspicuous, with numerous half-whorled, partly compound, harsh, spreading *branches*, the lowermost bracteated, as it were, by a notched scale, various in size and shape. *Spikelets* drooping and finally pendulous, ovate-lanceolate, variegated with purple and green, smooth to the naked eye, but appearing minutely downy when magnified. The outer valve of the *corolla* has 2 lateral ribs at each side, close together, distinctly marked, very different from the more numerous but fainter ribs of *B. racemosus*; *awn* purple, as far as we have seen longer than the glume, and quite straight, inserted below the divided point; inner valve much narrower, very thin, the green ribs fringed with spreading bristles. *Nectary* of 2 notched scales. *Styles* distant, very short. *Anthers* purple.

7. *B. erectus*. Upright Perennial Brome-grass.

Panicle erect, slightly branched. *Spikelets* linear-lanceolate. Florets about eight, loosely imbricated, lanceolate, compressed. *Awn* shorter than the glumes, straight. Radical leaves very narrow, fringed with scattered hairs.

B. erectus. *Huds.* 49. *Fl. Br.* 131. *Engl. Bot.* v. 7. t. 471. *Tr. of L. Soc.* v. 4. 290. *Dicks. H. Sicc. fasc.* 14. 6. *Knapp t.* 86. *Hook. Scot.* 42. *Sincl.* 95. *Schrad. Germ.* v. 1. 357. *Fl. Dan.* t. 1383.

B. agrestis. *Allion. Pedem.* v. 2. 249. *Host Gram.* v. 1. 9. t. 10.

B. perennis. *Villars Dauph.* v. 2. 122.

B. n. 1507. *Hall. Hist.* v. 2. 237.

Festuca avenacea sterilis, spicis erectis. *Raii Syn. ed.* 2. 261. *ed.* 3. 413; *the synonyms erroneous*.

Gramen bromoides pratense, foliis præter culmum angustissimis, rarâ lanugine villosis. *Scheuchz. Agr.* 255. t. 5. f. 13; *in Sherard's Herb. from the author*.

G. bromoides paniculatum, foliis et culmo villosis. *Scheuchz. Agr.* 257; *according to Sherard*.

G. quod Festuca pratensis lanuginosa C. B. *Vaill. Par.* 93. t. 18. f. 2; *synonyms much confused*.

G. avenaceum glabrum, paniculâ purpuro-argenteâ splendente. *Moris.* v. 3. 213. n. 20. *In Bobart's Herbarium*.

G. loliaceum, locustis longis aristatis. *Monti Prodr.* 35. f. 2; *excluding the references to Ray and Morison; from the author in Sherard's Herbarium*.

G. sparteum, longâ et spicatâ paniculâ, lolii utriculis, festucæ potius, majus. *Barrel. Ic.* t. 13. f. 1.

In fields and by road sides, in a sandy soil over chalk.

Not rare in Oxfordshire, where Sherard first noticed this species.

It occurs also in Cambridgeshire, Norfolk, and Kent.

Perennial. *July*.

Few plants, or their synonyms, have been less understood by the

older botanists than this. Linnæus had a specimen with a wrong synonym, but knew nothing of its history, nor has he any where described the species. It differs from all the foregoing in having a strong, perennial, blackish root, and the ribs of the inner valve of the corolla are finely downy, rather than fringed. These characters belong to *Festuca* more than to *Bromus*; and if the seed should prove entirely unconnected with the corolla, as I suspect, it would confirm the relationship of the present plant to the former genus. The numerous radical leaves are remarkable for being very narrow, and fringed unequally with long, white, upright hairs; those on the stem are broader, and nearly naked; all of a fine deep green. Sheaths ribbed, mostly smooth; now and then bearing a few hairs, intermixed with deflexed pubescence. Stipula very short, finally torn. The stem is 2 or 3 feet high. Panicle erect and close, purplish, with yellow or saffron-coloured anthers. Both valves of the corolla acute, cloven; the outer one lanceolate, angular, smooth or downy, more or less compressed, with two strong distant ribs, and 1 or 2 short slight ones, at each side. Awn from just below the membranous point, stout and straight. Styles rather distant. Nectary acute, deeply cloven, tumid at the base.

8. *B. asper*. Hairy Wood Brome-grass.

Panicle drooping, branched. Spikelets linear-oblong. Florets about eight, rather distant, lanceolate, compressed, downy. Awns shorter than the glumes. Leaves uniform; lower ones hairy.

B. asper. Linn. *Suppl.* 411. Willd. *v.* 1. 432. *Fl. Br.* 133. *Engl. Bot.* *v.* 17. *t.* 1172. *Tr. of Linn. Soc.* *v.* 4. 293. *Mart. Rust.* *t.* 126. *Knapp* *t.* 85. *Hook. Scot.* 42. *Schrad. Germ.* *v.* 1. 360. *Host Gram.* *v.* 1. 6. *t.* 7. *Ehrh. Phyt.* 42.

B. ramosus. Linn. *Syst. Veg. ed.* 13. 102; but not *Mant.* 34. *Cullum* 40.

B. nemoralis. *Huds.* 51.

B. nemorosus. *Villars Dauph.* *v.* 2. 117.

B. hirsutus. *Curt. Lond. fasc.* 2. *t.* 8.

B. montanus. *Pollich v.* 1. 116. *Retz. Obs. fasc.* 2. 7.

Poa n. 44. *Gmel. Sib.* *v.* 1. 110. *t.* 21; from the author.

Gramen avenaceum dumetorum, paniculâ sparsâ. *Raii Syn.* 415.

G. avenaceum dumetorum paniculatum majus hirsutum. *Moris.* *v.* 3. 213. *sect.* 8. *t.* 7. *f.* 27.

In moist woods and hedges.

Annual, or biennial. *July, August.*

Root of many stout, pale, spreading fibres. Stem erect, from 4 to 6 feet high, round, leafy; smooth in the upper part. Leaves spreading, deep green, lanceolate, pointed, harsh, many-ribbed, a foot long, and $\frac{3}{4}$ of an inch broad, fringed at the edges, espe-

cially towards the base, with coarse rigid hairs, variously directed. *Sheaths* ribbed, mostly very rough, with deflexed hairs. *Stipula* short, obtuse. *Panicle* a foot long, widely spreading; the branches seldom more than 2 or 3 together, very rough, the larger ones alternately subdivided. *Spikelets* obliquely pendulous, about an inch long, compressed. *Calyx-valves* very unequal, pointed, compressed; the outer smallest, single-ribbed; inner with 3 ribs, hairy towards the margin. Outer valve of the *corolla* resembling the inner one of the calyx, hairy in like manner at the margin, but with 2 slight intermediate smooth ribs; the *keel* extended into a nearly straight, stout, rough *awn*, shorter than the glume, scarcely distinguishable at the origin from its very slender cloven point; inner valve concave, shorter, but not much narrower, obtuse, the ribs finely and rather closely fringed. *Nect.* deeply cloven. *Styles* very short. *Stigmas* densely feathery. *Seed* linear, channelled above, blunt and downy at the summit, slightly attached to the inner valve, not at all to the outer, sometimes indeed quite loose.

This gigantic grass has, like the last species, some points of agreement with *Festuca*, especially in the shape of its glumes, the finer fringe of the inner one, and the narrow, almost perfectly loose, *seed*. The *root* however is certainly not perennial, nor the *awn* terminal. In agriculture this species is useless, but hardly in any way troublesome to the farmer.

The exotic *B. inermis* is another ambiguous species, agreeing in shape of *glumes*, very short *awns*, and loose *seed*, with *Festuca*, to which genus it is referred by Schreber, Haller, and Moench.

9. *B. sterilis*. Barren Brome-grass.

Panicle drooping, mostly simple. *Spikelets* linear-lanceolate. *Florets* about seven, lanceolate, compressed, seven-ribbed, furrowed. *Awns* longer than the glumes. *Leaves* downy.

B. sterilis. *Linn. Sp. Pl.* 113. *Willd. v. 1.* 433. *Fl. Br.* 134. *Engl. Bot. v. 15. t.* 1030. *Tr. of Linn. Soc. v. 4.* 295. *Curt. Lond. fasc. 1. t.* 9. *Mart. Rust. t.* 125. *Knapp t.* 84. *Ger. Em.* 76. *f. Hook. Scot.* 43. *Sincl.* 177. *Schrad. Germ. v. 1.* 364. *Host Gram. v. 1. 13. t.* 16. *Leers* 37. *t. 11. f.* 4. *Ehrh. Calam.* 27.

B. grandiflorus α . *Weig. Obs. 9. t. 1. f.* 6.

B. n. 1505. *Hall. Hist. v. 2.* 237.

Festuca avenacea sterilis elatior, seu Bromos Dioscoridis. *Raii Syn.* 412. *Moris. v. 3.* 212. *sect. 8. t. 7. f.* 11.

Gramen avenaceum, paniculâ sparsâ, locustis majoribus et aristatis. *Scheuchz. Agr. 258. t. 5. f.* 14.

In fields, waste ground, hedges, and on walls, common.

Annual. *June, July.*

Root fibrous, small. *Stems* erect, 18 inches or 2 feet high, leafy,

rather slender, round, smooth, sometimes taking root from the lower joints. *Leaves* linear, narrow, flaccid, soft and downy on both sides, with a few longer hairs at the edges towards the bottom. *Sheaths* striated, angular, clothed more or less with deflexed hairs. *Stipula* short, obtuse, finally torn. *Panicle* a span long, spreading, like the last, but smaller and less subdivided. *Spikelets* pendulous, lanceolate, rough to the touch, tinged with purplish brown, an inch long. *Florets* finally more remote, as well as more numerous and strongly ribbed, than the preceding, with intermediate furrows; the inner valve notched, its ribs more strongly fringed. *Awn* purplish, half as long again as its glume. *Nectary* deeply divided. *Stamens* always 3, as in all the foregoing. *Germen* obovate. *Styles* lateral, very short. *Stigmas* small, feathery, cylindrical. *Seed* lanceolate, channelled along the upper side, and united to the inner valve of the corolla.

The specific name alludes to the unprofitable nature of this grass for the farmer. To whatever genus *B. asper* belongs, the present species ought not to be separated from it, any more than the following.

10. *B. diandrus*. Upright Annual Brome-grass.

Panicle upright, a little spreading, scarcely subdivided.

Florets lanceolate, with two close marginal ribs, and only two stamens.

B. diandrus. *Curt. Lond. fasc. 6. t. 5. Fl. Br. 135. Engl. Bot. v. 14. t. 1006. Tr. of Linn. Soc. v. 4. 296. Knapp t. 83. Graves Br. Gr. t. 102. Hook. Scot. 43. Sincl. 179.*

B. madritensis. *Linn. Sp. Pl. 114. Willd. v. 1. 437. Schrad. Germ. v. 1. 366. Host Gram. v. 1. 14. t. 17.*

B. muralis. *Huds. 50. Sibth. Oxon. 48.*

B. ciliatus. *Huds. ed. 1. 40.*

B. gynandrus. *Roth Catal. v. 1. 15.*

B. sterilis, erectâ paniculâ, major. *Barrel. Ic. t. 76. f. 1.*

Festuca madritensis. *Desfont. Atlant. v. 1. 91.*

F. avenacea sterilis, paniculis confertis erectioribus, aristis brevioribus. *Raii Syn. ed. 2. 261. Pluk. Phyt. t. 299. f. 2. Herb. Sherard.*

F. avenacea sterilis, pediculis brevioribus et spicis erectis. *Moris. v. 3. 212. sect. 8. t. 7. f. 13. Herb. Bobart.*

Gramen bromoides pumilum, locustis erectis majoribus aristatis. *Scheuchz. Agr. 260.*

In sandy ground and on walls, but not general.

Common in Jersey. *Sherard*. At the foot of St. Vincent's rocks, Bristol. *Sir Joseph Banks*. Near Battersea church. *Curtis*. About Edinburgh. *Mr. Arnott*. At Southampton.

Annual. *June*.

Root fibrous, small. *Stems* from 6 to 12 or 14 inches high, erect, stiff, slender, round, smooth, leafy, with about 3 joints. *Leaves*

less downy than in *B. sterilis*, as are also the *sheaths*. *Stipula* similar. *Panicle* totally different, being erect, tufted, and rather close. *Spikelets* also erect, purple or brownish. *Florets* essentially distinguished by having 2 strong ribs only, which are close together, adjoining to the membranous margin at each side. There are occasionally traces of an intermediate rib, in the upper part only, between these and the keel. Hence Professor Schrader describes 7 ribs, including, of course, the keel. Inner *valve* strongly fringed. *Nect.* of 2 narrow scales. *Stamens*, whether in wild or luxuriant cultivated specimens, never more than 2, as Roth also asserts, and as Dr. Withering observed in Portugal. *Styles* short, lateral, much below the summit of the *germen*, to which Roth found the *stamens* likewise attached, but this circumstance is certainly not constant. *Stigmas* dense, feathery. *Seed* lanceolate, channelled, attached to the inner glume. Whether more than one species be really confounded under the above synonyms, there being a vast difference of size in different specimens, even in the respective parts, few botanists are as yet perhaps competent to determine. I cannot question that my accurate friend Schrader has found, as he says, in some instances, 3 *stamens*. This only increases the uncertainty. Content with describing English specimens, as I have seen them, I prefer the excellent name given by a supereminent English botanist; though not the less aware of the impropriety of rejecting an established appellation, however faulty, provided it be not altogether false or absurd.

53. STIPA. Feather-grass.

Linn. Gen. 37. *Juss.* 30. *Fl. Br.* 138. *Lam. t.* 41.

Cal. of 2 nearly equal, lanceolate, concave, lax, pointed valves, containing a solitary *floret*. *Cor.* of 2 valves, nearly equal in length; the outer elliptic-lanceolate, involute, slightly keeled, with a very long, terminal, twisting *awn*, jointed, and finally separable, at the base; inner much narrower, linear, awnless, inflexed at the edges, smooth. *Nect.* of 2 linear-lanceolate, membranous, pointed scales. *Filam.* shorter than the corolla. *Anth.* linear, erect. *Germ.* oblong. *Styles* short, distinct. *Stigmas* cylindrical, feathery. *Seed* cylindrical, pointed, loose, closely enveloped in the hardened outer valve of the *corolla*, which is very sharp, and barbed with bristles, at the base, so as to penetrate and fix itself in the earth.

Roots fibrous, generally tufted and perennial. *Leaves* slender, flat. *Stems* round, jointed, smooth, upright, leafy. *Panicle* simple or branched. *Flowers* erect, slender, with long *awns*, bent just above the twisting part; then straight; either feathery or naked.

† 1. *S. pennata*. Common Feather-grass.

Awns feathery.

S. pennata. *Linn. Sp. Pl.* 115. *Willd. v.* 1. 440. *Fl. Br.* 138. *Engl. Bot. v.* 19. *t.* 1356. *Knapp t.* 88. *Sincl.* 163. *Schrad. Germ. v.* 1. 229.

S. n. 1514. *Hall. Hist. v.* 2. 239.

Gramen sparteum pennatum. *Bauh. Theatr.* 70. *f.* 71. *Dill. in Raii Syn.* 393.

G. sparteum pennatum majus. *Barrel. Ic. t.* 46.

G. spicatum, aristis pennatis. *Scheuchz. Agr.* 153. *t.* 3. *f.* 13, B. *Spartum austriacum*. *Ger. Em.* 42. *f.*

Avena perennis austriaca capillacea, aristis longissimis pennatis. *Moris. v.* 3. 210. *sect.* 8. *t.* 7. *f.* 9.

On dry mountainous rocks ; a doubtful native.

Found by Dr. Richardson, in company with Thomas Lawson, on the lime-stone rocks hanging over a little valley, called Long Sleedale, about 6 miles north of Kendall, Westmoreland. *Dillenius*. Nobody has been able to meet with it since.

Perennial. *June*.

Root fibrous, crowned with several *stems*, a foot high, and dense tufts of upright, long, narrow, acute, dark-green, roughish *leaves*. *Sheaths* striated, very long, especially the uppermost, which is also considerably dilated, and envelops the young *panicle*, rising above it when in flower ; the leaf being recurved, pendulous, involute and striated. *Stipula* oblong, obtuse. *Panicle* simple, erect, of 6 or 7 *flowers*, whose elegant feathery *awns*, about a foot long, attract general attention, and are used for ornament, in dress, or otherwise.

54. AVENA. Oat, or Oat-grass.

Linn. Gen. 37. *Juss.* 32. *Fl. Br.* 139. *Lam. t.* 47.

Cal. of 2 rather unequal, ovate-lanceolate, concave, lax, membranous-pointed, awnless valves, containing a lax *spikelet*, of several alternate *florets*. *Cor.* of 2 unequal valves ; the outer firmer than the calyx, and about the same size, ovate, involute, so as to be nearly cylindrical, pointed at each end, concave ; deeply cloven at the summit, bearing from the middle of the back a stout *awn* ; spirally twisting in its lower part ; simple and tapering above ; spreading when dry ; inner valve ovate, smaller, awnless. *Nect.* of 2 lanceolate scales. *Filam.* shorter than the corolla. *Anth.* rather short. *Germ.* obtuse. *Styles* somewhat lateral, short, distinct. *Stigmas* densely feathery. *Seed* elliptic-oblong, with a narrow channel along its upper side, sometimes downy, closely enveloped

in the hardened outer valve of the corolla, retaining its awn.

Root annual or perennial. *Habit*, as well as the size of the *flowers*, extremely various. *Panicle* compound, or simple. *Glumes* shining.

1. *A. fatua*. Wild Oat, or Haver.

Panicle erect, compound. *Spikelets* pendulous. *Florets* about three, shorter than the calyx, bristly at the base, with an oblique scar, all awned.

A. fatua. *Linn. Sp. Pl.* 118. *Willd. v. 1.* 447. *Fl. Br.* 139. *Engl. Bot. v. 31. t.* 2221. *Mart. Rust. t.* 81. *Knapp t.* 93. *Hook. Scot.* 43. *Don H. Br.* 80. *Schrad. Germ. v. 1.* 373. *Host Gram. v. 2.* 42. *t.* 58. *Schreb. Gram. v. 1.* 109. *t.* 15. *Leers* 42. *t.* 9. *f.* 4. *Ehrh. Calam.* 28.

A. n. 1495. *Hall. Hist. v. 2.* 233.

A. sylvestris pilosa, aristis recurvis. *Moris. v. 3.* 209. *sect. 8. t.* 7. *f.* 5.

Aegilops quibusdam, aristis recurvis, seu Avena pilosa. *Raii Syn.* 389.

Ae. bromoides. *Ger. Em.* 77. *f.*

Gramen avenaceum, utriculis lanugine flavescentibus. *Scheuchz. Agr.* 239. *t.* 5. *f.* 1.

In cornfields ; where it is often too abundant, especially among barley.

Annual. *June, July.*

Root of several thick, whorled, woolly fibres. *Stem* a yard high, erect, simple, round, very smooth, most leafy below. *Leaves* spreading, flat, linear, finely ribbed, rough, sometimes hairy, as well as their thin smooth *sheaths*. *Stipula* short, abrupt, notched. *Panicle* large and spreading, with half-whorled, slender, rough, simple or compound, branches, which are tumid at the top. *Spikelets* drooping or pendulous. *Calyx* an inch long, green, many-ribbed, chaffy, smooth. *Florets* 2 or 3, tawny, obscurely ribbed ; finally brown, with copious tawny bristles. *Awn* 2 inches long ; spiral, stout and brown in its lower part, which is an excellent hygrometer, well known to natural philosophers. The oblique scar at the base of each *floret* distinguishes this species from *A. sativa*, whose scar is transverse, and the glumes smooth.

The flowers serve rustic fishermen, instead of artificial flies, to catch trout.

2. *A. strigosa*. Bristle-pointed Oat.

Panicle oblong, turned to one side. *Florets* two. Outer valve of the corolla tipped with a double straight bristle.

A. strigosa. Schreb. Lips. 52. Willd. Sp. Pl. v. 1. 446. Fl. Br. 1390. Engl. Bot. v. 18. t. 1266. Comp. 19. Knapp t. 92. Don II. Br. 81. Schrad. Germ. v. 1. 368. Host Gram. v. 2. 41. t. 56. Ehrh. Calam. 38.

In cornfields.

Common in Scotland, Wales, Yorkshire and Cornwall; see Engl. Bot.

Annual. June, July.

Root fibrous, smooth. Stem a yard high. Leaves more or less glaucous, rough to the touch. Stipula short. The whole habit of the plant resembles *A. sativa*, or Common Cultivated Oat, except the panicle, which in *A. strigosa* is more oblong and unilateral, less diffuse; and the florets are essentially characterized by a pair of terminal straight awns to the outer valve, besides the much longer dorsal spiral one, proper to the genus. The same valve is moreover sometimes hairy. The florets, naturally 2, are sometimes 3 or 4. The partial stalk, elevating the second floret, has a lateral tuft of hairs near the top.

3. *A. pubescens.* Downy Oat-grass.

Panicle erect, nearly simple. Florets about three, longer than the calyx. Partial stalk bearded. Leaves flat, downy. Root somewhat creeping.

A. pubescens. Linn. Sp. Pl. 1665. Willd. v. 1. 448. Fl. Br. 140. Engl. Bot. v. 23. t. 1640. Knapp t. 90. Hook. Scot. 43. Sincl. 167. Schrad. Germ. v. 1. 382. Leers 43. t. 9. f. 2. Host Gram. v. 2. 37. t. 50. Fl. Dan. t. 1203. Ehrh. Calam. 7.

A. sesquitertia. Linn. Mant. 1. 34; excl. the reference to Scheuchzer. Willd. Sp. Pl. v. 1. 448.

A. n. 1498. Hall. Hist. v. 2. 234.

Gramen avenaceum 7, seu glabrum (potius hirsutum) paniculâ purpuro-argenteâ splendente. Raii Syn. 406. t. 21. f. 2. ed. 2. 262. n. 10; see also p. 252 & 345.

G. avenaceum, paniculâ purpuro-argenteâ splendente. Scheuchz. Agr. 226. t. 4. f. 20.

In pastures on a chalky, or limestone soil.

Frequent in the open chalky parts of Norfolk, Cambridgeshire, and Oxfordshire, as well as in other counties where the soil is similar.

Perennial. June.

Root strong, in some degree creeping, with slightly downy fibres. Stems $1\frac{1}{2}$ or 2 feet high, simple, straight, except at the lowest joint, smooth, leafy. Leaves flat, obtuse, spreading, clothed all over, as are also the sheaths of the lower ones, with soft spreading hairs. Stipulas acute, triangular; the upper one elongated. Panicle upright; all its branches in general simple, 3 or 4 together, rough, erect, as well as the spikelets. Florets mostly 2, with an imperfect one, all on a long, bent, bearded partial stalk.

Corolla with a purple stain. *Glumes* all shining and pellucid at the summit. *Awn* brown, rough, from the middle of the valve, twice as long as the calyx. *Styles* very short.

4. *A. pratensis*. Narrow-leaved Oat-grass.

Panicle erect, with very short simple branches. Florets about five, longer than the calyx. Partial stalk all over hairy. Leaves involute, finely serrated, naked; sheaths smooth.

A. pratensis. *Linn. Sp. Pl.* 119. *Willd. v.* 1. 451. *Fl. Br.* 119. *Engl. Bot. v.* 17. *t.* 1204. *Knapp t.* 91. *Hook. Scot.* 43. *Sincl.* 201. *Schrad. Germ. v.* 1. 385. *Host Gram. v.* 2. 38. *t.* 51. *Leers* 43. *t.* 9. *f.* 1.

A. bromoides. *Linn. Sp. Pl.* 1666. *Willd. v.* 1. 453. *Gouan Hort.* 52. *A. n.* 1499. *Hall. Hist. v.* 2. 234.

Gramen avenaceum montanum, spicâ simplici, aristis recurvis. Raii Syn. 405. *t.* 21. *f.* 1. *ed.* 2. 252. *n.* 2, & 345.

G. avenaceum angustifolium alpinum, spicatâ paniculâ, ex purpureo, viridi, et argenteo variegatâ. Scheuchz. Agr. 230.

G. avenaceum alpinum glabrum angustifolium, locustis aristatis, in spicam dispositis. Ibid. 228. *t.* 4. *f.* 21, 22.

In dry chalky, or limestone, pastures, and heathy spots.

Perennial. *July*.

Root fibrous, tufted, downy. *Stem* 12 or 18 inches high, erect, stiff, with one joint near the bottom, from which originates the very long smooth *sheath* of the short uppermost *leaf*, investing the greater part of the stem. Most of the *leaves* are radical, tufted, rigid, finely serrated at their involute margins; their *sheaths* broad, smooth, durable. *Panicle* erect, resembling a spike, many of the upper *spikelets* being sessile. *Calyx-valves* narrow, 3-ribbed. *Florets* 4 or 5, the outer valve roughish, ribbed, purplish, with a membranous point, often torn. *Awn* from above the middle, purplish, with a white tip. Inner valve finely fringed. *Nectary* much longer than the germen. *Styles* scarcely any. *Stigmas* oblong, feathery. Hairs of the *common stalk*, or *receptacle*, shorter than in the last.

5. *A. alpina*. Great Alpine Oat-grass.

Panicle erect, slightly branched. Florets about five, longer than the calyx. Partial stalk bearded under each. Leaves flat, minutely serrated, naked; sheaths rough. Root fibrous.

A. alpina. *Sm. Tr. of Linn. Soc. v.* 10. 335.

A. planiculmis. *Engl. Bot. v.* 30. *t.* 2141. *Comp.* 20. *Hook. Scot.* 43; but not *Schrad. Germ. v.* 1. 381. *t.* 6. *f.* 2.

On lofty alpine rocks in Scotland.

Found by the late Mr. G. Don in 1807, upon the rocky summits of the highest mountains of Clova, Angusshire.

Perennial. *July*.

Root of several strong downy fibres, tufted, not creeping. *Stem* 2 feet high, erect, round, striated, smooth, leafy in the lower half. *Leaves* linear, rough-edged, or minutely serrated, flat, naked, with many rough ribs; the radical ones folded, at least when dry, and their extreme margin inflexed; but none of the leaves are involute, as in *A. pratensis*, nor so strongly serrated. *Sheaths* cylindrical, strongly ribbed, rough to the touch; the uppermost very long. *Stipula* triangular, acute, jagged; the uppermost somewhat elongated. *Panicle* 3 or 4 inches long, erect, of a pale silvery brown, but little variegated; branches furrowed, or compressed, rough at the opposite sides with minute erect bristles; tumid and angular at the summit; the lowest divided or branched; the rest simple, erect, often very short and thick. *Spikelets* erect, an inch long at most. *Calyx-valves* lanceolate, concave, each with 3 principal rough ribs, the points acute, thin and pellucid. *Florets* 5 or 6, two-ranked, rather distant, each subtended by a large tuft of bristly hairs, slightly decurrent, but the rest of the *partial stalk* is nearly naked. Outer valve of the *corolla* much like the calyx, but somewhat rougher, and 5-ribbed; deeply cloven at the point. *Awn* terminating the keel about the middle of the glume, brown, rough, partly silky; its lower half strongly twisted when dry; upper bent variously, taper-pointed. The *inner valve* is lanceolate, extremely thin, flat, with finely downy, not inflexed, edges, nor any traces of ribs; the point acute, torn, not cloven.

A specimen from Professor Schrader of his *A. planiculmis* proves different from our plant; having a strong widely-creeping *root*; the *stem*, as well as the *sheaths*, which clothe its lower part, compressed; *leaves* much broader and all flat; *panicle* a span long, more compound, variegated with purple; *spikelets* one third smaller; and the hairs on their *partial stalks* much less tufted.

6. *A. flavescens*. Yellow Oat-grass.

Panicle much branched, spreading, erect. *Florets* about three; longer than the very unequal calyx. *Leaves* flat, a little downy. *Root* somewhat creeping.

A. flavescens. *Linn. Sp. Pl.* 118. *Willd. v.* 1. 449. *Fl. Br.* 142. *Engl. Bot. v.* 14. *t.* 952. *Curt. Lond. fasc.* 3. *t.* 5. *Knapp t.* 89. *Hook. Scot.* 44. *Sincl.* 39. *Schrad. Germ. v.* 1. 377. *Host Gram. v.* 3. 26. *t.* 38. *Schreb. Gram. v.* 1. 76. *t.* 9. *Leers* 44. *t.* 10. *f.* 5. *Ehrh. Calam.* 56.

A. n. 1497. *Hall, Hist. v.* 2. 233.

Gramen avenaceum pratense elatius, paniculâ flavescente, locustis parvis. *Raii Syn.* 407. *Scheuchz. Agr.* 223. t. 4. f. 18.

G. avenaceum, paniculâ flavescente, locustis parvis. *Moris. v.* 3. 215. sect. 8. t. 7. f. 42.

In meadows, pastures, and by road sides, in chalky and limestone countries, frequent; sometimes on dry sandy soils.

Perennial. *July.*

Root more or less creeping. *Stems* a foot high, leafy, smooth, rather slender, with several, sometimes hairy, joints. *Leaves* narrow, taper-pointed, flat, hairy on both sides, many-ribbed. *Sheaths* ribbed, besprinkled with deflexed hairs. *Stipula* short, jagged, fringed. *Panicle* rather close, half-whorled, sometimes a little drooping, of innumerable small, yellowish, shining spikelets; having sometimes 4 *florets*, instead of 2 or 3, in which case their size is evidently increased. *Calyx-valves* acute, very unequal, the larger with 3 ribs. *Outer valve of the corolla*, with 3 or 5 ribs, cloven, its segments not more acute or awn-like than usual; inner notched, inflexed at the edges. *Awn* from above the middle of the outer valve. *Germen* obovate. *Styles* short, distinct, erect. *Stigmas* densely feathery, compound. *Partial stalk of the florets* bristly.

A valuable grass in upland pastures.

55. LAGURUS. Hare's-tail-grass.

Linn. Gen. 37. *Juss.* 30. *Fl. Br.* 143. *Lam. t.* 41. *Gartn. t.* 1.

Cal. single-flowered, of 2 long, slender, membranous, spreading valves, fringed, as well as their terminal awn, with numerous soft hairs. *Cor.* of 2 unequal valves, thicker and firmer than the calyx; the outer longest, ovate-oblong, concave, terminating in two equal upright awns, shorter than the calyx, and bearing a much longer one from the middle of its back, twisting in the lower part, tapering and direct in the upper, reflexed when dry; inner valve smaller, involute, cloven, awnless. *Nectary* deeply cloven, acute. *Filam.* capillary, shorter than the calyx. *Anth.* erect, oblong, cloven at each end. *Germen* elliptic-oblong. *Styles* very short. *Stigmas* cylindrical, feathery. *Seed* oblong, obtuse, with a furrow along the front, loose, but enveloped in the unchanged corolla.

Root fibrous. *Stem* leafy, erect. *Spike* dense, many-flowered.

1. L. ovatus. Ovate Hare's-tail-grass.

L. ovatus. *Linn. Sp. Pl.* 119. *Willd. v.* 1. 453. *Fl. Br.* 143. *Engl. Bot. v.* 19. t. 1334. *Fl. Græc. v.* 1. 71. t. 90. *Dicks. H. Sicc. fasc.* 7. 1. *Schrad. Germ. v.* 1. 227. *Host Gram. v.* 2. 34. t. 46. *Schreb. Gram. v.* 1. 143. t. 19. f. 3.

Alopecuros genuina. *Moris. v. 3. 191. sect. 8. t. 4. f. 1.*

Gramen spicatum tomentosum longissimis aristis donatum.
Scheuchz. Agr. 58. t. 2. f. 4, B, C.

G. alopecuros, spicâ rotundiore. *Bauh. Theatr. 56. f. Monti Prodr. 59. f. 87.*

G. alopecurum molle, spicâ incanâ. *Barrel. Ic. t. 116. f. 1, 2.*

In open sandy fields, near the sea, in the south.

In Guernsey. *Mr. Gosselin.*

Annual. *June.*

Root of several woolly fibres. *Stem* from 4 to 12 inches, or more, in height, erect, with 4 or 5 joints, round, leafy; naked, striated, and smooth at the top. *Leaves* lanceolate, acute, many-ribbed, downy on both sides; wavy at the edges; abrupt, sometimes ovate, at the base. *Sheaths* inflated, ribbed, very downy. *Stipula* oblong, embracing the stem, downy. *Spike* more or less inclining, ovate, many-flowered, woolly from the copious soft hairs of the *calyx*, and beset at the base with numerous empty *glumes* of a similar structure; the upper part is bristly with the numerous, prominent, brownish *awns* of the flowers.

This grass serves, like the *Stipa pennata*, to decorate flower-pots in winter; to which the foreign *Briza maxima* is a welcome addition.

56. ARUNDO. Reed.

Linn. Gen. 38. Juss. 32. Fl. Br. 144. Lam. t. 46.

Cal. of 2 unequal, lanceolate, pointed, keeled, compressed, awnless valves, containing one or more *florets*. *Cor.* of 2 unequal valves; the outer largest, lanceolate, keeled, compressed, pointed; either entire or notched at the extremity; with or without an *awn* from some part of the keel; inner cloven at the point, inflexed at each marginal rib; each valve furnished, at the base, with numerous, erect, soft, slender hairs, gradually elongated as the flowers advance, and finally spreading in every direction. *Nectary* of 2 minute scales. *Filam.* capillary, about the length of the *calyx*. *Anth.* cloven at each end. *Germs* obovate, or oblong. *Styles* short. *Stigmas* feathery, densely tufted. *Seed* oblong, pointed at each end, loose, but enveloped in the corolla, the hairs attached to which serve as wings for the seed.

Root for the most part creeping. *Stems* erect, from 2 to 12 feet high, round, jointed, clothed with harsh, taper-pointed, sheathing leaves. *Panicle* very much branched, of innumerable flowers; in *A. arenaria* close, and spiked.

1. *A. Phragmites*. Common Reed.

Florets about five, awnless, longer than the calyx. Panicle loose.

A. Phragmites. *Linn. Sp. Pl.* 120. *Willd. v. 1.* 454. *Fl. Br.* 144. *Engl. Bot. v. 6. t.* 401. *Knapp t.* 95. *Hook. Scot.* 27. *Schrad. Germ. v. 1.* 223. *t. 5. f.* 4. *Leers* 45. *t. 7. f.* 1. *Ehrh. Calam.* 108. *A. n.* 1515. *Hall. Hist. v. 2.* 240.

A. vallatoria. *Raii Syn.* 401. *Ger. Em.* 36. *f.*

A. vulgaris. *Bauh. Theatr.* 269. *f.* *Scheuchz. Agr.* 161. *t. 3. f.* 14, *D.*

A. palustris. *Matth. Valgr. v. 1.* 134. *f.* *Camer. Epit.* 73. *f.*

A. vulgaris palustris. *Moris. v. 3.* 218. *sect. 8. t. 8. f.* 1.

In marshes, ditches, and about the banks of pools and rivers, very abundant.

Perennial. *July*.

Root creeping. *Stems* stout, about 6 feet high, annual, hollow, very smooth, with many knots. *Leaves* a foot long, or more, lanceolate, many-ribbed, rough-edged, tapering to a fine, almost capillary, point; ovate at the base; smoothest at the back. *Sheaths* long, close, striated, scarcely rough; crowned with tufted silky hairs, which supply the place of a *stipula*. *Panicle* very large, repeatedly compound, the branches half-whorled, greatly subdivided, angular, nearly smooth, close, a little drooping to one side, and waving in the wind. *Glumes* brownish purple, all narrow, and smooth, except the keel of the outer valve of the *corolla*, and the ribs of the inner. There is no *awn*. The hairs in this species spring rather from the common receptacle, or partial stalk; so that the lowermost *floret* is, as Schrader remarks, almost without any, yet not quite so. The rest of the species answer more truly to the generic character, having the hairs on the *corolla* itself, and constituting a most natural well-defined genus; from which nevertheless it would be very rash to separate *A. Phragmites*; for to say nothing of their common habit, there are various gradations. Still less can the solitary *florets* of many species cause them to constitute a separate genus; yet some have attempted this, by the very faulty appellation of *Calamagrostis*, compounded of *two* other established names!

The Common Reed is useful for thatching, garden-fences, &c., and is annually cut, as a regular crop, for such purposes.

2. *A. epigejos*. Wood Reed.

Calyx single-flowered, longer than the *corolla*. *Panicle* erect, close. *Flowers* crowded, unilateral. *Corolla* with a dorsal awn about as long as the hairs and calyx. *Leaves* lanceolate.

A. epigejos. *Linn. Sp. Pl.* 120. *Willd. v. 1.* 456. *Fl. Br.* 145. *Engl.*

Bot. r. 6. t. 403. Knapp t. 97. Schrad. Germ. v. 1. 211. t. 4. f. 1. Ehrh. Calam. 74.

A. Calamagrostis. *Huds. 54. Lightf. 106. Hook. Scot. 27.*

A. n. 1519. *Hall. Hist. v. 2. 241.*

Calamagrostis lanceolata. *With. 122; but not of Roth.*

Gramen arundinaceum, paniculâ molli spadiceâ, majus. *Raii Syn. 401. Bauh. Theatr. 94. f. 95. Scheuchz. Agr. 122. t. 3. f. 3, B. Prodr. 21. t. 5.*

G. paniculatum palustre præaltum exile, paniculâ arundinaceâ. *Ponted. Comp. 56. Herb. Sherard.*

In shady ditches, and moist woods, but rare.

Between Newington and Hornsey. *Hudson.* In Hethel and Arminghall woods, near Norwich. *Mr. Crowe.* In Scotland, but not common. *Lightf.*

Perennial. *July.*

Stem nearly as tall as the last, but much more slender; often branched at the bottom. *Leaves* linear-lanceolate, with a sharp taper point, roughish; a little glaucous underneath. *Sheaths* striated, scarcely rough, except the long upper one. *Stipula* lanceolate, acute, thin, soon torn. *Panicle* smaller, closer, more erect, and of a brighter purplish hue than in the last; the branches rough, spreading when in flower only, beset with numerous, crowded *flowers*, directed to one side. *Calyx-valves* nearly equal, rough at the keel. Outer valve of the *corolla* about half as long as the calyx, membranous, flat, with 2 rough marginal ribs at each side, and cloven at the point; bearing from its back, about the middle, a twisting inflexed *awn*, which rises as high as the points of the calyx; inner valve much smaller, slightly cloven. The soft *hairs*, originating from the base of each valve of the corolla, nearly surround the whole *floret*, and are about as long as the calyx, or finally somewhat longer, when they carry away the ripe *seed*.

Linneus by mistake interchanged Scheuchzer's synonyms of this and *A. Calamagrostis*; and thus some botanists, who trusted to his citations, rather than to his definitions and characters, were, as in other instances, misled.

3. *A. Calamagrostis.* Small Reed.

Calyx single-flowered, much exceeding the corolla. *Panicle* erect, loose. *Flowers* scattered, spreading every way. *Awn* terminal, short. *Hairs* longer than the corolla. *Leaves* linear.

A. Calamagrostis. *Linn. Sp. Pl. 121. Fl. Br. 146. Engl. Bot. v. 30. t. 2159. Knapp t. 96. Fl. Dan. t. 280. Schrad. Germ. v. 1. 214. t. 4. f. 4. Ehrh. Calam. 84.*

A. epigejos. *Huds. 54.*

Calamagrostis epigejos. *With. 123.*

C. lanceolata. Roth *Germ.* v. 2. p. 1. 90.

C. minor, glumis ruffis et viridibus. Dill. in Raii *Syn.* 401.

Gramen arundinaceum paniculatum montanum, paniculâ spadiceo-viridi, semine papposo. Scheuchz. *Agr.* 124.

In moist woods, hedges and fens.

Near Oundle, Leicestershire; Mr. Scampton. Dillenius. In the fenny parts of Norfolk, Cambridgeshire, and Lincolnshire, not unfrequent.

Perennial. June, July.

Root fibrous, as Scheuchzer likewise seems to imply; scarcely creeping; the fibres woolly. Whole plant much more slender and delicate than the last. Stems 3 or 4 feet high, very smooth. Leaves narrow, pointed, bright green; roughish beneath; sometimes a little hairy on the upper side. Sheaths smooth. Stipula oblong, obtuse, decurrent, mostly torn. Panicle much branched, loosely spreading every way, as are the flowers also. Calyx-valves lanceolate, acute, of a pale bronzed purple, the keel roughish. Corolla not much above half as long, membranous, white; both valves notched at the summit, the larger bearing a very small, rough, nearly terminal, awn. Hairs from the base of the corolla, which they exceed in length.

4. *A. stricta.* Smallest Close Reed.

Calyx single-flowered, ovate, scarcely longer than the corolla. Panicle erect, close. Flowers scattered, spreading every way, with a dorsal awn. Hairs shorter than the corolla. Stipula very short.

A. stricta. Schrad. *Germ.* v. 1. 215. t. 4. f. 5. *Engl. Bot.* v. 30. t. 2160. *Comp.* 20. *Hook. Scot.* 27.

A. neglecta. Ehrh. *Calam.* 118. *Sm. Tr. of Linn. Soc.* v. 10. 337.

In marshy ground in Scotland.

In the White Mire, a mile from Forfar. Mr. G. Don.

Perennial. June.

Root creeping. Stem scarcely 2 feet high, very slender and smooth, with 2 joints. Leaves narrow, sharp-pointed, rough on the upper side. Sheaths quite smooth, slightly striated. Stipula scarcely prominent, except that of the uppermost leaf, which is very short, abrupt, slightly notched, finally torn. Panicle from 3 to 5 inches long, slender, close, except when in full flower, of a purplish brown; the branches half-whorled, roughish. Calyx-valves ovate, acute, not pointed, single-ribbed; sometimes besprinkled with short hairs. Corolla nearly as long as the calyx, both valves membranous, flat, abrupt, and notched; the outer with 2 ribs near each margin, and a straight awn from the middle of its back, scarcely overtopping the glume; inner smaller, with solitary, marginal ribs. Hairs but half the length of the largest valve, a little elongated as the seed ripens.

5. *A. arenaria*. Sea Reed. Marram. Sea Mat-weed.

Calyx single-flowered, longer than the corolla. Panicle spiked. Flowers erect, slightly awned. Leaves involute, sharp-pointed.

A. arenaria. *Linn. Sp. Pl.* 121. *Willd. v. 1.* 457. *Fl. Br.* 148. *Engl. Bot. v. 8. t. 520.* *Knapp t. 99.* *Mart. Rust. t. 32.* *Hook. Scot. 27.* *Dicks. H. Sicc. fasc. 12. 5.* *Schrad. Germ. v. 1. 221. t. 5. f. 2.* *Fl. Dan. t. 917.* *Ehrh. Calam. 17.*

Calamagrostis arenaria. *Roth Germ. v. 2. p. 1.* 93. *With. 123.* *Gramen sparteum spicatum, foliis mucronatis longioribus, vel spicâ secalinâ.* *Raii Syn. 393.* *Bauh. Theatr. 67. f.*

G. spicatum secalinum maritimum maximum spicâ longiore. *Scheuchz. Agr. 138. t. 3. f. 8.*

Spartum anglicanum. *Ger. Em. 42. f.*

Frequent on the sandy sea coast.

Perennial. *July.*

Root jointed, creeping very extensively. Whole plant glaucous. *Stems* ascending, 2 or 3 feet high, round, finely striated, very smooth, almost solid. *Leaves* narrow, rigid, sharp-pointed, involute; furrowed above; very smooth beneath. *Sheaths* close, striated, nearly or quite smooth. *Stipula* lanceolate, pointed, near an inch long, mostly divided, or torn. *Panicle* erect, quite close, cylindrical, tapering at each end, perfectly resembling a spike, straw-coloured, many-flowered; the branches short, erect, not much divided, close-pressed, angular and rough. *Calyx-valves* nearly equal, lanceolate, keeled, compressed, rough at the keel; the inner one rather the largest, with a rib at each side; outer with a minute point below the summit. *Corolla* very like the calyx, but rather smaller, and more ribbed, its outer valve bearing a small short dorsal *awn*, below the top. *Hairs* chiefly attached to the inner valve, and scarcely half its length. *Nectary* longer than the *germen*. *Styles* distinct, erect, with long cylindrical feathery *stigmas*.

One of the most valuable grasses for binding the sand of the sea shore, and raising those banks, which in Norfolk, and especially in Holland, are the chief defence of the country, against the encroachments of the ocean. *Elymus arenarius*, *Carex arenaria*, and even *Festuca rubra*, contribute to the same end.

57. LOLIUM. Darnel.

Linn. Gen. 38. *Juss. 31.* *Fl. Br. 148.* *Lam. t. 48.*

Common receptacle, or main stalk, many-flowered; continuous, elongated, channelled alternately, at each side, to receive the separate *spikelets*. *Cal.* of one valve, opposite to each channel, lanceolate, slightly concave, permanent,

containing a compressed *spikelet* of numerous two-ranked *florets*; there is sometimes a small inner valve, in the channel. *Cor.* of 2 unequal valves, opposite to the calyx; the outer lanceolate, or elliptical, concave, somewhat keeled, acute, cloven at the point, more or less awned; the *awn* terminating the keel, at the cleft of the valve, nearly straight, various in length, sometimes scarcely discernible; inner valve elliptic-oblong, rather smaller, inflexed at the edges. *Nectary* of two, sometimes cloven, scales. *Filam.* capillary, shorter than the corolla. *Anth.* cloven at each end. *Germen* obtuse. *Styles* very short. *Stigmas* oblong, feathery along the upper side. *Seed* elliptic-oblong, channelled in front, where it is united to the inner valve of the corolla, being loosely invested on the opposite side with the outer valve.

Root fibrous, annual or perennial. *Stems* several, jointed, leafy. *Leaves* flat. *Spike* two-ranked, of numerous alternate *spikelets*.

1. *L. perenne*. Perennial Darnel. Rye-grass.

Corolla very slightly awned. Spikelets longer than the calyx. Florets lanceolate.

L. perenne. *Linn. Sp. Pl.* 122. *Willd. v. 1.* 461. *Fl. Br.* 148. *Engl. Bot. v. 5. t.* 315. *Rel. Rudb.* 13. *f.* *Hook. Lond. fasc.* 1. *t.* 18. *Scot.* 45. *Knapp t.* 100. *Mart. Rust. t.* 4. *Graves Br. Gr. t.* 115. *Sincl.* 105. *Schrad. Germ. v. 1.* 397. *Host Gram. v. 1.* 20. *t.* 25. *Schreb. Gram. v. 2.* 79. *t.* 37. *Leers 47. t.* 12. *f.* 1. *Fl. Dan. t.* 747. *Ehrh. Calam.* 94.

L. n. 1416. *Hall. Hist. v. 2.* 204.

L. rubrum. *Ger. Em.* 78. *f.*

Gramen loliaceum, angustiore folio et spicâ. *Bauh. Theatr.* 128. *f.* *Raii Syn.* 395. *Scheuchz. Agr.* 25. *Moris. v. 3.* 182. *sect.* 8. *t.* 2. *f.* 2.

β . *Lolium tenue.* *Linn. Sp. Pl.* 122. *Willd. v. 1.* 462.

L. n. 1418. *Hall. Hist. v. 2.* 205.

Graminis loliacei angustiore folio et spicâ, varietas, spicâ tereti, angustissimâ. *Scheuchz. Agr.* 28.

γ . *Lolium perenne* β . *Leers as above. f. +.*

Gramen loliaceum paniculatum. *Dill. in Raii Syn.* 395.

G. loliaceum, multiplici spicatâ paniculâ. *Moris. as above.*

δ . *G. loliaceum, spicâ latâ, e plurimis spicis, duplici versu dense dispositis, constante.* *Scheuchz. Agr.* 29. *t.* 1. *f.* 7, *D. Prodr.* 16. *t.* 2.

G. loliaceum, spicis brevioribus et latioribus, compressis. *Moris. as above.*

In meadows, pastures, and waste ground, common.

γ and δ found occasionally near Norwich.

Perennial. *June*.

Root of a few simple fibres. *Stems* several, a foot high, more or less, round, smooth, rigid, leafy, with purplish tumid joints, the lowermost of which are bent. *Leaves* dark green, linear, pointed, flat, smooth, striated. *Sheaths* compressed, striated, smooth. *Stipula* short, entire, acutely auricled at each side. *Spike* nearly upright, various in luxuriance, with a smooth common stalk. *Spikelets* numerous, alternate, erect; usually many-flowered. Outer valve of the *corolla* linear-lanceolate, keeled, acute, generally with a short *awn*, just below the cloven tip, scarcely discernible, and frequently wanting. *Styles* very short. *Seed* linear.

β is merely a starved state of the plant, with 3 or 4 *florets* only, but still the *spikelet* extends beyond the *calyx*. γ has a branched, or compound, general *spike*. δ bears a short, broad, ovate, close *spike*. Sometimes the *florets* are, here and there, viviparous.

Well known to the farmer by the name of Rye-grass, or Ray-grass. It yields an early crop of hay upon high or sandy lands; and makes a fine turf, which however is said not to be lasting, except on a rich soil. Much valuable information concerning its cultivation and merits is collected by Professor Hooker, in his Continuation of the *Fl. Londinensis*. The result seems to be that this grass is best suited to the light land of Norfolk, where it first obtained its reputation.

2. *L. temulentum*. Bearded Darnel.

Awns longer than the *corolla*. *Spikelets* shorter than the *calyx*. *Florets* elliptical. *Stem* rough in the upper part.

L. temulentum. *Linn. Sp. Pl.* 122. *Willd. v. 1.* 462. *Fl. Br.* 150. *Engl. Bot. v. 16. t.* 1124. *Knapp t.* 101. *Hook. Scot.* 45. *Sincl.* 299. *Schrad. Germ. v. 1.* 400. *Host Gram. v. 1.* 20. *t.* 26. *Schreb. Gram. v. 2.* 74. *t.* 36. *Leers 48. t.* 12. *f.* 2. *Fl. Dan. t.* 160. *Ehrh. Calam. 29.* *Bull. Fr. t.* 107.

L. n. 1420. *Hall. Hist. v. 2.* 205.

L. album. *Ger. Em. 78. f.* *Raii Syn.* 395.

Zizania. *Tillands Ic.* 112. *f.*

Gramen loliaceum, spicâ longiore. *Bauh. Theatr.* 121. *f.* *Scheuchz. Agr. 31. t. 1. f.* 7, E, F.

In fields, among wheat, barley, or flax.

Annual. *July*.

Root of a few downy fibres. *Stems* 2 feet high, leafy, round; smooth and shining below; rough upwards. *Leaves* of a brighter green than the preceding, rough on the upper side. *Sheaths* roughish. *Stipula* short, abrupt, notched. *Spike* about a span in length, with a rough stalk. *Calyx* linear, flattish, many-ribbed, roughish

at the edges, rising above the *spikelets*, generally attended, in the lower ones, with a short elliptical inner valve, pressed close to the channel in the stalk. *Florets* about 6. Outer valve of the *corolla* elliptical, concave, with a dorsal *awn*, longer than itself; inner rough at the folds. *Seed* elliptical, a little flattened, with a furrow along its upper side, where it is firmly coated by the inner valve.

The seeds are of very evil report, for causing intoxication, in men, beasts, and birds, and bringing on fatal convulsions. Haller speaks of them as communicating these properties to beer.

3. *L. arvense*. Short-awned Annual Darnel.

Corolla slightly awned. Spikelets as long as the calyx. Florets elliptical. Stem very smooth.

L. arvense. *With.* 168. *Fl. Br.* 151. *Engl. Bot.* v. 16. t. 1125. *Knapp* t. 102. *Hook. Scot.* 45. *Schrad. Germ.* v. 1. 399. *Host Gram.* v. 3. 17. t. 25.

L. temulentum. *Huds.* 55.

L. temulentum, a variety. *Sincl.* 301.

L. verum Gesneri. *Moris.* v. 3. 181. *sect.* 8. t. 1. f. with a spike of the last, annexed.

In fields, but not common.

In Scotland. *Mr. J. Mackay, and Mr. Hopkirk.* Near Walthamstow. *Mr. E. Forster.*

Annual. *July.*

Rather smaller and smoother than the preceding, of which it is probably but a variety. The *awns*, represented too long in *Engl. Bot.*, are either wanting, or at most very short, lax and weak. There are sometimes 2 little inner valves to the *calyx*; sometimes none at all. Schrader observes that the upper part of the *stem*, and the common stalk of the *spike*, are not invariably smooth.

58. ROTTBOLLIA. Hard-grass.

Linn. Suppl. 13. *Schreb. Gen.* 721. *Juss.* 31. *Fl. Br.* 151. *Lam.* t. 48.

Common receptacle, or main stalk, many-flowered, elongated, jointed, finally separable, with a channel in each joint, alternately disposed, to receive the *florets*, which are mostly 2 in each channel, of a different structure from each other, 1 only being always perfect. *Cal.* of 2 parallel valves, opposite to the channel, lanceolate, spreading whilst in blossom. *Cor.*, in the perfect floret, of 2 lanceolate, acute, membranous, nearly equal, valves, inflexed at the edges; in the other similar, if furnished with *stamens*; if not, merely a rudiment, or scale. *Nect.* of 2 acute scales.

Filam. capillary. *Anth.* pendulous, cloven at each end. *Germen* oblong, obtuse, in 1 floret only. *Styles* short. *Stigmus* widely spreading, feathery. *Seed* elliptic-oblong, shut up in the cavity of each joint of the stalk, by the closed glumes, and falling off with it.

Habit and size very various. *Spikes* either solitary, or aggregate, brittle when the *seed* is ripe.

1. *R. incurvata.* Sea Hard-grass.

Spike cylindrical, tapering. Calyx-valves combined below. Floret solitary. Corolla awnless.

R. incurvata. *Linn. Suppl.* 114. *Willd.* v. 1. 463. *Fl. Br.* 151. *Engl. Bot.* v. 11. t. 760. *Fl. Græc.* v. 1. 72. t. 91. *Knapp* t. 103. *Hook. Scot.* 46. *Schrad. Germ.* v. 1. 410. *Host Gram.* v. 1. 18. t. 23. *Fl. Dan.* t. 938. *Cavan. Ic.* v. 3. 7. t. 213.

Aegilops incurvata. *Linn. Sp. Pl.* 1490. *Huds.* 441.

Gramen parvum marinum, spicâ loliaceâ. *Ger. Em.* 30.* *Raii Syn.* 395.

G. loliaceum maritimum, spicis gracilibus articulatis recurvis. *Moris.* v. 3. 182. *sect.* 8. t. 2. f. 8.

G. loliaceum maritimum, scorpioides, Sherardi. *Scheuchz. Agr.* 42. t. 2. f. 1, A, B.

On the sea coast, in salt marshes, in various places.

Annual. *August.*

Root fibrous, downy. *Stems* numerous, a span long, spreading, partly procumbent, leafy, round, smooth, jointed and bent. *Leaves* of a deep glaucous green, linear, narrow, acute, single-ribbed, striated, rough on the upper side and at the edges. *Sheaths* slightly tumid, striated, smooth. *Stipula* short and blunt. *Spikes* terminal, solitary, incurved, cylindrical, very smooth, the closed, more or less combined, valve of the *calyx* so exactly closing the chink of each joint, both before and after flowering, as to make one even surface. The rudiment of the secondary *floret* is but small and variable. All the glumes are destitute of awns.

R. filiformis, Don H. Br. 178, whether the plant of Roth, Willdenow, Monti, &c., or not, appears to me our *incurvata*, drawn up weak among other grasses, as it occurs sometimes in Norfolk.

59. ELYMUS. Lyme-grass.

Linn. Gen. 39. *Juss.* 31. *Fl. Br.* 152. *Lam.* t. 49.

Common receptacle, or main stalk, many-flowered, continuous, elongated, toothed alternately, at each side, and flattened just above. *Flowers* two or more at each tooth, pa-

rallel. *Cal.* to each flower of 2 unequal, erect, linear-lanceolate, or awl-shaped, pointed or awned, more or less keeled, valves, containing a *spikelet* of several *florets*. *Cor.* of 2 unequal, ovate-lanceolate valves; the outermost largest, keeled, ribbed, pointed or awned; the *awn* straight and terminal; inner flat, cloven, inflexed at the edges, with a rib at each side. *Nectary* of two lanceolate scales. *Filam.* capillary, shorter than the corolla. *Anth.* linear, notched at each end. *Germen* turbinate. *Styles* distant, very short. *Stigmas* feathery, spreading. *Seed* linear, or lanceolate, channelled along the upper side, very hairy at the summit, more or less attached to the unchanged glumes of the *corolla*.

Large, rigid, or coarse, mostly perennial, grasses; various in aspect; some foreign species are conspicuous for their long *awns*.

1. *E. arenarius*. Upright Sea Lyme-grass.

Spike upright, close; main stalk not winged. Calyx lanceolate, the length of the spikelets. Leaves spinous-pointed.

E. arenarius. *Linn. Sp. Pl.* 122. *Willd. v. 1.* 467. *Fl. Br.* 152. *Engl. Bot. v. 24. t.* 1672. *Knapp t.* 108. *Mart. Rust. t.* 31. *Hook. Scot.* 46. *Schrad. Germ. v. 1.* 401. *Schreb. Gram. v. 2.* 85. *t.* 40. *Fl. Dan. t.* 847.

Triticum n. 56. *Gmel. Sib. v. 1.* 119. *t.* 25.

Spartum herba 4 *Batavicum*. *Clus. Hist. v. 2.* 221. *f.*

On the sandy sea shore.

In the isle of Bute, and in Devonshire. *Huds.* In various parts of Scotland. *Hooker.* Abundant on the north coast of Norfolk.

Perennial. *July*, but rarely.

Root widely creeping. *Stems* 3 or 4 feet high, erect, firm, reed-like, hollow, round, striated, leafy chiefly at the base. *Leaves* hard and rigid, very glaucous, spinous-pointed, one or two feet long, involute; their upper surface marked with strong rough furrows; the under side quite smooth. *Sheaths* long, close, furrowed, smooth. *Stipula* very short. *Spike* erect, close, glaucous, 6—14 inches long. *Glumes* finely downy. *Florets* about 3 in each spikelet, rarely 4; the uppermost, in either case, usually wanting the *germen*.

As this plant rarely flowers on our coasts, it is often overlooked for *Arundo arenaria*, *p.* 171; but the short *stipula* essentially distinguishes this *Elymus*, which is perhaps the very best of all plants to resist the force of the sea.

2. *E. geniculatus*. Pendulous Sea Lyme-grass.

Spike bent perpendicularly downward, lax; main stalk winged. Calyx awl-shaped, longer than the spikelets. Leaves spinous-pointed.

E. geniculatus. *Curt. Brit. Gr.* 46. *Fl. Br.* 153. *Engl. Bot.* v. 23. t. 1586. *Knapp* t. 109. *Sincl.* 269.

Elymus. *Linn. Am. Acad.* v. 7. 192. t. 2. f. 5. *With.* v. 1. 134. t. 2. f. 26.

In marshes near the coast, rare.

Near Gravesend. *Mr. Dickson*.

Perennial. *July*.

Root of several downy fibres, scarcely creeping. Whole plant glaucous, larger than the foregoing, but more slender in habit. *Stipula* very short. *Spike* $1\frac{1}{2}$ or 2 feet long, lax, at first erect, but while in flower becoming strongly bent, at an acute angle, at the second or third spikelet, so as to become permanently pendulous. *Calyx-valves* twice the length of the last, narrow and tapering, smooth, half as long again as the *spikelets*. *Florets* 3 or 4; the outer *valve* ribbed and downy.

Cultivated for many years in a garden, this grass is little changed, though all the *spikes* are not always reflexed.

2. *E. europæus*. Wood Lyme-grass.

Spike erect. Florets about two, rough, awned, as well as the calyx. Leaves flat, pliant.

E. europæus. *Linn. Mant.* 35. *Willd.* v. 1. 470. *Fl. Br.* 154. *Engl. Bot.* v. 19. t. 1317. *With.* 170. *Schrad. Germ.* v. 1. 402. *Host Gram.* v. 1. 22. t. 28. *Ekrh. Phyt.* 3.

Hordeum sylvaticum. *Huds.* 57. *Mart. Rust.* t. 45. *Knapp* t. 107. H. n. 1537. *Hall. Hist.* v. 2. 248.

Gramen secalinum majus sylvaticum. *Raii Syn.* 392.

G. hordeaceum montanum, spicâ strigosiori brevius aristatâ. *Scheuchz. Agr.* 16. *Prodr.* 14. t. 1.

In woods, thickets and hedges, on a chalky soil.

Not rare in Oxfordshire, Berkshire, Derbyshire, and the north of England.

Perennial. *June*.

Root fibrous, tufted. Herbage of a grassy green. *Stem* erect, 2 feet high, simple, round, striated, smooth, most leafy in the lower part. *Leaves* lanceolate, many-ribbed, flat, acute, rough on both sides and at the edges. *Sheaths* clothed more or less with deflexed hairs. *Stipula* very short, minutely notched. *Spike* 2 or 3 inches long, generally quite upright, close, green; its main *stalk* angular, furrowed, rough, zigzag. *Flowers* 3 together at each notch. *Calyx-valves* awl-shaped, very smooth and even

at the base; ribbed, angular, and roughish above; each tipped with a straight rough *awn*, half its own length. *Florets* often solitary, never more than 2, all generally perfect. Outer valve of the *corolla* lanceolate, ribbed, rough, especially in the upper part, terminating in a long straight *awn*; inner slightly cloven, rough at the marginal ribs. *Germen* obovate, downy. *Styles* distant, extremely short. *Stigmas* slender. *Seed* lanceolate, with a furrow along the upper side, and a downy point, firmly coated with both valves of the *corolla*.

60. HORDEUM. Barley.

Linn. Gen. 39. *Juss.* 32. *Fl. Br.* 155. *Lam. t.* 49. *Gaertn. t.* 81.

Common receptacle, or main stalk, many-flowered, jointed, elongated, toothed alternately at each side, the intermediate spaces flattened, and bordered. *Flowers* 3 at each tooth, not all perfect, unequally stalked. *Cal.* to each flower of 2 rather slender, variously shaped, pointed or awned, parallel, upright valves. *Floret* solitary. Outer valve of the *corolla* ovate, concave, angular, terminating in a long, straight, rough *awn*, rising above the awns of the calyx; inner smaller, lanceolate, flat, inflexed at the edges, pointed. *Nectary* of 2 acute scales. *Filam.* capillary, shorter than the *corolla*. *Anth.* notched at each end. *Germen* turbinate. *Styles* very short. *Stigmas* feathered along the upper side. *Seed* ovate-oblong, pointed at each end, with a narrow channel along the upper side, firmly coated with both valves of the *corolla*.

Root mostly annual. *Stems* jointed, hollow, leafy. *Spike* nearly upright, close, bristly with the copious long *awns*, finally breaking at the joints.

1. *H. murinum*. Wall Barley. Mouse Barley. Way Bennet.

Lateral flowers barren. Calyx-valves of the intermediate one lanceolate, fringed.

H. murinum. *Linn. Sp. Pl.* 126. *Willd. v.* 1. 474. *Fl. Br.* 155. *Engl. Bot. v.* 28. *t.* 1971. *Rel. Rudb.* 12. *f.* 2. *Curt. Lond. fasc.* 5. *t.* 9. *Mart. Rust. t.* 43. *Knapp t.* 104. *Hook. Scot.* 46. *Sincl.* 141. *Schrad. Germ. v.* 1. 404. *Host Gram. v.* 1. 25. *t.* 32. *Fl. Dan. t.* 629. *Ehrh. Calam.* 47.

H. n. 1536. *Hall. Hist. v.* 2. 248.

H. spurium. *Ger. Em.* 73. *f.*

Gramen secalinum et Secale sylvestre. *Raii Syn.* 391.

G. secalinum vulgatissimum viarum. *Moris. v.* 3. 179. *sect.* 8. *t.* 6. *f.* 4.

G. hordeaceum minus et vulgare. Bauh. *Theatr.* 134. f. Scheuchz. *Agr.* 14.

On waste ground, and by way sides, common.

Annual. June—August.

Root fibrous. Stems 12—18 inches high, spreading and decumbent at the base; then ascending, slender, leafy, smooth, with 3 or 4 joints. Leaves linear, flat, roughish, with long, rather lax, strongly ribbed, smooth sheaths. Stipula short. Spike 2 or 3 inches long, cylindrical, very dense and uniform, two-ranked, brittle. Two lateral flowers stalked; their calyx-valves bristle-shaped, rough; those of the central flower linear-lanceolate, three-ribbed, fringed with spreading hairs. Lateral flowers with stamens only; central one perfect, and considerably the largest. Outer valve of the corolla of the latter concave, somewhat downy, finally coating the seed; inner as long, but narrower and flat, with a bristle at its base externally, probably the rudiment of a second floret. A grass of no agricultural use.

2. *H. pratense.* Meadow Barley.

Lateral flowers imperfect, with shorter awns. All the calyx-valves bristle-shaped and rough.

H. pratense. Huds. 56. Fl. Br. 156. Engl. Bot. v. 6. 409. Rel. Rudb. 12. f. 1. Mart. Rust. t. 108. Knapp t. 105. Hook. Scot. 46. Sincl. 203. Schrad. Germ. v. 1. 405. Ehrh. Calam. 57.

H. nodosum. Linn. Sp. Pl. 126. Willd. v. 1. 474, excluding Ray's synonym.

H. murinum β. Ibid.

H. secalinum. Willd. v. 1. 475. Host Gram. v. 1. 26. t. 33.

H. maritimum. Fl. Dan. t. 630.

H. n. 1538. Hall. Hist. v. 2. 248.

Gramen secalinum. Ger. Em. 29. *f. Raii Syn. 392.

G. secalinum pratense elatius. Moris. v. 3. 179. sect. 8. t. 2. f. 6.

G. spicatum secalinum minus. Scheuchz. Agr. 17. Vaill. Par. 83. t. 17. f. 6.

In meadows and pastures, especially such as are rather moist.

Perennial. June.

Root fibrous; becoming bulbous in barren ground occasionally overflowed. Whole plant more slender than either of our other species. Stem more upright, and twice as tall; naked and smooth at the top. Leaves narrow, roughish, sometimes hairy, as well as their sheaths, which are close, not swelling, with a scarcely perceptible stipula. Spike 2 inches long, often tinged with brown or purple. All the calyx-valves very narrow, bristle-like, equal, rough at the back. Lateral flowers stalked, with or without stamens, but always destitute of pistils. Outer valve of the corolla in all the flowers ovate, awned; the awn shortest in the lateral ones. Germen in the middle flower only, turbinate. Stigmas feathery along the upper side.

The *florets* in all my British specimens are smooth, but in Ehrhart's, from Hanover, they are partly besprinkled with soft hairs. This is indeed a most trifling variety, as Professor Schrader considers it.

3. *H. maritimum*. Sea Barley. Squirrel-tail-grass.

Lateral flowers imperfect, with shorter awns; the inner valve of their calyx half-ovate.

H. maritimum. *With.* 172. *Fl. Br.* 156. *Engl. Bot. v.* 17. *t.* 1205. *Knapp t.* 106. *Hook. Lond. fasc.* 1. *t.* 43. *Scot.* 46. *Mart. Rust. t.* 44. *Schrad. Germ. v.* 1. 406. *Vahl Symb. v.* 2. 25. *Host Gram. v.* 1. 27. *t.* 34. *Pourret Act. Tolos. v.* 3. 320.

H. marinum. *Huds.* 57. *Dicks. H. Sicc. fasc.* 5. 4.

H. geniculatum. *Allion. Peden. v.* 2. 259. *t.* 91. *f.* 3.

H. rigidum. *Roth Catal. v.* 1. 24.

Gramen secalinum palustre et maritimum. *Raii Syn.* 392.

G. secalinum maritimum glaucifolium, spicis brevioribus. *Moris. v.* 3. 179. *sect.* 8. *t.* 6. *f.* 5.

G. spicatum secalinum maritimum minus. *Scheuchz. Agr.* 18.

G. hordeaceum à maritimis pumilum. *Pluk. Phyt. t.* 33. *f.* 2, *bad.*

In pastures and sandy ground near the sea.

Annual. *June, July.*

This species most resembles *H. murinum* in general habit, but is on the whole rather smaller and more glaucous. The *awns* are all rougher, with minute bristly teeth. This roughness, and the great brittleness of the main stalk of the *spike*, cause considerable inconvenience to horses in whose hay this grass chances to be intermixed. It sticks in small fragments to their gums, and produces inflammation. Luckily the plant is not of common occurrence; but in the isle of Thanet, where it abounds, the effect just mentioned is notorious. Mr. Curtis records this circumstance in *Fl. Lond. fasc.* 5, under *t.* 9, referring it to the common *H. murinum*, for he was not then practically acquainted with the difference between these two grasses, nor does he advert to it; but he subsequently knew them well, and I have specimens from himself. The half-ovate form of the innermost valve of the *calyx*, clearly distinguishes *H. maritimum*, as Hudson well remarked. The two species, though similar, are obviously and sufficiently distinct.

61. TRITICUM. Wheat. Wheat-grass.

Linn. Gen. 40. *Juss.* 32. *Fl. Br.* 157. *Lam. t.* 49. *Gærtn. t.* 81.

Common receptacle, or main stalk, many-flowered, elongated, continuous, or somewhat jointed, toothed alternately at each side, wavy, compressed. *Spikelets* solitary at each tooth, lateral, contrary to the main stalk, many-flowered.

Cal. of 2 concave, oblong, ribbed or keeled, nearly equal, opposite *valves*, with or without terminal awns. *Florets* 3 or more, 2-ranked, applied laterally to the main stalk. Outer valve of the *corolla* resembling the calyx, concave, keeled or furrowed, pointed or awned; inner flat, awnless, inflexed on each side at the lateral rib. *Nectary* of 2 acute scales, tumid at the base. *Filam.* capillary. *Anth.* linear, forked at each end. *Germen* turbinate. *Styles* short, distinct. *Stigmas* feathery. *Seed* ovate, obtuse, with a narrow channel along the upper side, loose, but enveloped in the unchanged *corolla*.

Root annual, or perennial. *Habit* various. *Stem* simple or branched. *Spikes* simple and close, or compound and lax.

1. *T. junceum*. Sea Rushy Wheat-grass.

Calyx-valves blunt, many-ribbed. *Florets* about five, awnless. *Main stalk* smooth. *Leaves* involute, sharp-pointed. *Root* creeping.

T. junceum. *Linm. Sp. Pl.* 128. *Willd.* v. 1. 480, *excl. most of the syn.* *Fl. Br.* 157. *Engl. Bot.* v. 12. t. 814. *Knapp* t. 113. *Hook. Scot.* 44. *Dicks. H. Sicc. fasc.* 6. 9. *Schrad. Germ.* v. 1. 394. *Host Gram.* v. 3. 23. t. 33. *Fl. Dan.* t. 916.

Gramen maritimum, spicâ loliaceâ, foliis pungentibus, nostras. *Phuk. Phyt.* t. 33. f. 4. *Dill. in Raii Syn.* 391.

β. *G. loliaceum maritimum supinum, spicâ crassiore.* *Tourn. Inst.* 516. *Dill. in Raii Syn.* 391.

γ. *G. caninum maritimum, spicâ foliaceâ.* *Bauh. Theatr.* 15. f. *Raii Syn.* 391. *Moris.* v. 3. 178. *sect.* 8. t. 2. f. 12.

G. caninum marinum alterum. *Ger. Em.* 25. f.

On the sandy sea coast, frequent.

Perennial. *July.*

Root widely creeping, with numerous woolly fibres, well calculated for binding the loose sand, which purpose it serves in common with *Elymus arenarius*, *Arundo arenaria*, &c. The whole plant is glaucous and rigid, like those grasses. *Stem* 12 or 18 inches high, simple, inclining, leafy, round; very smooth, even and polished, tinged with a bright violet hue, below; striated above. *Leaves* strongly involute, many-ribbed; smooth at the back; marked with rough furrows on the upper side; tapering and pungent at the point. *Sheaths* furrowed. *Stipula* very short, membranous. *Spike* simple, solitary, erect, rigid, of numerous, alternate, rather distant, flat, ovate *spikelets*, each consisting of 5 or 6 smooth, awnless, *florets*. *Calyx*, and outer valve of the *corolla*, many-ribbed, furrowed, keeled at the upper part, each valve terminating in a slight notch, with a small, thick, intermediate point, produced from the *keel*, most evident in the upper

florets. The main stalk separates finally at the joints. The inner valve of the *corolla* is minutely fringed.

This species is sometimes confounded with a maritime variety of *T. repens*, hereafter described.

2. *T. repens*. Creeping Wheat-grass. Couch-grass. Calyx-valves pointed or awned, lanceolate, many-ribbed. Florets about five, sharp-pointed or awned. Leaves flat. Root creeping.

T. repens. *Linn. Sp. Pl.* 128. *Willd. v. 1.* 481. *Fl. Br.* 158. *Engl. Bot. v. 13. t.* 909. *Knapp t.* 111. *Hook. Scot.* 44. *Sincl.* 307. *Schrad. Germ. v. 1.* 390. *Host Gram. v. 2. 17. t.* 21. *Leers* 45. *t. 12. f.* 3. *Schreb. Gram. v. 2. 24. t.* 26. *Ehrh. Pl. Off.* 12.

T. n. 1426. *Hall. Hist. v. 2.* 210.

Gramen spicâ triticeâ repens vulgare caninum dictum. Raii Syn. 390.

G. caninum repens vulgatus. Moris. v. 3. 178. *sect. 8. t. 1. f.* 8.

G. caninum arvense, sive Gramen Dioscoridis. Scheuchz. Agr. 5.

G. caninum arvense, sive primum. Bauh. Theatr. 7. *f.*

β . Glumes awned. *T. repens. Mart. Rust. t.* 124. *With.* 173. *var.* 4. *Fl. Dan. t.* 748.

Graminis spicâ triticeâ repentis vulgaris varietas, cum spicâ aristatâ. Scheuchz. Agr. 9.

G. loliaceum, radice repente, &c., aristis longioribus donatum. Vaill. Par. 81. *t. 17. f.* 2.

γ . *Triticum junceum. Relh.* 55.

T. repens var. 5. With. 173.

Elymus arenarius. Huds. ed. 1. 44.

Gramen caninum maritimum, spicâ triticeâ, nostras. Raii Syn. 390.

In waste, as well as cultivated, land, every where.

γ . On the sea coast, not uncommon.

Root long, creeping deeply and widely, so as to be very difficult of extirpation, jointed, clothed with membranous sheaths; the fibres downy. *Stems* slender, erect, 2 feet high, most leafy below; round, striated, and smooth, at the top. *Leaves* of a dull, somewhat glaucous, green, linear, flat, spreading, generally all directed one way; their margin and upper side rough. *Sheaths* tight, ribbed, smooth, or a little hairy. *Stipula* short, finely notched. *Spike* 2 or 3 inches long, erect, flat, of numerous, pretty close, elliptic-oblong *spikelets*; the main stalk sometimes hairy, especially at the edges. *Florets* from 4 to 8 or 9, the colour of the foliage. Valves of the *calyx* lanceolate, ribbed, pointed or awned. Outer valve of the *corolla* similar, but with fewer ribs, and those chiefly towards the summit, which ends either in a short point, continued from the *keel*, or in a terminal rough *awn*, various in length, but seldom longer than the glume itself; inner valve obtuse, or notched, awnless. The maritime

variety γ is rather stouter and shorter in habit, all over more or less glaucous, though variable in that respect, and certainly a mere variety. The *leaves* are often involute.

Schrader describes a more remarkable state of this grass, figured in Leers *t.* 12, *f.* 4, 1, in which a great part of the *spikelets* in the lower portion of the *spike* are double, or in pairs, contrary to the generic character. But the creeping *root* distinguishes this variety from the following species, with which it is confounded by Leers; both being indeed considered by him as belonging to *T. repens*.

3. *T. caninum*. Fibrous-rooted Wheat-grass.

Calyx-valves somewhat awned, with three or five ribs.

Florets four, awned. Leaves flat. Root fibrous.

T. caninum. Huds. 58. *Fl. Br.* 159. *Engl. Bot.* v. 20. t. 1372. Knapp t. 112. Hook. Scot. 44. Sincl. 93. Schrad. Germ. v. 1. 389. Host Gram. v. 2. 20. t. 25. *Fl. Dan.* t. 1447.

T. n. 58. Gmel. Sib. v. 1. 122. t. 27.

T. n. 1429. Hall. Hist. v. 2. 212.

Elymus caninus. Linn. Sp. Pl. 124. Willd. v. 1. 469. Leers 46. t. 12. f. 4, 2. Ehrh. Phyt. 72.

Gramen spicâ triticeâ compactâ, aristis longioribus. Scheuchz. Agr. 10.

G. caninum aristatum, radice non repente, sylvaticum. Raii Syn. 390.

G. caninum non repens, elatius, spicâ aristatâ. Moris. v. 3. 177. sect. 8. t. 1. f. 2. Buxb. Cent. 4. 29. t. 50.

In woods, and shady hedges, on a chalky, or limestone, soil.

Perennial. July.

Root of several downy stout fibres, not at all creeping. *Stems* 2 feet high, leafy, round, minutely striated, very smooth. *Leaves* nearly upright, lanceolate, taper-pointed, thin, flat, bright green, rough on both sides; sometimes hairy. *Sheaths* of the lower ones only hairy. *Stipula* very short. *Spike* 3 or 4 inches long, a little inclining, close. *Spikelets* alternate, except the lowermost, which sometimes stand in pairs, side by side. *Calyx* lanceolate, with 3, sometimes 5, stout, smooth, very neat, ribs; the *keel* being not rough as represented in *Engl. Bot.*, though the short terminal *awn* is sometimes so. Outer valve of the *corolla* ribbed at the top only, with a much longer, rough *awn* from the keel; inner valve fringed.

The fibrous *root* distinguishes this species from every variety of the last.

4. *T. cristatum*. Crested Wheat-grass.

Calyx-valves elliptical, awned, keeled, obscurely ribbed.

Florets awned. Spikelets closely imbricated, depressed, straight. Stems simple.

T. cristatum. Schreb. *Gram.* v. 2. 12. t. 23. f. 2. *Engl. Bot.* v. 32. t. 2267. *Comp.* 22. *Hook. Scot.* 45. *Bieberst. Taur.-Caucas.* v. 1. 87. *Host Gram.* v. 2. 19. t. 24.

Bromus cristatus. Linn. *Sp. Pl.* 115. *Willd.* v. 1. 439.

Festuca n. 51. *Gmel. Sib.* v. 1. 115. t. 23.

Gramen triticeum, spicâ latiore compactâ. *Buxb. Cent.* 1. 32. t. 50. f. 3.

On the eastern coast of Scotland, very rare.

On steep banks, and rocks, by the sea side, between Arbroath and Montrose. *Mr. G. Don*.

Perennial. *July, but rarely*.

Root of several long, strong, very woolly fibres, suited to a sandy soil. *Stems* ascending, 12 or 18 inches high, simple, wavy, slender, rigid, leafy; hairy at the top. *Leaves* linear, keeled, taper-pointed, folded rather than involute, many-ribbed; smooth beneath; very hairy on the upper side. *Sheaths* close, striated, smooth. *Stipula* scarcely any. *Spike* terminal, erect, an inch or more in length, pale, bluntish, compressed, of numerous small oblong *spikelets*, so closely crowded as to depress each other. *Florets* variable in number from 3 to 6 or 7, either smooth or hairy. *Calyx-valves* elliptic-oblong, with a terminal, straight, rough *awn*, as long as themselves; their lateral ribs obsolete, or smoothed away, not turgid as in *T. prostratum*, a species next akin to this, but with a shorter, rounder, *spike*, annual *root*, and branched *stem*. The outer valve of the *corolla* resembles the calyx, but is longer; inner notched at the summit, its margins inflexed, as usual, at the lateral ribs.

Gmelin remarks that the hairiness of the *leaves* is variable. The *spikelets*, in one of the Linnæan specimens, are extremely hairy; in another, like *Mr. Don's*, smooth. In one Siberian specimen they are viviparous, apparently after the manner of alpine grasses; the transformed glumes singularly enlarged, and strongly ribbed.

T. imbricatum of *Marschall von Bierberstein*, *Fl. Taurico-Caucasica*, v. 1. 88, sent from the Göttingen garden by Professor *Schrader*, seems to differ from the *cristatum* in the much greater dimensions of its herbage only, the *spike* being very like that of our wild specimen, and but little larger. *T. pectinatum* of the same author is but the smooth state of *cristatum*; and I am well satisfied that pubescence is here of no importance.

5. *T. loliaceum*. Dwarf Sea Wheat-grass.

Calyx-valves obtuse, awnless. *Florets* numerous, awnless, elliptical, ribbed. *Spike* unilateral. *Stem* branched. *Root* fibrous.

T. loliaceum. *Fl. Br.* 159. *Engl. Bot.* v. 4. t. 221. *Willd. Sp. Pl.* v. 1. 483. *With.* 174. *Kuapp* t. 114. *Hook. Scot.* 45. *Schrader. Germ.* v. 1. 395.

T. unilaterale. *Ait. Hort. Kew. ed. 1. v. 1. 122. Host Gram. v. 2. 21. t. 27; but not of Linnæus.*

Poa loliacea. *Huds. 43. Relh. 37.*

Gramen pumilum, loliaceo simile. *Raii Syn. 395.*

G. exile duriusculum maritimum, foliolis circumvolutis, veluti junceis, brevibus. *Pluk. Phyt. t. 32. f. 7.*

G. loliaceum maritimum biunciale. *Moris. v. 3. 182. sect. 8. t. 2. f. 6.*

G. loliaceum exile durius. *Rel. Rudb. 13. f.*

On the sandy sea coast.

Not rare on the sandy shores of Norfolk, Suffolk and Essex.

Annual. *June, July.*

Root of many long downy fibres. *Stem* rigid and wiry, as in my *Glyceria rigida*, p. 119, branched from the bottom, generally 2 or 3 inches high, but various in luxuriance, leafy, very smooth and polished, erect or decumbent. *Leaves* linear, acute, nearly smooth; involute when dry. *Sheaths* close, keeled, smooth. *Stipula* short, notched. *Spike* usually simple, but when highly luxuriant, from culture, compound, always unilateral; its main stalk two-edged, wavy, smooth. *Spikelets* ovate-oblong, slightly turgid, smooth, two-ranked, rather close, of numerous imbricated *florets*. *Calyx* strongly keeled, with a blunt membranous point. Outer valve of the *corolla* resembling the calyx; inner fringed at the lateral ribs. *Nectary* undivided, obtuse, surrounding the base of the oblong *germen*. *Styles* scarcely any. *Stigmas* spreading, loosely feathery.



TRIANDRIA TRIGYNIA.

62. MONTIA. Blinks.

Linn. Gen. 41. Juss. 313. Fl. Br. 161. Mich. t. 13. Lam. t. 50. Gärtn. t. 129.

Nat. Ord. Succulentæ. Linn. 13. Portulacææ. Juss. 86. See Samolus n. 118.

Cal. inferior, of 2 ovate, abrupt, concave, erect, permanent leaves. *Cor.* of 1 petal, in 5 deep spreading segments; the 3 smaller ones bearing the stamens; 2 intermediate lateral ones larger. *Filam.* capillary, not longer than the corolla, to whose base they are attached. *Anth.* small, of

2 round lobes. *Germ.* superior, turbinate, 3-lobed. *Styles* very short. *Stigmas* 3, oblong, downy on their upper side. *Caps.* turbinate, of 1 cell and 3 valves. *Seeds* 3, roundish-kidney-shaped, dotted. "The calyx has sometimes 3 leaves, in which case there are 5 *stamens*." Linn.

Annual, herbaceous, with opposite *leaves*, and terminal *flowers*. Only 1 species known.

1. *M. fontana*. Water Blinks. Water Chickweed.

M. fontana. Linn. *Sp. Pl.* 129. Willd. *v.* 1. 487. *Fl. Br.* 161.

Engl. Bot. *v.* 17. *t.* 1206. *Curt. Lond. fasc.* 3. *t.* 8. *Hook. Scot.* 47.

Schrad. Germ. *v.* 1. 414. *Fl. Dan.* *t.* 131. *Ehrh. Herb.* 72.

M. aquatica minor. Mich. *Gen.* 18. *t.* 13. *f.* 2.

M. n. 301. *Hall. Hist.* *v.* 1. 132.

Alsine parva palustris tricoccus, *portulacæ aquaticæ similis*. Raii *Syn.* 352.

Alsineformis paludosa tricarpus, *flosculis albis inapertis*. Pluk. *Phyt.* *t.* 7. *f.* 5. *Vaill. Par.* 10. *t.* 3. *f.* 4.

Cameraria arvensis et minor. Dill. *Giss.* 46. *append.* 114. *t.* 6; *bad.*

In watery places, by the sides of little clear rills, especially on a gravelly soil.

Annual. *April, May.*

Root fibrous. *Herb* smooth, rather succulent. *Stem* 2 or 3 inches high, much branched, spreading, angular, leafy. *Leaves* elliptic-lanceolate, entire, on short stalks. *Fl.* small, white. *Cal.* reddish. *Seeds* black. Valves of the *capsule* permanent, involute at the margins.

Micheli delineates a larger variety, not yet observed in Britain.

63. HOLOSTEUM. Jagged Chickweed.

Linn. Gen. 42. *Juss.* 299. *Fl. Br.* 161. *Lam. t.* 51. *Gærtn. t.* 130.

Nat. Ord. *Caryophylleæ*. Linn. 22. *Juss.* 82. See *Grammar* 161. *N.* 64, 79, and many in *Decandria*, the same.

Cal. inferior, of 5 ovate, concave, permanent leaves. *Petals* 5, oblong, unequally jagged or toothed, deciduous. *Filam.* 3, occasionally more, capillary. *Anth.* roundish. *Germ.* roundish. *Styles* 3, slender, short. *Stigmas* bluntish, downy. *Caps.* nearly cylindrical, of 1 cell, splitting at the top into 6 recurved teeth, finally separable into as many pellucid valves. *Recept.* central, oblong. *Seeds* stalked, peltate, roundish, rough, numerous.

Herbaceous, erect, or prostrate, smooth, rather glaucous. *Leaves* opposite, undivided, entire. *Fl.* umbellate, or paniced, white.

188 TRIANDRIA—TRIGYNIA. Polycarpon.

1. *H. umbellatum*. Umbelliferous Jagged Chickweed.

Flower-stalks umbellate. Leaves ovate, acute.

H. umbellatum. *Linn. Sp. Pl.* 130. *Willd. v. 1.* 489. *Fl. Br.* 161. *Engl. Bot. v. 1. t. 27.* *Rose Elem. append.* 445. *t. 2. f. 4.* *Schrad. Germ. v. 1.* 415. *Fl. Dan. t.* 1204, not exact.

H. quæ Alsine verna glabra, floribus umbellatis. *Dill. Giss.* 41. *append.* 130. *t. 6.*

Cerastium umbellatum. *Huds.* 201. *Dicks. H. Sicc. fasc. 2.* 5. *Hook. Lond. fasc. 1. t. 13.*

Alsine n. 879. *Hall. Hist. v. 1.* 386.

A. verna. *Dalech. Hist.* 1234. *f.*

Caryophyllus holosteus arvensis. *Ger. Em.* 595. *f.*

On old walls, rare.

On several walls and roofs about Norwich, especially in the northern part of the town; first discovered by *Mr. Pitchford*.

About Bury. *Sir T. G. Cullum, Bart.*

Annual. *April.*

Root small, fibrous. *Stems* weak and partly decumbent, branched from the bottom only, 4 or 5 inches high, round, leafy; smooth below; hairy and glutinous at the upper part, between the joints. *Leaves* hardly an inch long, spreading, single-ribbed, glaucous and rather succulent, quite entire and even at the edges; tapering somewhat at the base into short, broad, combined *foot-stalks*. *Flower-stalks* about 5, terminal, umbellate, simple, spreading, at length partly reflexed; with several small *bractæas* at their base. *Calyx* smooth, brownish. *Petals* white, with a tinge of red, elliptic-oblong, variously and unequally jagged at each side, not deeply and regularly cloven, as the character of *Cerastium* requires. *Stam.* in our specimens never more than 3. *Styles* 3. Teeth or valves of the *capsule*, when perfect, naturally 6. *Seeds* reddish. Professor Hooker has detailed, with great candour and accuracy, the difficulties attending the generic determination of this plant. A new round-leaved species from Nepal, having similarly jagged *petals*, confirms my opinion of the essential character; for the *corolla* of the *Caryophylleæ*, whose presence separates them widely, in the natural system, from their near allies, is found to afford their best generic distinctions.

64. POLYCARPON. All-seed.

Linn. Gen. 42. *Juss.* 299. *Fl. Br.* 162. *Lam. t.* 51. *Gærtn. t.* 129.

Nat. Ord. same as *n.* 63.

Cal. inferior, of 5 ovate, keeled, concave, pointed, permanent leaves. *Pct.* 5, obovate, shorter than the calyx, alternate with it, nearly entire. *Filam.* 3, sometimes 5, awl-shaped,

half the length of the calyx. *Anth.* erect, 2-lobed. *Germ.* ovate. *Styles* 3, spreading, the length of the germen. *Stigmas* obtuse, somewhat capitate. *Caps.* ovate, of 1 cell, with 3 ovate, concave valves. *Seeds* numerous, slightly kidney-shaped, rough, nearly sessile, on an oblong central *receptacle*.

Mr. Ferdinand Bauer observed the *style* and *stigma* to be solitary in such of the *flowers* as have 5 *stamens*.

Herbaceous, branched, annual. *Leaves* opposite, in double pairs, undivided, entire. *Fl.* small, in terminal, forked panicles. Only 1 certain species.

1. *P. tetraphyllum*. Four-leaved All-seed.

P. tetraphyllum. *Linn. Sp. Pl.* 131. *Willd. v. 1.* 490. *Fl. Br.* 162. *Engl. Bot. v. 15. t.* 1031. *Fl. Græc. v. 2. 4. t.* 102. *Dicks. H. Sicc. fasc.* 17. 6. *Schrad. Germ. v. 1.* 416.

Paronychia altera. *Matth. Valgr. v. 2.* 389. *f. Dalech. Hist.* 1213. *f. 2.*

Anthyllis marina incana alsinefolia. *Ger. Em.* 622. *f.*

A. alsinefolia polygonoides major. *Barrel. Ic. t.* 534.

In waste ground on the south coast.

On various parts of the coasts of Devonshire, *Huds.* Dorsetshire, and Portland island. *Bishop of Carlisle*.

Annual. *May—August, or later.*

Root tapering. *Stem* very much branched, spreading flat on the ground, beset with numerous, obovate, entire, dark green, smooth, slightly succulent, stalked *leaves*, 2 pair together, crossing each other, so as to resemble a whorl. *Stipulas* opposite, membranous, pointed, jagged. *Panicles* terminal, several times forked, smooth, with a pair of acute membranous *bracteas* at each division. *Fl.* greenish white, small.

Class IV. TETRANDRIA. *Stamens*
4, *equal*.

Order I. MONOGYNIA. *Pistil* 1.

* *Flowers monopetalous, superior, single-seeded.*

65. DIPSACUS. *Common Cal.* of many leaves. *Proper Cal.* single, superior, of 1 leaf, cup-shaped, crowning the seed.
66. SCABIOSA. *Com. Cal.* of many leaves. *Prop. Cal.* double, superior, crowning the seed.
- ** *Fl. monop., superior, 2-seeded.*
70. RUBIA. *Cor.* bell-shaped. *Fruit* pulpy.
69. GALIUM. *Cor.* flat. *Fr.* dry.
68. ASPERULA. *Cor.* tubular. *Fr.* without a crown.
67. SHERARDIA. *Cor.* tubular. *Fr.* crowned with the calyx, each seed with 3 teeth.

*** *Fl. monop., inferior.*

71. EXACUM. *Cor.* salver-shaped, spreading. *Stam.* shorter than the limb. *Caps.* with 2 valves, separating at the top, many-seeded.
72. PLANTAGO. *Cor.* reflexed. *Stam.* very long. *Caps.* bursting all round, of 2 or 4 cells.
73. CENTUNCULUS. *Cor.* tubular, spreading. *Stam.* within the tube. *Caps.* bursting all round, of 1 cell.

Some Gentianæ.

**** *Petals* 4.

75. EPIMEDIUM. *Nect.* 4, hollow, lying on the petals. *Pod* superior, of 1 cell, with many seeds. *Cal.* deciduous.
76. CORNUS. *Nect.* 0. *Drupa* inferior. *Nut* of 2 cells. *Cardamine. Senebiera,* 2.

***** *Petals wanting.*

77. PARIETARIA. *Cal.* 4-cleft, inferior. *Stam.* elastic. *Seed* invested with the elongated calyx. Some flowers without stamens, their *calyx* remaining unaltered.
- *77. ISNARDIA. *Cal.* 4-cleft, superior. *Caps.* quadrangular, of 4 cells, crowned by the calyx.
74. SANGUISORBA. *Cal.* 4-cleft, superior, coloured. *Stam.* dilated upward. *Caps.* quadrangular, of 1 cell, not bursting.
78. ALCHEMILLA. *Cal.* 8-cleft, inferior. *Seed* 1, or 2, naked.

Order II. DIGYNIA. Pistils 2.

79. BUFFONIA. *Petals* 4. *Caps.* of 2 valves. *Seeds* 2.
Alchemilla. Gentianæ. Cuscutæ.

*Order III. TETRAGYNIA. Pistils, or
Stigmas, 4.*

80. ILEX. *Cor.* wheel-shaped, of 1 or 4 petals. *Berry* with 4 seeds. *Styles* 0. Some *fl.* barren.
84. MOENCHIA. *Pet.* 4. *Caps.* of 1 cell, and 1 valve, with 8 teeth. *Cal.* 4-leaved.
83. SAGINA. *Pet.* 4. *Caps.* of 1 cell, and 4 valves. *Cal.* 4-leaved.
86. RADIOLA. *Pet.* 4. *Caps.* of 8 cells, and 8 valves. *Cal.* of 1 leaf, in 12 segments.
85. TILLÆA. *Pet.* 4, 3 or 5. *Caps.* several. *Seeds* several.
81. POTAMOGETON. *Pet.* 4. *Cal.* 0. *Seeds* 4, naked, sessile.
82. RUPPIA. *Pet.* 0. *Cal.* 0. *Seeds* 4, stalked.
Cerastium.

TETRANDRIA MONOGYNIA.

65. DIPSACUS. Teasel.

Linn. Gen. 48. *Juss.* 194. *Fl. Br.* 168. *Tourn.* t. 265. *Lam.* t. 56. *Gærtn.* t. 86.

Nat. Ord. *Aggregatæ*. *Linn.* 48. *Dipsacæ*. *Juss.* 56. *N.* 66. the same.

Common Cal. many-flowered, of many, spreading, permanent, leaves, longer than each flower. *Proper Cal.* superior, double, short, undivided. *Cor.* of each flower monopetalous, tubular; limb in 4 or 5 lobes, erect; the outer segment largest. *Filam.* capillary, from the mouth of the corolla, longer than its limb. *Anth.* oblong, incumbent. *Germ.* inferior. *Style* thread-shaped, the length of the *cor.* *Stigma* simple, or cloven. *Seed* naked, solitary, oblong, angular, crowned with the *proper cal.* *Common receptacle* conical, beset with acute scales, separating the flowers, and extending beyond them.

Herbaceous, biennial, rough with prickles or bristly hairs. *Leaves* opposite, often combined. *Fl.* purplish, or white, in terminal heads, surrounded by a leafy *common calyx*.

*1. *D. fullonum*. Manured, or Fuller's Teasel.

Leaves combined, serrated. Scales of the receptacle hooked backwards. Common calyx reflexed.

D. fullonum. *Linn. Syst. Veg. ed.* 14. 143. *Willd.* v. 1. 543. *Fl. Br.* 168. *Engl. Bot.* v. 29. t. 2080. *Hook. Scot.* 49.

D. fullonum β . *Linn. Sp. Pl.* 140. *Huds.* 61.

D. sativus. *Ger. Em.* 1167. f. *Raii Syn.* 192.

D. albus. *Fuchs. Hist.* 224. f. *Ic.* 127. f.

Carduus fullonum. *Lob. Ic.* v. 2. 17. f.

Labrum Veneris. *Matth. Valgr.* v. 2. 24. f. *Camer. Epit.* 431. f.

About hedges, according to Hudson; but scarcely wild.

Biennial. *July*.

Root fleshy, tapering, branched. *Stem* 5 or 6 feet high, erect, strongly furrowed, prickly, leafy, branched at the top. *Leaves* sessile, combined at the base, serrated or jagged, naked, with prickly ribs. *Fl.* whitish, with pale purple *anthers*, very numerous, in a close, obtuse, conical head, the intermediate *scales* bristly at the edges; rigid, and hooked at the points; by which they are rendered serviceable for carding woollen cloth, being fixed, in several rows, in wooden frames with handles, adapted for that purpose. The scales are just strong enough to raise the

wool, giving way before they can injure the cloth. Some esteem this but a luxuriant variety of the following, as it requires a very richly manured soil, to preserve its characters, and useful properties.

2. *D. sylvestris*. Wild Teasel.

Leaves opposite, serrated. Scales of the receptacle straight. Common calyx inflexed, longer than the head.

D. sylvestris. *Linn. Syst. Veg. ed. 14.* 143. *Willd. v. 1.* 544. *Fl. Br.* 168. *Engl. Bot. v. 15. t.* 1032. *Curt. Lond. fasc. 3. t.* 9. *Hook. Scot.* 49. *Jacq. Austr. t.* 402. *Ger. Em.* 1167. *f. Cord. Hist.* 105, 2. *f. Raii Syn.* 192.

D. fullonum α . *Linn. Sp. Pl.* 140. *Huds.* 61.

D. n. 198. *Hall. Hist. v. 1.* 86.

D. purpureus. *Fuchs. Hist.* 225. *f. Ic.* 128. *f.*

Labrum Veneris. *Lob. Ic. v. 2.* 18. *f.*

L. Veneris alterum. *Matth. Valgr. v. 2.* 25. *f. Camer. Epit.* 432. *f.*

About moist hedges, and by road sides, frequent.

Biennial. *July*.

Less robust than the foregoing, about 4 feet high. *Leaves* often joined at the base, but less remarkably. *Heads* large, encompassed and overtopped by the long, leafy, common calyx. *Scales* of the *recept.* straight, taper, prominent. *Cor.* light purple, or lilac, 4-cleft, as in the preceding.

3. *D. pilosus*. Small Teasel. Shepherd's Staff.

Leaves stalked, with lateral leaflets. Common calyx deflexed, about the length of the head.

D. pilosus. *Linn. Sp. Pl.* 141. *Willd. v. 1.* 544. *Fl. Br.* 169. *Engl. Bot. v. 13. t.* 877. *Curt. Lond. fasc. 1. t.* 10. *Hook. Scot.* 49. *Jacq. Austr. t.* 248. *Fl. Dan. t.* 1448.

D. n. 199. *Hall. Hist. v. 1.* 86.

D. minor, sive *Virga pastoris*. *Ger. Em.* 1168. *Raii Syn.* 192.

D. sylvestris, capitulo minore. *Moris. v. 3.* 168. *sect. 7. t.* 36. *f. 5.*

Virga pastoris. *Lob. Ic. v. 2.* 18. *f. Matth. Valgr. v. 2.* 26. *f. Camer. Epit.* 433. *f.*

In moist shady places, on a chalky, or limestone, soil.

In various parts of Norfolk and Suffolk; also at Matlock bath, Derbyshire, and occasionally in other places. In Scotland, according to Lightfoot, but not common.

Biennial. *August, September*.

Stem 3 or 4 feet high, with spreading branches, angular, leafy, rough with ascending hooked prickles. *Leaves* deep green, ovate, pointed, strongly serrated, ternate. *Fl.* white, in small globular heads. *Anth.* brown, or purplish. *Scales* straight,

fringed, as is also the crown of the *seed*. *Cor.* unequally 5-cleft. A useless weed, but not troublesome to the farmer.

66. SCABIOSA. Scabious.

Linn. Gen. 48. *Juss.* 194. *Fl. Br.* 170. *Tourn.* t. 263, 264. *Lam.* t. 57. *Gartn.* t. 86.

Nat. Ord. same as *n.* 65.

Common Cal. many-flowered, of numerous spreading leaves, surrounding the *receptacle* in several rows, and attached to it; the innermost gradually smaller. *Proper Cal.* double, superior, permanent; the outer shortest, membranous, plaited, ribbed; inner in 5, or more, deep, awl-shaped, slender, sometimes feathery, segments. *Cor.* of each flower monopetalous, tubular, dilated upwards; limb in 4 or 5, equal or unequal, segments. *Filam.* 4, spreading, lax, from the mouth of the *cor.* longer than its limb. *Anth.* oblong, incumbent. *Germ.* inferior. *Style* thread-shaped, about as long as the *corolla*. *Stigma* obtuse, cloven. *Seed* naked, solitary, crowned with the double, enlarged or expanded, *calyx*. *Common receptacle* convex, either chaffy, bristly, or naked.

A numerous, chiefly European, genus, generally perennial, in a few instances shrubby. *Stem* round, leafy. *Leaves* opposite, mostly hairy; generally compound, or divided. *Fl.* solitary, terminal, stalked, purplish, or yellowish white. The outermost *corollas* being often largest, render the whole aggregate *flower* radiant in several species. The *corolla* being in some 4-cleft, in others 5-cleft, divides the whole into two great sections.

1. *S. succisa*. Devil's-bit Scabious.

Corolla in four equal segments. *Heads* nearly globular. *Stem-leaves* distantly toothed.

S. succisa. *Linn. Sp. Pl.* 142. *Willd. v.* 1. 548. *Fl. Br.* 170. *Engl. Bot. v.* 13. t. 878. *Curt. Lond. fasc.* 3. t. 10. *Hook. Scot.* 49. *Fl. Dan.* t. 279.

S. radice succisa, flore globoso. *Raii Syn.* 191.

Succisa. *Fuchs. Hist.* 715. f.

S. sive Morsus diaboli. *Matth. Valgr. v.* 1. 571. f. *Camer. Epit.* 397. f.

Morsus diaboli. *Ger. Em.* 726. f.

In grassy, rather moist, pastures.

Perennial. *August—October.*

Root blackish, abrupt at the lower end. *Stem* a foot high, or more,

rough with deflexed hairs. Radical *leaves* numerous, obovate, entire; those of the stem variously toothed, or coarsely serrated; the uppermost lanceolate, entire; all dark green, harsh and hairy. *Fl.* 3 or more, dark purplish blue; often milk-white; very rarely, according to Dr. Kendrick, of a pale purple. They are too bright a blue in *Engl. Bot.* The hairs on every part of the *flower-stalks* point upwards. *Seed-crown* chiefly of 5 bristles.

2. *S. arvensis*. Field Scabious.

Corolla in four segments; the marginal flowers radiant. Leaves pinnatifid, cut. Stem bristly.

S. arvensis. *Linn. Sp. Pl.* 143. *Willd. v. 1.* 550. *Fl. Br.* 170. *Engl. Bot. v. 10. t.* 659. *Curt. Lond. fasc. 4. t.* 13. *Hook. Scot.* 49. *Fl. Dan. t.* 447.

S. n. 206. *Hall. Hist. v. 1.* 89.

S. major communior, flore laciniato. *Raii Syn.* 191.

S. major vulgaris. *Ger. Em.* 719. *f.*

Scabiosa. *Fuchs. Hist.* 716. *f.*

In cornfields and pastures.

Perennial. *July.*

Stem a yard high. Whole plant hairy; reported to be sometimes smooth, with all the *leaves* undivided, but this has not been seen in England. The radical *leaves* are lanceolate, serrated, stalked; the rest pinnatifid, the upper ones most deeply, and quite sessile. *Fl.* large and handsome, of a fine pale purple; changing to a most beautiful green if held for a few minutes over the smoke of tobacco. Those of the disk are palest, or reddish, nearly equal; those of the circumference large, unequal, without perfect *stamens*. *Seed-crown* small, bristly. Sheep and goats are said to eat this herb, but its bitter and nauseous flavour is not agreeable to domestic cattle.

3. *S. columbaria*. Small Scabious.

Corolla in five unequal segments. Radical leaves ovate, or lyrate, notched; the rest pinnatifid, linear.

S. columbaria. *Linn. Sp. Pl.* 143. *Willd. v. 1.* 552. *Fl. Br.* 171. *Engl. Bot. v. 19. t.* 1311. *Hook. Scot.* 50. *Fl. Dan. t.* 314. [but this is rather *S. gramuntia*, according to Professor Bertoloni, in his letter of May 4, 1827.]

S. minor vulgaris. *Raii Syn.* 191. *Bauh. Hist. v. 3. 3. f.* 4.

S. minor, sive *columbaria*. *Ger. Em.* 719. *f.*

S. minor. *Camer. Epit.* 711. *f.*

In pastures, and waste ground, on a chalky, limestone, or gravelly soil. Rare in Scotland, and mountainous countries.

Perennial. *June—August.*

Root woody; bristly at the crown. *Stem* 12 to 18 inches high. *Leaves* and *flowers* smaller and more delicate than in the last,

from which this species is elegantly and decisively distinguished by the 5-cleft *corolla*, which like that is radiant. *Seed-crown* of 5 brown bristles, accompanied by a short, notched, membranous ruffle, originating in the outer *calyx*.

67. SHERARDIA. Sherardia, or Field-madder.

Linn. Sp. Pl. 50. *Juss.* 196. *Fl. Br.* 171. *Lam. t.* 61. *Gartn. t.* 24. *Nat. Ord. Stellatæ.* *Linn.* 47. *Rubiaceæ.* *Juss.* 57. *sect.* 1. 3 following genera the same. See *Grammar* 127.

[The first section in Jussieu, to which all our genera belong, is the genuine type of this order, as originally understood. It is marked by a *fruit* consisting of 2 naked *seeds*, of a roundish or perfectly globular figure, whose skin is either smooth, granulated, hairy, or prickly, and in *Rubia* is internally pulpy. Or this fruit may be considered as a pair of *Utriculi*; or membranous *capsules* without valves, see *Grammar* 23; *Rubia* having a twin *berry*. The latter accords with the sentiments of those who do not acknowledge the existence of naked *seeds*. The *leaves* are simple, undivided, 4 or more in each whorl; their edges prickly rather than serrated. *Flowers* axillary or terminal, generally many together.

These herbs are said to possess a diuretic quality.

A prize was offered in 1789, by the Academy of Sciences, &c., at Lyons, for the best botanical and economical treatise on the Linnæan *Stellatæ*; and it was gained by the late M. Willemet of Nanci, whose work, forming a small octavo volume, was published at Strasburgh in 1791.]

Cal. small, superior, of 1 leaf, with 6 segments or teeth, permanent. *Cor.* monopetalous, funnel-shaped; tube cylindrical; limb in 4, rarely but 3, equal, flat, acute segments. *Filam.* from the mouth of the tube, recurved. *Anth.* roundish, 2-lobed. *Germ.* inferior, of 2 round or oblong lobes. *Style* capillary, divided at the top. *Stigmas* bluntish, or capitate. *Seeds* 2, naked, roundish or oblong, rough, each crowned with 3 teeth from the *calyx*.

Herbaceous, with branched *stems*, and whorled *leaves*. *Fl.* terminal, or axillary; blue or yellow.

1. *S. arvensis*. Blue Sherardia. Little Field-madder. All the leaves whorled. Flowers terminal.

S. arvensis. *Linn. Sp. Pl.* 149. *Willd. v.* 1.574. *Fl. Br.* 171. *Engl.*

Bot. v. 13. *t.* 891. *Curt. Lond. fasc.* 5. *t.* 13. *Hook. Scot.* 50.
Fl. Dan. t. 439. *Willem. Stell.* 76.

Sherardia. Dill. Giss. append. 96. *t.* 3. *Blair Bot. Ess.* 155. *t.* 4.
f. 6. *Hall. Hist. n.* 734. *v.* 1. 321.

Rubeola arvensis cœrulea repens. Bauh. Prodr. 145. *Raii Syn.* 225.

Asperula flore carneo, acuto folio. Barrel. Ic. t. 541. *f.* 1.

In fallow fields, or among corn, on a light, or gravelly, soil.

Annual. *June—August.*

Root small. *Herb* generally hairy. *Stems* several, branched, spreading, mostly decumbent, square, leafy, 3 to 6 inches long.

Leaves 6 in a whorl, obovate, acute, entire, palish green; roughest at the edges and keel. *Fl.* in a sessile terminal umbel, enveloped with 1 or 2 of the upper whorls, whose leaves are narrower, often more numerous, than the rest. *Cor.* slender, of a pale purplish blue. *Anth.* tawny. *Stigmas* capitate. *Fruit* of 2 globular, closely combined *seeds*, roughish, crowned with the somewhat enlarged *calyx*.

This is perhaps the only genuine species of *Sherardia*. Two others, *muralis* and *erecta*, may be seen in the *Flora Græca*; but these have oblong disunited *seeds*, whose crown is but obscure, and whose *flowers* are yellow, with simple *stigmas*. *S. fruticosa* of Linnæus has not the *calyx* proper to the genus, and resembles in habit *Ernodea montana*, *Fl. Græc. t.* 143.

68. ASPERULA. Woodruff.

Linn. Gen. 50. *Juss.* 196. *Fl. Br.* 172. *Lam. t.* 61.

Nat. Ord. see *n.* 67.

Cal. superior, of 4 small teeth, deciduous. *Cor.* monopetalous, funnel-shaped; tube nearly cylindrical, various in length; limb in 4, occasionally but 3, deep, oblong, spreading segments. *Filam.* in the mouth of the tube, alternate with the segments, short. *Anth.* of 2 round lobes.

Germ. inferior, of 2 roundish lobes. *Style* thread-shaped, divided at the upper part. *Stigm.* capitate, small. *Seeds* 2, naked, combined, globular, not crowned by the calyx.

Herbaceous, or somewhat shrubby, all Europæan, of rather humble stature. *Leaves* sessile, whorled, either numerous, or not more than 4. *Fl.* always terminal, paniced, white, or reddish, rarely yellowish or blue; often fragrant. *Seeds* rough or smooth.

1. *A. odorata*. Sweet Woodruff.

Leaves eight in a whorl, lanceolate. Panicles stalked, of few flowers.

A. odorata. Linn. Sp. Pl. 150. *Willd. v.* 1. 575. *Fl. Br.* 172. *Engl*

- Bot. v. 11, t. 755. Curt. Lond. fasc. 4, t. 15. Hook. Scot. 50. Fl. Dan. t. 562. Dod. Pempt. 355. f. Willem. Stell. 65.*
Asperula. Ger. Em. 1124. f. Raii Syn. 224. Mill. Ic. t. 55. f. 2.
A. n. 728. Hall. Hist. v. 1. 319.
Matrisylva. Trag. Hist. 496. f.
Galium Matrisylva. Wiggers Holsat. 13.
Hepatica altera. Brunf. Herb. v. 1. 191. v. 2. 82. f.

In dry mountainous woods.

Perennial. *May.*

Root creeping. Stems simple, annual, a span high, angular, smooth, leafy. Leaves 7—9 in each whorl, usually 8, bright green, spreading, about an inch long, rough at the edges only. Panicles generally 3 together, on longish stalks, forked, not much subdivided. Fl. pure white, with a short tube; fragrant chiefly at night. Fruit rough with ascending bristles. The herb while drying has the scent of new hay, approaching to bitter almonds, or Heliotropium peruvianum, of which it retains a portion some time. The edges of the leaves stick to the hands, or clothes, in a manner almost peculiar to the rough plants of this natural order, caused by the minute hooked bristles to which that roughness is owing.

2. *A. cynanchica*. Small Woodruff. Squinancy-wort.

Leaves linear, four in a whorl; the upper ones very unequal. Flowers all four-cleft. Fruit smooth.

- A. cynanchica. Linn. Sp. Pl. 151. Willd. v. 1. 579. Fl. Br. 172. Engl. Bot. v. 1. t. 33. Willem. Stell. 67.*
A. n. 730. Hall. Hist. v. 1. 320.
Rubeola vulgaris quadrifolia lævis floribus purpurantibus. Raii Syn. 225.
Rubia cynanchica. Bauh. Hist. v. 3. 720. f.
Galium montanum latifolium cruciatum. Column. Ecphr. v. 1. 296. t. 297. f. 1.
Synanchica. Dalech. Hist. 1185. Ger. Em. 1120.

On dry chalky sunny banks, abundantly in the chalk counties, but not in Scotland or Wales.

Perennial. *June, July.*

Stems numerous, ascending, from 4 to 6 inches high, copiously clothed with linear smooth leaves, for the most part 4 in a whorl; but some of the uppermost are 2 of them so diminished, as to have been overlooked, even by Linnæus. Fl. in terminal panicled tufts, sometimes very fragrant. Cor. white or blush-coloured, elegantly marked with three red lines on each segment. Fruit granulated, as Professor Schrader has remarked to me; though not bristly, as in Columna's figure.

Physicians do not, in our days, rely on the practice of old Dalechamp, who recommends this plant, outwardly as well as inwardly, to cure the Squinancy, or Quinsy. Hence however we

have retained an obsolete and unmeaning name, for a plant which might easily have had one more expressive.

69. GALIUM. Bed-straw.

Linn. Gen. 52. *Juss.* 196. *Fl. Br.* 173. *Tourn. t.* 39. *Lam. t.* 60. *Gærtn. t.* 24.

Aparine. *Tourn. t.* 39.

Nat. Ord. see *n.* 67.

Cal. superior, very minute, with 4 teeth. *Cor.* monopetalous, wheel-shaped, in 4 deep, acute, often long-pointed, segments, without a tube. *Filam.* from the base of the corolla, awl-shaped, shorter than the limb. *Anth.* of 2 round cells. *Germ.* inferior, of 2 combined globes. *Style* thread-shaped, the length of the stamens, cloven at least half-way down. *Stigm.* capitate. *Seeds* 2, naked, combined, globular, not crowned by the calyx.

A genus, chiefly Europæan, more extensive than the last, similar in habit. *Fl.* terminal or lateral, not sweet-scented. The skin of the *seed*, as in *Asperula*, is either smooth, granulated, or bristly. In some species the *flowers* are partially imperfect; in others partly 3-cleft, or 5-cleft.

* *Fruit smooth.*

1. *G. cruciatum.* Cross-wort Bed-straw. Mug-weed.

Leaves ovate, hairy, four in a whorl. Stem hairy, simple above. Flower-stalks axillary, corymbose, with two leaves.

G. cruciatum. *With.* 186. *Fl. Br.* 173. *Engl. Bot. v.* 2. *t.* 143. *Hook. Scot.* 51.

G. Cruciata. *Scop. Carn. v.* 1. 100.

G. n. 709. *Hall. Hist. v.* 1. 314.

Valantia Cruciata. *Linn. Sp. Pl.* 1491. *Willd. v.* 4. 951. *Huds.* 441. *Willem. Stell.* 86.

Cruciata. *Ger. Em.* 1123. *f. Raii Syn.* 223. *Dod. Pempt.* 357. *f.*

In thickets and hedges, common.

Perennial. *May.*

Root slender, creeping. *Stem* branched at the base, simple above, 12 or 18 inches high, square, hairy, supporting itself among bushes, and beset with numerous whorls of soft, hairy, ribbed, ovate leaves. *Flowers* small, yellow, about 8 on a slender corymbose stalk, from the bosom of each leaf, and accompanied by 2 smaller ovate leaves, upon the stalk. Several of the *fl.* want the *pistil*; some are 3-cleft; a few occasionally 5-cleft. *Fruit* quite smooth, concealed by the deflexed leaves.

2. *G. palustre*. White Water Bed-straw.

Leaves obovate, obtuse; the upper ones four in a whorl, unequal in size. Stem weak; branched in the upper part.

G. palustre. *Linn. Sp. Pl.* 153. *Willd. v. 1.* 585. *Fl. Br.* 174. *Engl. Bot. v. 26. t.* 1857. *Hook. Lond. fasc. 1. t.* 20. *Scot.* 51. *Fl. Dan. t.* 423. *Willem. Stell.* 44.

G. n. 719. *Hall. Hist. v. 1.* 317.

Molluginis vulgatoris varietas minor. *Raii Syn.* 214. *Buddle's Herb. in the British Museum.*

In moist meadows, ditches, and the borders of rivers, among reeds and other tall plants, common.

Perennial. *July.*

Stems smooth, much branched, weak, 3 or 4 feet high when supported. *Leaves* always obtuse, smooth except at the edges; the lower ones, on the main stem, often 5 or 6 in a whorl; the rest but 4, of which 2 opposite ones are always smaller. *Panicles* terminal, widely spreading, imperfectly corymbose, partly umbellate, smooth. *Cal.* scarcely any. *Cor.* white, with broad, acute, not pointed, segments. *Fruit* small, very smooth. *Fruit* dotted, sparingly perfected.

G. album, *Ger. Em.* 1126, though cited by Ray and all following authors, appears by the figure to be some other species.

3. *G. Witheringii*. Rough Heath Bed-straw.

Leaves about five in a whorl, widely spreading, lanceolate, fringed with bristles. Stem upright, slightly branched, rough with reversed hooks.

G. Witheringii. *Fl. Br.* 174. *Engl. Bot. v. 31. t.* 2206. *Hull ed. 2.* 44. *Hook. Scot.* 51.

G. montanum. *With.* 128. *t.* 28, (*incorrect*), *from the author.*

In moist, heathy, rather elevated, spots.

On the high but boggy parts of Handsworth heath, near Birmingham, (now inclosed and cultivated). *Withering.* Norfolk. *Mr. Rose.* In Bank Meadow, at Rose Castle, Cumberland. *Bishop of Carlisle.* In Anglesea. *Mr. W. Wilson.*

"This appears, by a specimen in the herbarium of the late Rev. H. Davies, to be his *G. uliginosum*, *Welsh Bot.* 15." *Mr. Wilson.* It is more luxuriant than I ever before saw *G. Witheringii*, the stem being two feet long.

Perennial. *July.*

Root creeping, slender. *Stem* upright, weak, about a foot high, slightly branched, sometimes quite simple, quadrangular, leafy; the angles beset with minute hooks, curved downwards. *Leaves* 5, sometimes 6, in a whorl; on the branches but 4; spreading or deflexed, small, elliptic-lanceolate, bluntish, often tipped with a very small bristle, not a hair, scarcely perceptible, and frequently wanting; the midrib rough underneath with reversed

hooks ; the upper side, near the edges, with bristles pointing forward, as are also the edges themselves, except near the base, where there are often some reversed hooks. *Panicles* small, terminal, forked, smooth, except the main stalk. *Buds* purplish. *Cor.* cream-coloured ; segments 3-ribbed, acute, pointless. *Anth.* at first pale yellowish green, but soon turning to a reddish brown. *Style* deeply cloven. *Stigm.* globular, green. *Germen* and *fruit* smooth.

Dr. Withering's figure erroneously represents the *stem* clothed with long, straight, erect hairs, though his own specimen is as above described. Hence Professor Hooker judged this "a very doubtful species" ; but without seeing the plant, which may well excuse his mistake ; for the species of this genus require accurate and minute investigation. The present turns brown in drying, which *G. uliginosum* does not. Other characters of the latter will be found in their proper place.

4. *G. saxatile*. Smooth Heath Bed-straw.

Leaves six in a whorl, obovate, obtuse, with a small point. Stem much branched, prostrate, smooth. Fruit granulated.

G. saxatile. Linn. *Sp. Pl.* 154. Willd. v. 1. 588. *Fl. Br.* 175. *Engl. Bot.* v. 12. t. 815. Hook. *Scot.* 51. Willem. *Stell.* 41.

G. montanum. Huds. 67. *Cullum* 55. *Relh.* 66.

G. procumbens. With. 187. Sibth. 59. Abbot 34.

G. hircynicum. Weig. *Obs.* 25. Willd. *Sp. Pl.* v. 1. 595. Ehrh. *Herb.* 82. DeCand. *lc. fasc.* 1. 8. t. 25.

G. n. 717. Hall. *Hist.* v. 1. 317.

Mollugo montana minor, *galio albo similis*. Raii *Syn.* 224. *Herb. Buddle.*

Ray's Small Madder. *Petiv. II. Brit.* t. 30. f. 6.

On heaths and hilly ground abundantly.

Perennial. *June—August.*

Root creeping. *Stems* procumbent, or straggling, smooth, square.

Leaves numerous ; small on the lateral branches ; thrice as large on the stem ; obovate, with a small flat point, dark green, smooth on both sides, roughish at the edges, more or less, with short, direct, tooth-like serratures. *Fl.* milk-white, copious and very conspicuous amongst heath, grass, &c., in smooth, forked, terminal and lateral panicles. *Seeds* reddish after the flowers fall ; wrinkled if abortive, as in Dr. Hooker's specimens ; but if fertile, minutely dotted while young, and subsequently covered with prominent granulations.

Willdenow is wrong in his synonyms, as in most of the genus. No species can be more common, or more distinct, though hitherto greatly misunderstood. The *leaves* vary in breadth.

5. *G. uliginosum*. Rough Marsh Bed-straw.

Leaves six in a whorl, obovate-lanceolate, rigid, bristle-

pointed; their edges rough, like the stem, with recurved prickles. Fruit smooth, smaller than the corolla.

G. uliginosum. *Linn. Sp. Pl.* 153. *Willd. v.* 1. 595. *Fl. Br.* 175. *Engl. Bot. v.* 28. *t.* 1972. *Don II. Br.* 102. *Hook. Lond. fasc.* 1. *t.* 21. *Scot.* 51. *Ehrh. Herb.* 102. *Willem. Stell.* 40.

G. n. 713. *Hall. Hist. v.* 1. 316; from the son of the author. But it can scarcely be *Barrelier's t.* 82.

Aparine palustris minor parisiensis, flore albo. *Dill. in Raii Syn.* 225.

In wet meadows, watery places, and ditches among reeds, &c.

Perennial. *August.*

Root and lateral shoots creeping. Whole plant of a rather bright green, as in Professor Hooker's excellent figure, which it retains when dry. The *stems* are brittle and weak, a foot high, supporting themselves on other plants, and sticking by their rough edges. *Leaves* pretty uniformly six in a whorl, except on the weak, or ultimate, shoots; lanceolate inclining to obovate, their dilatation, if remarkable, being above the middle; they end in a pale bristle, and the tip of the leaf itself is discoloured; the edges are uniformly beset with minute, recurved, very sharp prickles, often accompanied with a less complete row of similar prickles, on the disk adjoining, directed the contrary way, which may deceive an incautious observer. The main *rib* has recurved prickles underneath, like the marginal ones. *Fl.* small, white, on terminal, forked, smooth, slightly paniced, *stalks.* *Anth.* pale. *Fruit* small, dotted. Willdenow places this among the rough-fruited species; but his synonyms are so confused, it is impossible to ascertain what he intended.

If the points and prickles of the *leaves*, as well as their shape, be duly observed, this plant can never be confounded with *G. Witheringii*, for the characters thence derived, though much neglected, are no less constant than curious.

6. *G. erectum.* Upright Bed-straw.

Leaves about eight in a whorl, lanceolate, bristle-pointed, with marginal prickles all pointing forward. Stem weak, slightly hairy under each joint. Fruit smooth and even. Corolla taper-pointed.

G. erectum. *Huds.* 68. *Fl. Brit.* 176. *Engl. Bot. v.* 29. *t.* 2067. *Dicks. H. Sicc. fasc.* 17. 2. *Hook. Scot.* 51? *Willem. Stell.* 47, excluding the *syn.*

In hedges and pastures, whether dry or somewhat moist, but not common.

On the bushy part of Heydon Common, Norfolk. *Mr. Crowe.* In dry hedges at Portslade, Sussex. *Mr. Borrer.*

Perennial. *June, July.*

Stems $1\frac{1}{2}$ or 2 feet high, weak, resting on other plants, branched,

whitish or glaucous, square, except immediately under the whorls, where they acquire intermediate angles, and are somewhat hairy, though otherwise smooth. *Leaves* lanceolate, scarcely at all obovate, except some of the lower ones, a little glaucous, copiously reticulated with veins; smooth on both sides, even the midrib; but the edges, and the adjoining portion of the disk above, bear a double row of hooked prickles, all directed forward. By this the present plant differs essentially from *G. uliginosum*, as well as in its larger size, stouter habit, glaucous hue, and larger less obovate *leaves*, though their discoloured tips, and terminal bristles, agree. The *flowers* of the present, however, are larger, far more numerous, and crowded into dense, terminal, compound *panicles*; each segment of their *corolla* tipped with an awn-like point.

7. *G. cinereum*. Grey Spreading Bed-straw.

Leaves six or eight in a whorl, linear, bristle-pointed, with marginal prickles all pointing forward. Stem weak, much branched, smooth. Fruit smooth. Corolla taper-pointed.

G. cinereum. *Allion. Pedem. v. 1. 6. t. 77. f. 4. Willem. Stell. 54.*
G. diffusum, *Hook. Scot. 52.*

In the Lowlands of Scotland.

On the banks of the river Leith, near Slateford, 3 miles from Edinburgh. *Mr. G. Don.*

Perennial. *August.*

Stems loosely spreading, $1\frac{1}{2}$ or 2 feet high, repeatedly branched, leafy, smooth, pale, or somewhat glaucous, quadrangular, one or two of the angles sometimes doubled. *Leaves* 8 in a whorl on the main stem; 6 on the branches; linear, scarcely at all lanceolate, destitute of veiny reticulations, smooth on both sides, the edges rough, especially towards the point, with sharp, shallow serratures, or close bristles, hardly more than a simple, strictly marginal, row, pointing forwards. *Panicles* terminating the stem and upper branches, 3-forked, corymbose; the upper ones aggregate. *Stalks* quite smooth. *Cor.* white, larger than in the last, with horizontal segments, each tipped with a short, taper, not bristly, point, various in length and direction. *Stigmas* globular, large. *Fruit* smooth, or slightly granulated.

This comes very near *G. erectum*; experience must prove how far the differences above indicated are constant. Seeds were sent by M. Thouin, named "*G. cinereum* of DeCandolle," and plants raised from them flowered in August 1815, near Norwich. I have a wild one from the late Mr. G. Don, as a new species, exactly agreeing therewith. *G. austriacum*, Jacq. Austr. t. 80, from the author, comes nearer to this than the figure indicates; but the edges of its *leaves* are either quite smooth, or rough with a

few recurved prickles. The *leaves* of these 3 species are more or less revolute, at least when dry.

8. *G. aristatum*. Bearded Bed-straw.

Leaves six in a whorl, stalked, lanceolate, flat, reticulated with veins, bristle-pointed, with minute marginal prickles pointing forward. Stem much branched, spreading, smooth. Seeds smooth, kidney-shaped, separated. Corolla taper-pointed.

G. aristatum. *Linn. Sp. Pl.* 152.

G. foliis pluribus lanceolatis, pedunculis in summo caule floriferis.
Van Royen Prodr. 256.

G. album linifolium. *Barrel. Ic. v. 1. 12. t. 356.*

Rubia lævis linifolia, floribus albis. *Bocc. Mus. v. 1. 83. t. 75.*

On hilly ground in Scotland.

In Angushire, but not common. *Mr. G. Don.*

Perennial. *July, August.*

The *root* appears by Boccone's figure, of which Barrelier's is a copy, to be woody. Both figures, except the solitary leaf, are diminished. The *stems* are numerous, a foot high, upright, with copious spreading branches, square, very smooth. *Leaves* 6 in a whorl on the main stem, and often on the branches, though sometimes but 4 or 5; the largest above an inch long, on short broad stalks, elliptic-lanceolate, flat, pliant, deep green on both sides, with many interbranching veins, smooth except the edges, which are very minutely prickly. *Fl.* white, in terminal, forked, aggregate, compound *panicles*, with perfectly smooth, slender, but not capillary, stalks. Segments of the *cor.* spreading, each tipped with a taper point of its own substance, as in the 2 last, not with a real bristle. *Seeds* becoming kidney-shaped as they ripen, with a central vacancy, smooth, or slightly granulated.

This new addition to our *Flora*, sent by the late Mr. Don as *G. erectum*, is undoubtedly the original *G. aristatum*, described by Linnæus in *Sp. Pl.* 152, with which he afterwards confounded his *lævigatum*, *Sp. Pl.* 1667. But this latter proves on comparison, as he himself suspected, the same with *sylvaticum*, remarkable for its capillary panicle; though it is the *aristatum* of many succeeding authors, as far as they had any distinct ideas of that little-known plant. The *fruit* of *G. sylvaticum* is a small double globe, the globular *seeds* being closely combined; the *leaves* are glaucous at the back; the *stem* round; in all which particulars it differs abundantly from our true *aristatum*. Morison, cited in *Hort. Kew.* does not prove the plant he mentions, whatever it was, to have been cultivated in England; for he only saw it dry, brought from Paris by Sherard.

9. *G. verrucosum*. Warty-fruited Bed-straw.

Leaves six in a whorl, lanceolate, with marginal prickles all

pointing forward. Stalks axillary, three-flowered. Fruit warty, drooping.

G. verrucosum. *Comp.* 25. *Engl. Bot.* v. 31. t. 2173. *Fl. Græc.* v. 2. 24. t. 133. *Hook. Scot.* 52.

G. tricornè. *Don H. Br.* 103.

Valantia Aparine. *Linn. Sp. Pl.* 1491. *Willd.* v. 4. 950; with faulty synonyms. *Schrad. Spicil.* 55. t. 1. f. 3. *Willem. Stell.* 87.

Aparine semine coriandri saccharati. *Tourn. Inst.* 114. *Vaill. Par.* t. 4. f. 3, b.

A. minor saxatilis, verrucoso semine. *Cupan. Panph. ed. 1. v. 1. t. 21.*

In cornfields, rare.

In the Carse of Gowrie, and near Forfar, Scotland. *Mr. G. Don.*
Near Malton, Yorkshire. *Mr. R. Miller.*

Annual. *June—August.*

Root slender, reddish when dried. *Stems* several, spreading, a span long, slightly branched, rough at the 4 angles with reflexed prickles, while similar ones on the margins of the *leaves* all point forward. *Fl.* small, pale yellow. *Fruit* a large double globe, beset with pyramidal warts, which give it the form of coriander comfits. The two lateral *flowers* generally have no *pistil.*

10. *G. tricornè.* Rough-fruited Corn Bed-straw. Three-flowered Goose-grass.

Leaves about eight in a whorl, lanceolate, with reflexed marginal prickles, like those on the stem. Stalks axillary, three-flowered. Fruit sharply granulated, drooping.

G. tricornè. *With. ed. 2.* 153. *Fl. Br.* 176. *Engl. Bot.* v. 23. t. 1641. *Relh.* 56.

G. spurium. *Huds.* 68. *With.* 190. *Sibth.* 59. *Abbot* 33.

G. n. 725. *Hall. Hist.* v. 1. 319. *Davall.*

Valantia Aparine. *Mart. Rust.* t. 122.

Aparine semine læviore. *Raii Syn.* 225.

A. semine lævi. *Vaill. Par.* 14. t. 4. f. 3; except b.

A. coriandri semine, foliis asperis. *Cupan. Panph. ed. 2. t. 18.*

A. foliis brevioribus, et semine læviore. *Moris.* v. 3. 332.

In dry chalky fields, not common.

In the isle of Thanet, in Surrey, and near Stamford. *Hudson.* In Oxfordshire, Yorkshire, Gloucestershire, Norfolk, and the isle of Wight. *Fl. Br. and Engl. Bot.*

Annual. *July.*

Root small. *Stems* several, simple, weak, with four rough angles, whose prickles are deflexed, as in the last. The edges and ribs of the *leaves* are beset with similar prickles, all curved downwards, not, as in the preceding, directed towards the point. This invariable character might have prevented Haller, Willde-

now, and others, from confounding the two species, which indeed differ in other respects. The *flowers* of the present are greenish white, all three on each stalk generally perfect in structure, though seldom all fertile. The *fruit* is a double globe, covered with bristly granulations, and looks as if it had been shaven with a razor.

11. *G. spurium*. Smooth-fruited Corn Bed-straw.

Leaves about eight in a whorl, lanceolate, with reflexed marginal prickles, like those on the stem. Stalks axillary, many-flowered, cymose. Fruit smooth, erect.

G. spurium. *Linn. Sp. Pl.* 154. *Engl. Bot.* v. 26. t. 1871. *Hook. Scot.* 52. *Don H. Br.* 104. *Willem. Stell.* 47.

G. n. 724. *Hall. Hist.* v. 1. 318. *Nomencl.* 66. *Davall.*

Aparine vulgaris, *semine minori*. *Vaill. Par.* 14. t. 4. f. 4; *except b.*

In cornfields in North Britain.

About Forfar, but sparingly. *Mr. G. Don.*

Annual. *June, July.*

This resembles the common *G. Aparine*, hereafter described, in habit, but the *leaves* are sometimes shorter. Their general form is linear-lanceolate; and they are each tipped with a pale hair, variable in length. They are from 6 to 8 or 9 in a whorl, naked on both sides; the edges and keel rough with small recurved prickles, such as are found, much more sparingly, on the angles of the square *stem*. *Flower-stalks* opposite, from most of the whorls, rather longer than the leaves, not deflexed, but always erect, or spreading, rough, corymbose, each bearing 6 or 7 small, green, perfect *flowers*, with 1 or 2 floral leaves. *Stigmas* capitate. *Germen* quite smooth. *Fruit* of 2 kidney-shaped *seeds*, with a considerable central vacancy; their surface smooth and even, except a slight ruggedness, apparently caused by drying. Vaillant's beautiful plate represents them hairy, which has caused some doubts as to his synonym. They may vary in this respect, like several others of this genus. His fig. *b*, still more hairy, belongs to *V. Aparine*.

12. *G. pusillum*. Least Mountain Bed-straw.

Leaves eight in a whorl, linear-lanceolate, hair-pointed, entire, somewhat hairy. Panicles terminal, forked. Fruit very smooth.

G. pusillum. *Linn. Sp. Pl.* 154. *Willd.* v. 1. 589. *Fl. Br.* 177. *Engl. Bot.* v. 2. t. 74. *Hook. Scot.* 52?

G. scabrum. *Jacq. Austr.* v. 5. 10. t. 422.

G. obliquum. *Villars Dauph.* v. 2. 320. t. 8; *according to specimens from the author, and from his friend M. Chaix; but the flowers are not so much pointed as in his figure.*

G. album supinum multicaule. *Rupp. Jen.* 4. *Dill. in Raii Syn.* 224.

G. foliis senis et novenis subasperis, spinulâ terminatis. Hall. Enum. 460; *synonyms confused.*

G. n. 715. Hall. Hist. v. 1. 316.

On limestone hills.

Near Kendall. *Huds.* In Scotland. *Mr. G. Don.* Near the lake of Killarney, Ireland. *Rev. Mr. Butt.* About Matlock bath, Derbyshire, plentifully.

Perennial. *July, August.*

Stems very numerous, from 4 to 10 inches high, branched, square, loosely spreading, and forming large tufts, conspicuous for their innumerable little milk-white *flowers*. The lower part of each *stem* is frequently rough with short prominent hairs, such as are scattered, often abundantly, over the lower *leaves*, but not pointing upwards or downwards, nor do they form a regular fringe on the margin; the upper *leaves* are smoother. Sometimes the whole herb is destitute of any such hairs. There are no hooked prickles on any part, though a few of the hairs, about the lower part of the margins of some *leaves*, are now and then slightly deflexed. The *branches* are opposite, mostly smooth. *Leaves* from 6 to 8 or 9 in a whorl, on the stem and main branches; and indeed rarely fewer any where; linear-lanceolate, scarcely inclining to obovate, bright green, shining, revolute when dry, quite entire, tipped with a white bristle, most evident on the upper and smaller ones; the lowest are much crowded. *Flowers* in copious, forked, smooth, minutely bracted *panicles*, terminating the stem and branches. Segments of the *corolla* acute, somewhat pointed. *Style* deeply cloven. *Stigmas* globose. *Fruit* small, of 2 globular *seeds*, quite smooth.

This is, in itself, a most distinct and well defined species, no otherwise variable than in the pubescence, which is of a very peculiar nature, at least among the smooth-seeded kinds; consisting of short, soft, directly prominent, hairs, not attaching themselves to neighbouring substances, like the prickles of the foregoing species. Nothing however, as Haller remarks, is more difficult than the synonymy of this plant. Indeed most writers upon the present genus mention every thing but what is important or discriminative. Our plant is certainly that of Linnæus; but Haller, who in his first edition above quoted appears to have meant the same, has there collected synonyms which belong to the totally different *G. glaucum*. Under n. 717 of his 2nd edition, he has given such a description as cannot be mistaken, though, according to Mr. Davall, he includes, under this number, *G. austriacum* of Jacquin; and there can be no certainty of his references to older authors. I presume Mr. G. Don must have known *G. pusillum*, though Professor Hooker seems doubtful about it, and I therefore quote his work with hesitation. Our English plant could surely never have been, by any chance, called *lave*; for if one specimen be smooth, it is always accompanied by hundreds in every state of hairiness. *G. pusillum* of

Villars, if correctly drawn, must be different. His species require an accurate scrutiny; they are probably too many; nor was he or his pupils invariably correct in the specimens of this difficult tribe, which they sent named to their correspondents.

13. *G. verum*. Yellow Bed-straw.

Leaves eight in a whorl, linear, channelled, entire, rough.
Flowers in dense panicles. Fruit smooth.

G. verum. *Linn. Sp. Pl.* 155. *Willd. v.* 1. 590. *Fl. Br.* 178. *Engl. Bot. v.* 10. t. 660. *Curt. Lond. fasc.* 6. t. 13. *Mart. Rust. t.* 54. *Hook. Scot. 50. Willem. Stell.* 61.

G. n. 710. *Hall. Hist. v.* 1. 315.

G. luteum. *Ger. Em.* 1126. *f. Raii Syn.* 224.

Galium. *Matth. Valgr. v.* 2. 475. *f. Camer. Epit.* 868. *f. Fuchs. Hist.* 196. *f. Dod. Pempt.* 355. *f. Mill. Ic.* 93. t. 139. *f.* 1.

In hilly, bushy places, and about the borders of fields, in dry ground, frequent.

Perennial. *July, August.*

Root creeping, of a tawny hue. *Stems* 18 inches high, somewhat woody, round, with numerous, opposite, square, leafy, often downy, branches. *Leaves* narrow, deep green, revolute, deflexed, rough with minute points, and each tipped with a hair. *Fl.* of a golden yellow, extremely numerous, in dense tufted panicles, smelling of honey, very strongly in the evening, or before rain. *Stamens* short. *Anth.* brown in decay. *Fr.* small, round, blackish. A kind of vinegar is said to have been distilled from the flowery tops, and the herb was formerly used to coagulate milk, for Cheshire cheese. Mr. Curtis reports that the *roots* yield a better red than Madder, and that the whole plant dyes a good yellow.

14. *G. Mollugo*. Great Hedge Bed-straw.

Leaves eight in a whorl, elliptical, bluntish, bristle-pointed, rough-edged. Flowers in loose spreading panicles. Corolla thick-tipped. Seeds smooth, globular.

G. Mollugo. *Linn. Sp. Pl.* 155. *Willd. v.* 1. 590. *Fl. Br.* 178. *Engl. Bot. v.* 24. t. 1673. *Hook. Scot.* 53. *Fl. Dan. t.* 455. *Bull. Fr. t.* 283. *Ehrh. Pl. Off.* 441. *Willem. Stell.* 32.

G. n. 711. *Hall. Hist. v.* 1. 315.

Mollugo. *Dod. Pempt.* 354. *f.*

M. vulgatior. *Raii Syn.* 223.

Rubia sylvestris. *Ger. Em.* 1118. *f. Fuchs. Hist.* 281. *f.*

β. Galium scabrum. *With.* 190, *from the author.*

In hedges and thickets.

Perennial. *July, August.*

Stem 3 or 4 feet high, or taller if supported by bushes; more dwarf upon open chalky hills; square, swelling and pale just above

the whorls, smooth, or a little downy; in β hairy, as well as the foliage, though not very remarkably. *Leaves* elliptic-obovate, deep green; paler beneath; generally very smooth, except the edges, which are beset with small prickles, pointing forward. *Flowers* abundant, milk-white, in terminal loose panicles. Segments of the *cor.* three-ribbed, each tipped with a tumid point, not a bristle. *Fruit* small, often abortive.

15. *G. anglicum*. Wall Bed-straw.

Leaves about six in a whorl, lanceolate, pointed, fringed with prickles. Stems straggling, rough. Flower-stalks cloven. Fruit granulated, without hairs.

G. anglicum. *Huds.* 69. *Fl. Br.* 179. *Engl. Bot. v. 6. t. 384.*
Willem. Stell. 48.

G. parisiense. *Relh.* 67.

Aparine minima. *Raii Syn.* 225. *t. 9. f. 1.*

On walls, and dry sandy ground.

In Kent. *Huds.* In several parts of Norfolk, Suffolk, and Cambridgeshire, especially on old ruins.

Annual. *June, July.*

Root small. Whole plant scarcely a span high, with many spreading, square, slender and brittle stems, whose angles are rough with deflexed bristles, as the little leaves are at their edges, and sometimes other parts, with prickles directed forwards. The lower leaves are obovate, coarsely reticulated with veins. *Fl.* pale greenish yellow, not hair-pointed. *Germen* and *fruit* rough with minute tubercles, but never observed to be hairy. In this last particular, and the dark-purple *corolla*, *G. parisiense* of Linnæus, *G. litigiosum* of DeCandolle, *l.c.* 8. *t. 26*, differs from our plant; nor does the *fruit* of the latter, though densely hairy, seem to be warty. I have *G. anglicum*, nevertheless, from Narbonne, and it is *G. divaricatum* of Pourret.

** *Fruit bristly.*

16. *G. boreale*. Cross-leaved Bed-straw.

Leaves four in a whorl, ovate-lanceolate, three-ribbed, smooth, with rough edges. Stem erect. Fruit rough with hooked bristles.

G. boreale. *Linn. Sp. Pl.* 156. *Willd. v. 1. 595.* *Fl. Br.* 180. *Engl. Bot. v. 2. t. 105.* *Hook. Scot.* 53. *Fl. Dan. t. 1024.* *Ehrh. Herb.* 92. *Willem. Stell.* 31.

G. n. 722. *Hall. Hist. v. 1. 318.*

Mollugo montana erecta quadrifolia. *Raii Syn.* 224.

Rubia pratensis lævis, acuto folio. *Bauh. Prodr.* 145.

R. erecta quadrifolia. *Bauh. Hist. v. 3. p. 2. 716. f.*

In rocky shady places, by rivers and lakes, in the north of England, and in Scotland, not uncommon.

Perennial. *July.*

Root creeping, reddish, having the dyeing quality of Madder, but in a slighter degree. *Stems* erect, square, roughish, 18 inches high, with many shortish leafy branches. *Leaves* various in breadth, the largest about an inch long, rough at the edges only, with 3, sometimes 5, strong ribs; the under side palest. *Fl.* white, in numerous, compound, tufted *panicles*, having at each division a pair of small, ovate leaves. *Cor.* scarcely pointed. *Fruit* globose, of 2 kidney-shaped *seeds*, hoary with dense bristly hairs, hooked at the ends. Some foreign specimens have narrower *leaves*, as in J. Bauhin's figure, and shorter bristles on the *fruit*, but there appears to be no specific difference.

17. *G. Aparine.* Goose-grass, or Cleavers.

Leaves eight in a whorl, lanceolate, keeled, rough, fringed with reflexed prickles. Stem weak. Fruit bristly.

G. Aparine. *Linn. Sp. Pl.* 157. *Willd. v. 1.* 597. *Fl. Br.* 180. *Engl. Bot. v. 12. t.* 816. *Curt. Lond. fasc. 2. t.* 9. *Mart. Rust. t.* 104. *Woodv. suppl. t.* 269. *Hook. Scot. 53. Fl. Dan. t.* 495. *Bull. Fr. t.* 315. *Willem. Stell.* 25.

G. n. 723. *Hall. Hist. v. 1.* 318.

Aparine. *Raii Syn.* 225. *Ger. Em.* 1122. *f. Dod. Pempt.* 353. *f. Matth. Valgr. v. 2.* 163. *f. faulty. Camer. Epit.* 557. *f.*

In hedges, every where.

Annual. *May—August.*

Root fibrous. *Stem* branched, brittle, supporting itself upon other plants, often 3 or 4 feet long, the 4 angles beset with hooked prickles, like those on the edges and keels of the *leaves*, by all which the herb sticks to our hands and clothes, as well as to the coats of animals, as do likewise the *seeds*. *Fl.* small, pale buff-coloured, but few together, on lateral leafy stalks or branches. *Fruit* a double globe, rough with minute short hooks. The expressed juice of the herb is reckoned antiscorbutic. The roasted seeds are said to be no bad substitute for coffee, to which they are botanically related; and if raised for a crop they might, perhaps, have the additional recommendation, to some people, of being very much dearer.

This common European plant has been found wild in the remote country of Nepal, by the Hon. Captain Gardner, from whom Dr. Wallich has sent us specimens.

70. RUBIA. Madder.

Linn. Gen. 52. *Juss.* 197. *Fl. Br.* 181. *Tourn. t.* 38. *Lam. t.* 60. *Nat. Ord.* see *n.* 67.

Cal. none, or very small, superior, with 4 teeth. *Cor.* monopetalous, bell-shaped, in 4 or 5 deep segments, without a tube. *Filam.* from the base of the corolla, shorter than its limb, awl-shaped. *Anth.* of 2 round cells. *Germ.* inferior, of 2 round lobes. *Style* short, deeply cloven. *Stigm.* capitate. *Berry* a smooth double globe. *Seeds* solitary, roundish, with a central depression. The *flowers* have, in some instances, five segments, and as many *stamens*.

Habit like the last, but perennial, and sometimes shrubby, as well as evergreen. *Fl.* yellowish. *Fruit* succulent, black.

1. *R. peregrina.* Wild Madder.

Leaves four, or more, in a whorl, elliptical; shining and smooth on the upper side. Flowers five-cleft.

R. peregrina. Linn. *Sp. Pl.* 158. Willd. *v.* 1. 604. *Fl. Br.* 181. *Engl. Bot. v.* 12. *t.* 851. *Cullum* 56. *Huds.* 65. *Willem. Stell.* 20.

R. anglica. *Huds. ed.* 1. 54.

R. tinctorum. *With.* 193. *Hull* 35.

R. sylvestris aspera, quæ *sylvestris Dioscoridis.* *Raii Syn.* 223. *ed.* 1. 317. *Moris. v.* 3. 326. *sect.* 9. *t.* 21. *f.* 2.

R. silvestre aspera. *Zann. Ist.* 167. *t.* 67.

Wild Madder. *Petiv. H. Br. t.* 30. *f.* 3.

In thickets, and on stony or sandy ground, in the west of Britain. On St. Vincent's rock, and in Devonshire. *Ray.* In Cornwall. *F. Borone.* On Tunbridge rocks. *Bishop of Carlisle*; not now to be found there. *Forst. Tonbr.* 21. Plentiful all over the sandy islands on the west of Scotland. *Dr. Mitchell.* *Linn. Corresp. v.* 2. 449. Yet this plant has escaped the notice of Lightfoot and Hooker. Not unfrequent in South Wales; and the Rev. H. Davies found it on the sea coast of Anglesea, though not common.

Perennial. *June—August.*

Root creeping, fleshy and tender, of a tawny red, useful in dyeing, if not so good as the Cultivated Madder. *Stem* branched, spreading, square, perennial and partly shrubby, its angles rough with hooked prickles; as are the edges and rib of the broad, shining, dark, evergreen *leaves.* *Fl.* yellowish green, in forked terminal panicles. *Cal.* wanting. *Cor.* concave, but shallow. *Germen* smooth. *Berries* juicy, in pairs, black and shining; one of them often abortive.

The late Mr. Davall ascertained Haller's n. 708 to be, not this species, but *R. tinctorum.*

71. EXACUM. Gentianella.

Linn. Gen. 57. *Juss.* 142. *Fl. Br.* 182.

Nat. Ord. *Rotaceæ*. Linn. 20. *Gentianæ*. Juss. 46. *Gentianeæ*. Br. Prodr. 449. See n. 134, 135.

Cal. inferior, of 1 leaf, divided about half way down into 4 equal, acute, simple segments, permanent. *Cor.* of 1 petal; tube swelling, the length of the calyx; limb in 4 deep, spreading, equal segments, imbricated in the bud. *Filam.* from the tube of the *cor.* between the segments of the limb, and much shorter, thread-shaped, nearly equal, erect. *Anth.* roundish-oblong, of 2 cells. *Germ.* oval, superior. *Style* terminal, thread-shaped, a little inclining, as long as the limb, permanent. *Stigma* capitate, undivided. *Capsule* filling the tube of the *cor.* which gradually enlarges with it, elliptical, compressed, of 2 valves with inflexed edges, imperfectly dividing it into 2 cells. *Seeds* numerous, small, rough, attached to a fixed, or finally separated, double *receptacle*.

Herbaceous, smooth, intensely bitter. *Leaves* simple, entire, and as well as the *branches*, or *flower-stalks*, opposite. *Fl.* terminal, generally yellow.

1. *E. filiforme*. Least Gentianella.

Leaves sessile. Stem thread-shaped, forked. Flowers on long stalks.

E. filiforme. *Fl. Br.* 182. *Engl. Bot.* v. 4. t. 235. *With.* 194. *Willd. Sp. Pl.* v. 1. 638. *Ait. Hort. Kew. ed.* 2. v. 1. 250. *Hook. Lond. fasc.* 2. 91. t. 86. " *DeCand. Fr. ed.* 3. v. 3. 663."

Gentiana filiformis. *Linn. Sp. Pl.* 335. *Huds.* 103. *Fl. Dan.* t. 324. *Ehrh. Phyt.* 43.

Centaurium palustre luteum minimum nostras. *Raii Syn.* 286. *Vaill. Par.* 32. t. 6. f. 3.

On sandy or turfy bogs.

In Dorsetshire, Cornwall, Devonshire and Sussex, not very uncommon. In Dursley island, Cork, Ireland; Mr. Blashford. *Wade Pl. Rar. Hib.* 11.

Annual. *July*.

Root small, fibrous. *Stem* 2—4 inches high, erect, round, slender, branched from the bottom, more or less forked. *Leaves* chiefly radical, lanceolate or spatulate, single-ribbed, not an inch long. *Fl.* small, yellow, erect, stalked, solitary at the end of each branch.

The structure of the *receptacles* appears somewhat different from Mr. Brown's idea of what is strictly proper to *Exacum*; but, as Linnæus observes, there are few *genera* in which some part or other of the fructification is not various, or liable to exceptions; a principle very judiciously kept in view by our learned countryman in the following genus.

72. PLANTAGO. Plantain.

Linn. Gen. 57. *Juss.* 90. *Fl. Br.* 182. *Tourn. t.* 48. *Lam. t.* 85.
Br. Pr. 424. *Gartn. t.* 51.

Coronopus. Tourn. t. 49.

Nat. Ord. Plantagines. *Juss.* 31. *Plantagineæ.* *Br. Pr.* 423.

Cal. inferior, of 1 leaf, in 4 deep, erect, equal or unequal, segments, permanent. *Cor.* of 1 petal, tubular, permanent, finally membranous; tube swelling; limb in 4 deep, reflexed, ovate, acute segments. *Filam.* from the tube, alternate with the divisions of the limb, extremely long and prominent, capillary, at first folded inward, then erect, finally flaccid. *Anth.* oblong, compressed, of 2 cells, bursting lengthwise. *Germ.* inferior, ovate, of 2, rarely 4, cells. *Style* vertical, capillary, but half the length of the stamens. *Stigma* hairy, acute, generally undivided. *Caps.* ovate, thin, bursting all round, of 2 cells, rarely 4, with a longitudinal, finally separate, receptacle, bearing the seeds on each side. *Seeds* either solitary, in pairs, or numerous, oblong, sessile.

Herbs, generally almost stemless, for the most part perennial. *Leaves* simple, undivided, or cut, or toothed, either flat and ribbed, or semicylindrical and fleshy. *Fl.* in simple, dense, stalked, mostly radical, cylindrical spikes. *Bracteas* solitary to each flower.

1. *P. major.* Greater Plantain.

Leaves ovate, smoothish, somewhat toothed, on longish foot-stalks. Flower-stalks round. Spike tapering. Seeds numerous.

P. major. *Linn. Sp. Pl.* 163. *Willd. v.* 1. 641. *Fl. Br.* 182. *Engl. Bot. v.* 22. *t.* 1558. *Curt. Lond. fasc.* 2. *t.* 11. *Hook. Scot.* 53. *Fl. Dan. t.* 461. *Camer. Epit.* 261. *f.*

P. n. 660. *Hall. Hist. v.* 1. 293.

P. latifolia vulgaris. *Raii Syn.* 314.

P. latifolia. *Ger. Em.* 419. *f.*

P. rubea. *Brunf. Herb. v.* 1. 25. *f.*

P. media. *Matth. Valgr. v.* 1. 435. *f.*

β. *P. latifolia glabra minor.* *Dill. in Raii Syn.* 314. *Bauh. Hist. v.* 3. *p.* 2. 505. *f.*

γ. *P. major, paniculâ sparsâ.* *Raii Syn.* 314. *Bauh. Hist. v.* 3. *p.* 2. 503. *f.*

P. panniculis sparsis. *Ger. Em.* 420. *f.*

δ. *P. rosea spicata.* *Ger. Em.* 420. *f.*

P. rosea. *Bauh. Hist. v.* 3. *p.* 2. 503. *f.*

In meadows, pastures, waste and cultivated ground, common.
Perennial. *All Summer*.

Root of many long stout fibres. *Stem* none. *Leaves* numerous, broad, with 7 or 9 ribs, on channelled ribbed stalks, often longer than themselves; the margins wavy, or variously toothed. *Fl.* small, whitish, with reddish *anthers*, very numerous; imbricated in the bud; afterwards more distant; composing several long *spikes*, each on a simple, naked, radical *stalk*. *Caps.* membranous, small, oval, pointed, with several angular *seeds* in each cell, which are the food of small birds. The rose-shaped variety, and the paniced one, are often kept in gardens, for the sake of curiosity, and afford remarkable instances of vegetable transformation.

This species, like the whole genus in general, is mucilaginous and somewhat astringent; qualities which render it a, not altogether useless, rustic medicine.

2. *P. media*. Hoary Plantain.

Leaves ovate, downy, with very short footstalks. Flower-stalks round. Spike cylindrical. Seeds solitary.

P. media. *Linn. Sp. Pl.* 163. *Willd. v. 1.* 642. *Fl. Br.* 183. *Engl. Bot. v. 22. t.* 1559. *Curt. Lond. fasc. 4. t.* 14. *Hook. Scot.* 53. *Fl. Dan. t.* 581. *Camer. Epit.* 262. *f.* *Ehrh. Pl. Off.* 342.

P. major incana. *Raii Syn.* 314.

P. major. *Matth. Valgr. v. 1.* 436. *f.* *Brunf. Herb. v. 1.* 23. *f.*

P. incana. *Ger. Em.* 419. *f.*

In dry pastures, on chalky or gravelly hills, abundantly.

Perennial. *June—August*.

Root rather woody. *Leaves* all pressed close to the ground, hoary, entire, with 5 or 7 ribs. *Flower-stalks* taller than the foregoing, hoary. *Spike* shorter and thicker, very dense in every part. *Cor.* membranous and silvery in appearance, with shining, pink *stamens*, and whitish, pointed *anthers*. *Seeds* one in each cell, semi-cylindrical.

The Hoary Plantain, a great and lasting nuisance in fine grass-plats, is best killed by a drop of vitriolic acid on the crown of the root, which it never long survives. Its medical qualities are like the former.

3. *P. lanceolata*. Ribwort Plantain.

Leaves lanceolate, entire, tapering at each end; woolly at the base. Flower-stalks angular. Spike ovate.

P. lanceolata. *Linn. Sp. Pl.* 164. *Willd. v. 1.* 643. *Fl. Br.* 184. *Engl. Bot. v. 8. t.* 507. *Curt. Lond. fasc. 2. t.* 10. *Mart. Rust. t.* 67. *Hook. Scot.* 54. *Fl. Dan. t.* 437. *Ehrh. Pl. Off.* 352.

P. n. 656. *Hall. Hist. v. 1.* 292.

- P. quinquerivaria*. *Ger. Em.* 422. *f.* *Raii Syn.* 314.
P. longa. *Matth. Valgr.* v. 1. 437. *f.* *Camer. Epit.* 263. *f.*
P. minor. *Brunf. Herb.* v. 1. 24. *f.*

In meadows and pastures, very common.

Perennial. *June, July.*

Root rather woody. *Leaves* numerous, erect, deep green, acute, each tapering at the base into a broad, flat, ribbed *footstalk*, accompanied at its insertion with large tufts of soft, white, woolly fibres. *Flower-stalks* taller than the leaves, likewise woolly at the base, five-angled, with intermediate furrows, nearly smooth, twisted. *Spike* an inch long, with black imbricated *bracteas*, and occasionally leafy at the base. *Cor.* pale. *Anth.* large, cream-coloured. The *spikes* are liable to the very same transformations as in *P. major*. This species makes a part of most meadow hay, and has been cultivated as a crop, but seems to be now disused. Cattle are said not to eat it willingly, at least by itself.

4. *P. maritima*. Sea Plantain.

Leaves linear, channelled, nearly entire. *Flower-stalks* round, longer than the leaves. *Spike* cylindrical.

- P. maritima*. *Linn. Sp. Pl.* 165. *Willd.* v. 1. 647. *Fl. Br.* 184. *Engl. Bot.* v. 3. t. 175. *Fl. Græc.* v. 2. 37. t. 148. *Hook. Scot.* 54. *Davies Welsh Botanol.* 16. *Fl. Dan.* t. 243.
P. marina. *Raii Syn.* 315. *Lob. Ic.* v. 1. 306. *f.* *Ger. Em.* 423. *f.*
P. an alpina angustifolia. *J. B.* v. 3. 506 ?. *Raii Syn.* 315. *Not Bauhin's plant.*

P. montana. *Huds. ed.* 1. 53.

Coronopus. *Ger. Em.* 425. *f.*

Sea Plantain. *Petiv. H. Brit.* t. 4. *f.* 9.

In muddy salt marshes, and about the mouths of large rivers; as also on the loftiest mountains of Wales and Scotland.

Perennial. *August, September.*

Root long, cylindrical. *Herb* extremely various in luxuriance. *Leaves* numerous, all radical, spreading, fleshy, from 4 to 12 inches long, linear, acute; channelled above; convex beneath; dull green, smooth, or somewhat hairy; either quite entire, or frequently, in maritime situations, beset with a few distant, irregular teeth; more or less woolly at the base, but neither contracted there, nor stalked. *Flower-stalks* several, taller than the leaves, erect, or ascending, round and even, generally smooth. *Spike* long and slender, many-flowered, slightly tapering, dense, uninterrupted, with fleshy bluntly keeled *bracteas*, not longer than the *calyx*. *Stigma* undivided, not cloven. I have not seen the ripe *capsule*.

Some of the above figures, as those of *Fl. Græc.*, *Lobel*, and one of *Gerarde's*, represent the *leaves* with a few teeth; but that

circumstance is merely incidental, and does not mark even a distinct variety. Yet such specimens were mistaken by Hudson for *P. Loefflingii*, *Linn. Sp. Pl.* 166, owing to the figure of Petiver, above quoted, being erroneously cited by Linnæus. On the other hand, Ray himself took mountain specimens of our *P. maritima* for an exotic species of Bauhin, the *Plantain noirâtre*, (*P. nigricans*) of Reynier's herbarium; which Haller confounds with *lanceolata*, and which others have referred as inaccurately to *alpina*. Dillenius, between brackets, in the *Synopsis*, corrects Ray's mistake.

Mr. Davies celebrates *P. maritima*, as a favourite food of sheep.

5. *P. Coronopus*. Buck's-horn Plantain. Star of the Earth.

Leaves in many pinnate linear segments. Flower-stalks round.

P. Coronopus. *Linn. Sp. Pl.* 166. *Willd. v.* 1. 648. *Fl. Br.* 185. *Engl. Bot. v.* 13. *t.* 892. *Hook. Scot.* 54. *Fl. Dan. t.* 272.

P. n. 658. *Hall. Hist. v.* 1. 293; *excluding the reference to Petiver.*

P. foliis laciniatis, *Coronopus dicta*. *Raii Syn.* 315.

Coronopus. *Matth. Valgr. v.* 1. 448. *f. Camer. Epit.* 276. *f. Theophr. ed. Bod. a Stap.* 830. *f.*

Cornu cervinum. *Ger. Em.* 427. *f. Lob. Ic. v.* 1. 437. *f.*

Buck's-horn Plantain. *Petiv. H. Brit. t.* 4. *f.* 10.

β . *Plantago gramineo folio hirsuto*, *minor*, *capitula rotundo brevi*. *Dill. in Raii Syn.* 316.

On dry sandy or gravelly ground, frequent; often near the sea.

Annual. *June—August.*

Root tapering. *Leaves* numerous, spread flat on the ground, pale, hairy, pinnatifid and cut, with pointed segments; various in breadth; they are scarcely ever so starved as to be undivided, answering to the var. β . *Spikes* numerous, dense, cylindrical, varying greatly in length, on spreading hairy stalks. *Anthers* tipped with a membrane. *Caps.* of 4 cells, with a solitary seed in each.

73. CENTUNCULUS. Chaff-weed.

Linn. Gen. 58. *Juss.* 95. *Fl. Br.* 185. *Dill. Nov. Gen.* 111. *t.* 5. *Br. Pr.* 427. *Lam. t.* 83. *Gærtn. t.* 50.

Nat. Ord. *Rotacæ*. *Linn.* 20. *Lysimachiæ*. *Juss.* 34.

Cal. inferior, in 4 deep, lanceolate, acute, spreading segments, permanent. *Cor.* shorter than the calyx, monopetalous, tubular, withering; tube almost globular; limb in 4 ovate, flat segments. *Filam.* short, equal, smooth, in the mouth of the tube. *Anth.* roundish, of 2 cells. *Germ.*

globose, in the tube of the *cor.* *Style* cylindrical, erect, as long as the *stam.* permanent. *Stigma* simple. *Caps.* globose, of one cell, bursting all round, almost membranous. *Seeds* numerous, minute, angular, covering the large, central, globose, pitted *receptacle*.

The *flowers* are said to be occasionally 5-cleft, by which they approach *Anagallis*; but the tubular *corolla*, and naked *stamens*, keep *Centunculus* distinct.

1. *C. minimus*. Small Chaff-weed. Bastard Pimpernel.

Flowers sessile. Corolla without glands at the base.

C. minimus. Linn. *Sp. Pl.* 169. Willd. *v.* 1. 653. *Fl. Br.* 185. *Engl. Bot.* *v.* 8. *t.* 531. *Curt. Lond. fasc.* 3. *t.* 11. *Dicks. H. Sicc. fasc.* 7. 2. *Don H. Br.* 179. *Hook. Scot.* 54. *Fl. Dan.* *t.* 177.

Centunculus. *Dill. in Raii Syn.* 1. *Hall. Hist. n.* 627. *v.* 1. 278.

Anagallis paludosa minima, foliis rotundis alternatis. *Vaill. Par.* 12. *t.* 4. *f.* 2.

Anagallidastrum exiguum, foliis lanceolatis alternis, flore albo fugaci et vix conspicuo. *Mich. Gen.* 14. *t.* 18. *f.* 2.

Alsine palustris minima, flosculis albis, fructu coriandri exiguo. *Mentz. Pugill.* *t.* 7.

On sandy watery heaths.

At Chiselmhurst, Kent. *Dillenius*. On many heaths around London, and near Ampthill, Bedfordshire. *Fl. Br.* and *Engl. Bot.* On East Heath, near Lowestoft. *Mr. Lilly Wigg.* Edgefield Common, near Holt, Norfolk. *Rev. R. B. Francis.* Near Bantry, Ireland. *Mr. J. T. Mackay.* In the lowlands of Scotland. *Hooker.*

Annual. *June, July.*

Very diminutive, simple or branched, from 1 to 2 inches high. *Leaves* alternate, or nearly opposite, sessile, ovate, entire, smooth, 2 or 3 lines long. *Fl.* axillary, solitary, sessile, white or reddish, expanding in bright sunshine only, and of very short duration. *Anagallis pumila, Swartz Ind. Occ. v.* 1. 345, is made a second species of this genus by Mr. Brown, and, I believe, very justly.

74. SANGUISORBA. Burnet.

Linn. Gen. 58. *Juss.* 336. *Fl. Br.* 186. *Lam. t.* 85.

Nat. Ord. *Senticosæ.* Linn. 35. *Rosaceæ.* Juss. 92. See *n.* 78; also *Grammar* 171.

Cal. superior, of 1 leaf, in 4 deep, equal, ovate, spreading, coloured segments. *Cor.* none. *Filam.* from the base of the calyx, opposite to its segments, and nearly as long, dilated upward, smooth. *Anth.* roundish, of 2 cells. *Ger-men* inferior, quadrangular. *Style* thread-shaped, nearly

as long as the *stam*. *Stigma* notched. *Caps.* quadrangular, hard, not bursting, of 1 cell. *Seed* 1, or 2, elliptical.

Herbaceous, with pinnate, serrated *leaves*. *Spikes* dense, the upper *flowers* earliest. *Germen* with 2 or 4 *bracteas* at the base.

The unquestionable affinity of this genus to the natural class *Icosandria* of Linnæus, induces me to conform to Jussieu's ideas, so far as to take for a *calyx*, what Linnæan botanists have hitherto called *corolla*. Yet even Jussieu candidly expresses his doubts in this case; and I am well aware of the danger of allowing metaphysical speculations, to interfere with common sense, in Botany or any other science. Whether the originally thin outer coat of the *germen* should be taken for the body or tube of the *calyx*, as in *Rosa*, may admit of a question. That and the rest of the *germen* certainly become together a hardened *pericarp*, or *capsule*, which part in *Rosa* is pulpy. I have seen but 1 *seed*, and 1 *style* in *Sanguisorba*, as represented by Lamarck. Jussieu describes 2.

1. *S. officinalis*. Great Burnet.

Spikes ovate.

S. officinalis. Linn. *Sp. Pl.* 169. Willd. *v.* 1. 653. *Fl. Br.* 186. *Engl. Bot.* *v.* 19. *t.* 1312. Mart. *Rust.* *t.* 142. Hook. *Scot.* 54. *Fl. Dan.* *t.* 97.

S. major, flore spadiceo. Raii *Syn.* 203. Bauh. *Hist.* *v.* 3. *p.* 2. 120. *f.*

S. major. Fuchs. *Hist.* 788. *f.*

Pimpinella n. 705. Hall. *Hist.* *v.* 1. 311.

P. sive Sanguisorba major. Matth. *Valgr.* *v.* 2. 380. *f.* Camer. *Epit.* 778. *f.*

P. sylvestris. Ger. *Em.* 1045. *f.*

In meadows and pastures, on a calcareous soil, that are rather moist; chiefly in the north of England; more sparingly in the lowlands of Scotland.

Perennial. *June, July.*

Root strong, somewhat woody, astringent. *Herb* smooth. *Stem* 2 feet high, erect, furrowed, leafy; paniced above. *Leaves* of 4 or 5 pair of heart-shaped, stalked, obtuse, strongly serrated, veiny *leaflets*, with or without small sessile intermediate ones: those on the stem alternate, smallest, with a pair of large, rounded, cut *stipulas*, united to the base of the common *footstalk*: radical ones with very long footstalks. *Spikes* about an inch long, dull purple, dense, on long flower-stalks. *Bracteas* green, fringed, 4 under each flower; the *calyx* of Linnæus. *Cal.* very hairy externally at the base. *Stigma* 4-cleft. *Seed* solitary.

Of no agricultural value ; though it makes a part of the hay, in many rich northern pastures. The taste is astringent, and the plant has been recommended as a tonic, but the *Poterium*, its near ally, is far more grateful in flavour.

2. *S. media*. Oblong Burnet.

Spikes cylindrical.

S. media. *Linn. Sp. Pl.* 169. *Willd. v. 1.* 654. *Ait. Hort. Kew. ed. 2.* v. 1. 258.

Pimpinella minore di Candia. *Zann. Ist.* 163. t. 65.

P. maxima canadensis, spicâ rubrâ glomeratâ. *Moris. v. 3.* 264. sect. 8. t. 18. f. 8.

In pastures, in the west of Scotland. *Mr. G. Don.*

Perennial. *July.*

Taller and larger than the foregoing, with a much longer, and truly cylindrical, *spike*, of rather paler *flowers*. Mr. Don who sent it, had scarcely an idea of its being more than a variety. Yet it is certainly the plant of the authors above quoted, and is found wild in Siberia, as well as in Canada. The *stigma* is globular, in numerous segments. But the shape of that part varies, in the present genus, according as it is more or less perfect.

75. EPIMEDIUM. Barrenwort.

Linn. Gen. 59. *Juss.* 287. *Fl. Br.* 187. *DeCand. Syst. v. 2.* 28. *Tourn. t.* 117. *Lam. t.* 83.

Nat. Ord. *Corydalis*. *Linn.* 24. *Berberides*. *Juss.* 78. *Berberideæ*. *DeCand.* 36. See *Grammar* 154 ;—also *Berberis*, n. 200.

Cal. inferior, of 4 small, ovate, concave, spreading leaves, deciduous. *Cor.* of 4 ovate, equal, concave, spreading petals, opposite to the calyx. *Nectaries* 4, one lying upon each petal, and nearly as long, pouch-like, obtuse, equal, attached underneath to the *receptacle*, by one side of the orifice. *Filam.* awl-shaped, erect, close to the style. *Anth.* of 2 oblong-oval, parallel cells, attached longitudinally to the inner side of the *filament*, below its summit, each cell opening by a valve, which bursts from the bottom and rolls back. *Germ.* superior, elliptic-oblong, with a furrow at the back. *Style* oblique, roundish, the length of the *stam.* *Stigma* simple. *Pod* oblong, pointed, of 1 cell and 2 valves. *Seeds* numerous, unilateral, oblong.

Root perennial, creeping. *Stem* annual, succulent ; with scales at the base. *Leaves* compound, heart-shaped, with bristly serratures. *Cluster* terminal, simple or compound.

1. *E. alpinum*. Alpine Barrenwort.

Radical leaves none; stem-leaf twice ternate.

E. alpinum. *Linn. Sp. Pl.* 171. *Willd. v.* 1. 660. *DeCand. Syst. v.* 2. 28. *Fl. Br.* 187. *Engl. Bot. v.* 7. t. 438. *Fl. Græc. v.* 2. 39. t. 150. *Cullum* 60. *With.* 199. *Hook. Scot.* 55. *Hopkirk Glott.* 25.

Epimedium. *Dod. Pempt.* 599. f. *Ger. Em.* 480. f. *Lind. Alsat.* 136. t. 6.

In mountain thickets, rare.

In Bingley woods, Yorkshire. *Dr. Richardson*. On Carrook Fell, Cumberland. *Mr. Thomas Hutton*. Skiddaw. *Mr. E. Robson*. About the ruins of Mugdock castle, near Glasgow. *Mr. Hopkirk*. At Hunter's Tryste, near Edinburgh. *Dr. Hastings*. *Hooker*.

Perennial. *May*.

Root slender, thread-shaped. *Stems* solitary, simple, a foot high, pellucid and tender, each bearing one most elegant and delicate, twice or thrice ternate, *leaf*, whose fringed veiny *leaflets*, $1\frac{1}{2}$ or 2 inches long, hang perpendicularly, and increase in size after the *flowers* are past. From the point of insertion of their common *footstalk*, at the top of the stem, springs a branching *cluster* of very handsome and singular drooping *flowers*, whose dark-red *petals* are contrasted with the pale lemon-coloured *nectaries*, which are full of honey, and altogether peculiar. The French school deny them their proper appellation, because it was invented by Linnæus, and he sometimes extended the term too far; but this is no objection to its just application, as in this instance, the *Orchis* tribe, and others innumerable.

Another species, *E. pinnatum*, from Persia, is described by Professor DeCandolle.

76. CORNUS. Cornel.

Linn. Gen. 59. *Juss.* 214. *Fl. Br.* 187. *Tourn. t.* 410. *Lam. t.* 74. *Gærtn. t.* 26.

Nat. Ord. *Stellatae*. *Linn.* 47. *Caprifolia*. *Juss.* 58.

Cal. superior, of 4 minute, deciduous teeth. *Cor.* of 4 oblong, acute, flat, equal *petals*, broad at the base. *Filam.* awl-shaped, erect, longer than the *pct.* and alternate therewith. *Anth.* roundish, incumbent. *Germ.* roundish, compressed, inferior. *Style* thread-shaped, as long as the *cor.* *Stigma* obtuse. *Drupa* roundish, naked and pitted at the summit. *Nut* oblong, or somewhat heart-shaped, of 2 cells, with 1 kernel in each.

Shrubby or herbaceous; furnished rarely in the former case, but always in the latter, with a large white *involucrum*, of 4 leaves, under each *umbel*; the cymose species have none. *Leaves* simple, entire; opposite, except in one in-

stance. *Stipulas* none. *Fl.* numerous, cymose or umbellate, white or yellow in the shrubby kinds; dark purple in the herbaceous ones. *Fruit* red and eatable; or black or white, and nauseous, bitter, or insipid.

1. *C. sanguinea*. Wild Cornel-tree. Dog-wood.

Branches straight. Leaves green on both sides. Cymes naked, flat.

C. sanguinea. *Linn. Sp. Pl.* 171. *Willd. v. 1.* 662. *Fl. Br.* 188. *Engl. Bot. v. 4. t.* 249. *Hook. Scot.* 55. *L'Herit. Corn. n. 5.* *Fl. Dan. t.* 481. *Willem. Stell.* 93.

C. n. 816. *Hall. Hist. v. 1.* 363.

C. fœmina. *Raii Syn.* 460. *Ger. Em.* 1467. *f.*

Virga sanguinea. *Matth. Valgr. v. 1.* 236. *f.* *Camer. Epit.* 159. *f.*

In hedges and thickets, especially on a chalk or limestone soil, common.

Shrub. *June*.

A bush 4 or 5 feet high, with many opposite, straight, round, smooth *branches*, of a dark red when full grown. *Leaves* opposite, stalked, ovate, acute, smooth and green, not silky, on both sides, 2 or 3 inches long, with many transverse ribs; they turn entirely red, more or less deep, before they fall. *Cymes* terminal, of numerous, greenish-white *flowers*, unpleasantly scented. *Petals* revolute at the sides, inserted, with the *stamens*, into a glandular ring, crowning the *germen*. *Fruit* dark purple, very bitter, like every other part of the plant. *Matthiolus* records that an oil is obtained from these berries by pressure, after they have first been boiled, which is used for lamps in the country near Trent.

2. *C. Suecica*. Dwarf Cornel.

Herbaceous. Umbel between two branches, stalked, with an involucre. Ribs of the leaves but slightly combined.

C. Suecica. *Linn. Sp. Pl.* 171. *Fl. Lapp. ed. 2.* 38. *t. 5. f. 3.* *Willd. v. 1.* 660. *Fl. Br.* 188. *Engl. Bot. v. 5. t.* 310. *Hook. Scot.* 55. *Don H. Br.* 82. *Willem. Stell.* 96.

C. herbacea. *Huds.* 71. *Pall. Ross. v. 1.* 52; *excluding the variety.*

C. pumila herbacea, *Chamæpericlymenum dicta*. *Dill. Elth.* 108. *t. 91.*

Chamæpericlymenum. *Raii Syn.* 261. *Ger. Em.* 1296. *f.* *Park. Theatr.* 1461. *f.* *Clus. Hist. v. 1.* 60. *f.*

In moist alpine pastures.

On the Cheviot hills of Northumberland, abundantly. *Ray*. In the Highlands of Scotland, frequent in boggy spots about rivulets. *Lightfoot*. In the Hole of Horcum, near Scarborough. *Mr. Travis*.

Perennial. *June, July.*

Root creeping, branched, slender. *Stems* herbaceous, 4—6 inches high, erect, leafy, with 2 short branches, subsequently extended, between which stands the solitary little *umbel* of dark purple *flowers*, subtended by 4 unequal, white *involucral leaves*, tinged with red, and finally turning green. *Drupa* red, sweetish. *Nut* nearly globular, pointed.

77. PARIETARIA. Wall-pellitory.

Linn. Gen. 544. *Juss.* 404. *Fl. Br.* 189. *Tourn. t.* 289. *Lam. t.* 853. *Gærtn. t.* 119.

Nat. Ord. *Scabridæ.* Linn. 53. *Urticæ.* Juss. 98.

Involucrum various, 1- or 3-flowered, regular or irregular.

Cal. inferior, of 1 leaf, in 4 deep segments, permanent; enlarged and hardened after flowering, except in flowers that want stamens. *Cor.* none. *Filam.* recurved, linear, wrinkled, elastic when disturbed. *Anth.* of 2 distant round lobes. *Germ.* ovate. *Style* cylindrical, erect. *Stigma* tufted. *Seed* ovate, flattened, polished, invested with the enlarged calyx.

Roughish, branched, leafy *herbs*, with alternate, stalked, perhaps always entire, *leaves.* *Fl.* small, reddish, various in the different species, some wanting the *style*, others the *stamens.*

1. *P. officinalis.* Common Wall-pellitory.

Leaves lanceolate-ovate, without lateral ribs at the base.

Involucrum three-flowered, with seven ovate segments. Stem ascending.

P. officinalis. *Linn. Sp. Pl.* 1492. *Willd. v.* 4. 953. *Fl. Br.* 189. *Engl. Bot. v.* 13. t. 879. *Curt. Lond. fasc.* 4. t. 63. *Hook. Scot.* 56. *Bull. Fr. t.* 199. *Fl. Dan. t.* 521.

P. n. 1612. *Hall. Hist. v.* 2. 285.

Parietaria. *Raii Syn.* 158. *Ger. Em.* 331. f. *Brunf. Herb. v.* 2. 19. f. *Helxine.* *Matth. Valgr. v.* 2. 457. f. *Camer. Epit.* 849. f. *Lob. Ic. v.* 1. 258. f.

On old walls and rubbish, in sheltered places.

Perennial. *June—September.*

Root rather woody. *Stems* annual, branched, quadrangular, hairy, reddish, succulent, very impatient of frost; clothed with numerous, alternate, stalked, elliptic-lanceolate, acute *leaves*, of a dull green, a little hairy; paler beneath. *Fl.* numerous, axillary, small. *Involucrum* stalked, in 7 deep, equal, hairy segments, containing 3 *flowers*, of which the lateral ones are perfect, and

fertile, their red *calyx* becoming greatly elongated as the seed ripens; the intermediate one has no *stamens*, but a fertile *pistil*, whose *calyx*, though likewise investing its own *seed*, remains but little altered.

The whole plant is mucilaginous, and has been used in medicine as an emollient.

*77. ISNARDIA. Isnardia.

Linn. Gen. 61. *Juss.* 333. *Lam. t.* 77.

Nat. Ord. *Calycanthemæ.* *Linn.* 17. *Salicariæ.* *Juss.* 91.

Cal. superior, bell-shaped, in 4 deep, equal, ovate, broad, spreading, permanent segments. *Cor.* none. *Filam.* shorter than the calyx, alternate with its segments, awl-shaped. *Anth.* oblong, simple. *Germ.* inferior, oblong, quadrangular. *Style* cylindrical, longer than the stamens, shorter than the calyx. *Stigma* capitate. *Caps.* quadrangular, oblong, membranous, crowned with the calyx, of 4 cells. *Seeds* numerous, oblong, attached to the central column.

Only one species.

1. *I. palustris.* Marsh Isnardia.

I. palustris. *Linn. Sp. Pl.* 175. *Willd. v.* 1. 680. *Ait. Hort. Kew. ed.* 2. v. 1. 266. “*Schkuhr Handb. v.* 1. 84. *t.* 25.”

Alsine palustris, seu *paludosa*, *rotundifolia repens*, *foliis portulacæ pinguibus binis ex adverso nascentibus*, *flosculis virescentibus rosaceis.* *Lind. Tournef. Alsat.* 115. *t.* 2, b. *Alsat.* 204.

Glaux major palustris, *flore herbaceo.* *Bocc. Mus.* 105. *t.* 84. *f.* 2. *Moris. Hort. Blæs.* 82. 268. *Raii Hist. v.* 2. 1102. *v.* 3. 635.

In ponds and watery places.

Found in a pool at Buxted, Sussex, in 1827, by *Mr. W. Borrer.* *Annual. July.*

Herb floating, smooth, with numerous, long, filamentous *roots.* *Stems* several, about a span long, simple, or slightly branched, leafy, bluntly quadrangular. *Leaves* opposite, stalked, ovate, acute, undivided, entire, scarcely an inch in length, bright green, somewhat succulent; the mid-rib often red or purplish. *Bracteas* two, acute, small. *Fl.* axillary, solitary, sessile, small, green and inconspicuous. Segments of the *calyx* triangular. The taste is merely herbaceous, nor is any particular quality attributed to this plant.

Dr. Swartz found a plant in Jamaica, agreeing, as he says, exactly with this, except in having four small, fugacious, yellow *petals*, which induced him to refer it to *Eduvigia*; though he remarked that the *seeds* were attached to the *central column*,

not to the wings of the *receptacle*, as they ought to be in that genus. It may be doubted whether Prof. Willdenow has done right in considering these as one and the same species.

78. ALCHEMILLA. Ladies Mantle.

Linn. Gen. 64. *Juss.* 337. *Fl. Br.* 189. *Tourn. t.* 289. *Lam. t.* 86. *Gartn. t.* 73.

Nat. Ord. *Sciticosæ.* *Linn.* 35. *Rosacæ.* *Juss.* 92. See *n.* 74; also *Grammar* 171.

Cal. inferior, of 1 leaf, tubular, permanent; the limb spreading, in 8 segments; 4 outer alternate ones smallest. *Cor.* none. *Filam.* from the mouth of the calyx, opposite to the smaller segments, awl-shaped, short. *Anth.* roundish, minute. *Germ.* in the bottom of the calyx, generally solitary. *Style* from the base of the germen, thread-shaped, about the length of the stamens. *Stigm.* capitate. *Seed* 1, occasionally 2, elliptical, compressed, naked, except the closed permanent calyx.

Herbaceous, with alternate, stalked, lobed or fingered, downy or silky, toothed or serrated, *leaves.* *Stipulas* in pairs, large, cut. *Fl.* terminal or axillary, small, yellowish green. The species are all astringent, and somewhat mucilaginous.

1. *A. vulgaris.* Common Ladies Mantle.

Leaves lobed, plaited.

A. vulgaris. *Linn. Sp. Pl.* 178. *Willd. v.* 1. 698. *Fl. Br.* 189. *Engl. Bot. v.* 9. *t.* 597. *Abbot* 36. *t.* 1. *Hook. Scot.* 56. *Purt. v.* 1. 102. *t.* 1. *Ehrh. Pl. Off.* 281.

A. n. 1566. *Hall. Hist. v.* 2. 262.

Alchimilla. *Raii Syn.* 158. *Ger. Em.* 949. *f.*

Stellaria. *Matth. Valgr. v.* 2. 519. *f.* *Camer. Epit.* 908. *f.*

Pes leonis. *Fuchs. Hist.* 612. *f.* *Brunf. Herb. v.* 2. 53. *f.*

β . *Alchemilla minor.* *Huds. ed.* 1. 59.

A. alpina pubescens minor. *Pluk. Phyt. t.* 240. *f.* 2.

In dry, rather mountainous, pastures.

Perennial. *June—August.*

Root woody, with long fibres. *Stems* from 4 to 8 inches high, more or less procumbent, alternately branched, round, hairy, leafy, terminating in numerous little corymbose clusters, of green flowers, on smooth, almost capillary, stalks. Radical leaves numerous, on long footstalks, large, roundish kidney-shaped, bluntly lobed, plaited, serrated; of a fine green above; most hairy beneath; *Stem-leaves* of the same form, but a great deal

smaller, alternate, on short *stalks*, with a pair of large notched *stipulas* to each.

β is a dwarf, more hairy, variety, growing in barren exposed situations.

2. *A. alpina*. Alpine Ladies Mantle.

Leaves fingered, serrated; silky at the back.

A. alpina. *Linn. Sp. Pl.* 179. *Willd. v. 1.* 698. *Fl. Br.* 190. *Engl. Bot. v. 4. t. 244.* *Hook. Scot.* 56. *Dicks. H. Sicc. fasc. 15. 2.* *Fl. Dan. t. 49.*

A. n. 1567. *Hall. Hist. v. 2.* 262.

A. alpina pentaphyllos. *Raii Syn.* 158.

A. perennis incana argentea, seu sericea, satinum provocans. *Moris. v. 2.* 195. *sect. 2. t. 20. f. 3.*

A. argentea montana pentaphyllea. *Barrel. Ic. t. 756.*

Pentaphyllum petrosum, Heptaphyllum Clusii. *Ger. Em.* 988. *f. Stellaria argentea.* *Camer. Epit.* 909. *f.*

On alpine rocks, especially in a micaceous soil.

In Cumberland, Westmoreland, North Wales, and the Highlands of Scotland, abundantly.

Perennial. *July.*

Rather smaller than the last, and essentially different, not only in the silvery pubescence of the *stalks, flowers,* and backs of the *leaves,* but in the latter being separated to the base into 5 or 7 obovate lobes, closely serrated towards the extremity. Nothing can be more beautiful than the silvery splendour of their under sides, especially in exposed and barren spots, when the leaves are agitated by the wind. No figure can do them justice. The upper surface is smooth and naked, of a fine green.

3. *A. arvensis*. Field Ladies Mantle. Parsley Piert.

Leaves flat, three-lobed, cut.

A. arvensis. *Fl. Br.* 190. *Engl. Bot. v. 15. t. 1011.* *Hook. Scot.* 56.

A. Aphanes. *Leers* 54. *Sibth.* 61. *Abbot* 36. *Willd. Sp. Pl. v. 1.* 699.

A. n. 1569. *Hall. Hist. v. 2.* 263.

A. annua minima hirsuta, foliis infernè albicantibus. *Moris. v. 2.* 195. *sect. 2. t. 20. f. 4.*

A. minima montana. *Column. Ecphr.* 145. *t. 146.*

Aphanes arvensis. *Linn. Sp. Pl.* 179. *Huds.* 72. *With.* 4. *Hull* 37. *Relh.* 69. *Purt. v. 1.* 48. *Fl. Dan. t. 973.*

Percipier anglorum. *Ger. Em.* 1594. *f. Raii Syn.* 159.

In sandy or gravelly fields, especially when fallow, as well as on heathy banks.

Annual. *May—October.*

Root small, fibrous. *Stems* numerous, about a finger's length,

spreading or prostrate, round, leafy, hardly subdivided. *Leaves* alternate, variously cut, on short *stalks*, with large deeply cut *stipulas*. *Fl.* green, in axillary, hairy tufts, still shorter than the *footstalks*. The whole plant is more or less hairy, and in flavour and scent approaches its natural ally, Burnet. Like most other plants which have obtained an empirical reputation for calculous complaints, it is astringent, and perhaps slightly mucilaginous.

The *stamens*, generally 4, are often solitary. In other respects it is altogether an *Alchemilla*; and, like *A. vulgaris*, has often 2 *pistils*.

TETRANDRIA DIGYNIA.

79. BUFFONIA. Buffonia.

Linn. Gen. 65. *Juss.* 300. *Fl. Br.* 191. *Lam. t.* 87. *Gærtn. t.* 129.

Nat. Ord. Caryophylleæ. *Linn.* 22. *Juss.* 82. *N.* 63 the same.

Cal. inferior, of 4 upright, awl-shaped, keeled, equal leaves, membranous at their edges. *Cor.* of 4 elliptic-oblong, undivided, equal, upright *petals*, shorter than the calyx. *Filam.* awl-shaped, smooth, shorter than the petals. *Anth.* roundish, of 2 cells. *Germ.* superior, obovate, compressed. *Styles* 2, short and distant, erect. *Stigmas* capitate. *Caps.* oval, compressed, of one cell, and 2 valves. *Seeds* 2, large, oval, compressed, tuberculated, inserted into the base of the capsule.

Habit of an *Arenaria*, with awl-shaped *leaves*. Nearly smooth in every part. Only 1 species.

1. *B. tenuifolia.* Slender Buffonia.

B. tenuifolia. *With.* 205. *Fl. Br.* 191. *Engl. Bot. v.* 19. *t.* 1313.

Buffonia tenuifolia. *Linn. Sp. Pl.* 179. *Willd. v.* 1. 700. *Huds.* 72. *Hull* 38.

Alsine polygonoides tenuifolia, flosculis ad longitudinem caulis velut in spicam dispositis nostra. *Raii Syn.* 346. *Pluk. Almag.* 22. *Phyt. t.* 75. *f.* 3. *Brit. Mus. H. Sicc. v.* 95. *fol.* 35.

Herniaria angustissimo gramineo folio, erecta. *Magnol Hort. Monsp.* 97. *t.* 15.

Polygonum angustissimo gramineo folio, erectum. *Magnol Monsp.* 211.

On the sea coast, very rare.

Found by Plukenet about Boston, Lincolnshire. *Pluk. Almag.* On Hounslow heath, by Mr. Doody. *Dill. in Ray's Synopsis.* No other botanist has met with this plant on Hounslow heath; and the late Sir Joseph Banks, who often examined the coast near Boston, was persuaded that *Bupleurum tenuissimum* had been mistaken for the *Buffonia*. Yet Plukenet and Dillenius certainly knew the latter perfectly, and the original specimen in the British Museum is right.

Annual. *June.*

Root slender, fibrous. *Stem* smooth, round, alternately branched, a span high. *Leaves* awl-shaped, 3-ribbed, smooth, combined by their broad sheathing bases, which are minutely fringed. *Fl.* small, white, solitary, erect, on terminal or axillary roughish stalks. *Leaves of the calyx* each with 3 close ribs, and broad membranous margins.

Sauvages named this genus after his great countryman *Buffon*, who had indeed very slender pretensions to a botanical honour; a circumstance supposed to have been indicated by Linnæus in the specific name, *tenuifolia*.

TETRANDRIA TETRAGYNIA.

80. ILEX. Holly.

Linn. Gen. 67. *Juss.* 379. *Fl. Br.* 192. *Lam. t.* 89.

Aquifolium. *Tourn. t.* 371. *Duham. Arb. v.* 1. 59.

Nat. Ord. *Dumosa.* *Linn.* 43. *Rhamni.* *Juss.* 95. See *Grammar* 182.

Cal. inferior, small, of 1 leaf, with 4 small teeth, permanent. *Cor.* wheel-shaped, in 4 deep, elliptical, spreading, concave, segments; or of 4 petals, cohering by their broad bases; much larger than the calyx. *Filam.* awl-shaped, shorter than the corolla, and alternate with its divisions. *Anth.* small, two-lobed. *Germ.* roundish. *Styles* none. *Stigmas* 4, obtuse, permanent. *Berry* globular, of 4 cells. *Seeds* solitary in each cell, oblong, pointed, angular at the inside, rounded externally.

Sometimes the flowers are 5-cleft; and the germen is often wanting in some that are 4-cleft.

Shrubs or trees, with generally alternate, sometimes ever-

green and prickly-edged, *leaves*. *Flowers* axillary or terminal, on compound stalks. *Berries* not eatable.

1. I. *Aquifolium*. Common Holly.

Leaves ovate, acute, spinous and wavy. Flowers axillary, somewhat cymose.

I. *Aquifolium*. *Linn. Sp. Pl.* 181. *Willd. v. 1.* 707. *Fl. Br.* 192. *Engl. Bot. v. 7. t.* 496. *Hook. Scot.* 57. *Fl. Dan. t.* 508. *Ehrh. Arb.* 21.

Agrifolium. *Ger. Em.* 1338. *f. Raii Syn.* 466.

Aquifolium. *Matth. Valgr. v. 1.* 146. *f. Camer. Epit.* 84. *f. Mill. Ic.* 31. *t.* 46.

A. n. 667. *Hall. Hist. v. 1.* 297.

β. *Agrifolium baccis luteis nondum descriptum*. *How Phyt.* 3. *Raii Syn.* 466.

In hedges and bushy places, upon dry hills.

Tree. *May*.

A handsome evergreen tree, of slow growth, with a smooth grey *bark*, which, abounding with mucilage, makes bird-lime, by maceration in water. The *wood* is hard, and close-grained. *Leaves* alternate, stalked, rigid, shining, wavy, with spinous divaricated lobes; the upper ones on old trees, entire, with only a terminal prickle. *Fl.* copious, white, tinged externally with purple; the earlier ones least perfect. *Berries* scarlet; casually yellow. Numerous variegated varieties are kept in gardens, and one whose leaves are prickly on the disk. The tree bears clipping well, but is not so fashionable for cut hedges as formerly. The branches, laden with berries, are stuck about rustic kitchens and churches at Christmas, and remain till Candlemas day. In Norfolk the Misseltoe accompanies them, and sometimes the *Euonymus*. The Druids are said to have introduced this custom for the accommodation of certain sylvan spirits, of a chilly constitution, while the oaks were leafless. Agreeable associations, connected with returning seasons, keep up such practices long after their original meaning is forgotten.

81. POTAMOGETON. Pond-weed.

Linn. Gen. 67. *Juss.* 19. *Fl. Br.* 193. *Br. Pr.* 343. *Tourn. t.* 103. *Lam. t.* 89. *Gærtn. t.* 84.

Nat. Ord. *Inundatæ*. *Linn.* 15. *Naiades*. *Juss.* 6. *Alismaceæ*. *DeCand.* 116. *Br. Pr.* 342. *N.* 82 the same.

Cal. none. *Cor.* inferior, of 4 roundish, obtuse, concave, equal, incurved *petals*, with *claws* about their own length, deciduous. *Filam.* flat, very short, often more than 4. *Anth.* exterior, oblong, 2-lobed. *Germens* 4, superior, ovate, acute, gibbous. *Styles* generally none. *Stigm.* ob-

tuse, permanent. *Seeds* 4, naked, roundish; tumid at the back; compressed or angular at the inner margin. "*Embryo* curved," almost double. *Gartn. Br.*

Aquatic, floating or immersed, *herbs*, of a highly vascular texture, whose evaporation, by their whole surface, is extremely copious and rapid. *Stem* branched. *Leaves* alternate, or opposite, stalked or sessile, simple, undivided, entire, rather membranous, smooth, with parallel longitudinal ribs. *Flowers* spiked, greenish, raised above the water; the *seeds* ripened at the bottom. Four of our species are found in New Holland.

1. *P. natans*. Broad-leaved Pond-weed.

Upper leaves oblong-ovate, stalked, floating, coriaceous; lower ones linear, membranous, sessile.

P. natans. *Linn. Sp. Pl.* 182. *Willd. v. 1.* 712. *Fl. Br.* 193. *Engl. Bot. v. 26. t.* 1822. *Hook. Scot.* 57. *Mill. Illustr. t.* 11. *Fl. Dan. t.* 1025. *Br. Prodr.* 343.

P. n. 843. *Hall. Hist. v. 1.* 375.

P. rotundifolium. *Raii Syn.* 148. *Bauh. Pin.* 193.

P. latifolium. *Ger. Em.* 821. *f.*

Potamogeton. *Matth. Valgr. v. 2.* 481. *f.* *Camer. Epit.* 873. *f.*
Fuchs. Hist. 651. *f.* *Trag. Hist.* 688. *f.*

In pools, ditches, and slow rivers.

Perennial. *July*.

Roots creeping extensively in the mud. *Stem* round, much branched, several feet in length. Lowermost *leaves* alternate, linear, acute, very narrow, sessile, membranous; uppermost floating, partly opposite, leathery, smooth, deep green, 2 or 3 inches long, elliptical, often heart-shaped, with about 7 main ribs, and some intermediate ones; involute in the bud. *Footstalks* various in length, semicylindrical, very vascular. *Stipulas* intrafoliaceous, large, lanceolate, acute, concave, pale and membranous. *Spikes* simple, raised an inch or two above the water, each on a long, thick, axillary stalk, suddenly contracted at the bottom of the spike. *Fl.* a little distant, quite sessile, rather numerous, vertical, olive green, with yellow *anthers*, and plenty of whitish *pollen*.

Except as manure, I know of no use for this, or any of the genus.

2. *P. heterophyllum*. Various-leaved Pond-weed.

Upper leaves elliptical, stalked, floating, slightly coriaceous; lower ones lanceolate, membranous, sessile. Flower-stalks swelling upward.

P. heterophyllum. *Schreb. Lips.* 21. *Willd. Sp. Pl. v. 1.* 713. *Hoffm.*

Germ. for 1800. 81. *Fl. Br.* 1390. *Engl. Bot.* v. 18. t. 1285.
Hook. Scot. 57. *Hopk. Glott.* 27. *Fl. Dan.* t. 1263.

P. palustre. *Teesdale Tr. of Linn. Soc.* v. 5. 43. *Relh.* 64.

P. gramineum. *Lightf.* 123. *Fl. Dan.* t. 222; without the floating leaves.

P. forte species, foliis tenuibus et pellucidis, lapathi minoris formâ.
Dill. in Raii Syn. 150?

P. folio angusto pellucido ferè gramineo. *Raii Syn.* 148.?

P. n. 850. *Hall. Hist.* v. 1. 377; excluding the reference to Ray.

In pools and ditches.

Near Beverley, Yorkshire. *Mr. Teesdale.* Berrington pool, Shropshire. *Rev. E. Williams.* Cambridgeshire. *Relh. & Rev. J. Hemsted.* At Old Buckenham, Norfolk. *Mr. D. Turner.* In Bardowie loch, Clydesdale. *Hopkirk.* Angussshire. *Mr. G. Don.*

Perennial. *July—September.*

Smaller than the last. *Root* a small tuber. *Rev. J. Holme.* Floating leaves thinner, generally more pointed, scarcely heart-shaped, seldom 2 inches long; the submersed ones excessively numerous, lanceolate, tapering at each end, not linear; their length $1\frac{1}{2}$ or 2 inches; breadth at most half an inch; with 3 or 5 principal ribs. *Stipulas* blunter and shorter than the former. *Flower-stalks* swelling upwards, or club-shaped, often crowded at the tops of the branches. *Spikes* dense, about an inch long, the stalks contracted suddenly below them.

3. *P. perfoliatum.* Perfoliate Pond-weed.

Leaves heart-shaped, clasping the stem, uniform, all submersed.

P. perfoliatum. *Linn. Sp. Pl.* 182. *Willd.* v. 1. 713. *Fl. Br.* 194. *Engl. Bot.* v. 3. t. 168. *Hook. Scot.* 58. *Fl. Dan.* t. 196. *Raii Syn.* 149. *Br. Prodr.* 343.

P. n. 845. *Hall. Hist.* v. 1. 376.

P. tertia. *Dod. Pempt.* 582. *f. Ger. Em.* 822. *f. Bauh. Hist.* v. 3. 770. *f.*

P. rotundifolium alterum. *Loes. Pruss.* 205. t. 65.

In ponds and rivers, very common.

Perennial. *July, August.*

Whole plant immersed in the water, except the *spikes*, which consist of a few brown *flowers*, with copious white *pollen*. Their *stalks* are rather tumid in the upper part. *Leaves* all sessile, $1\frac{1}{2}$ or 2 inches long, uniform, olive-coloured, pellucid like oiled paper, as Haller remarks; harsh to the touch, but brittle; their ribs reddish. *Seeds* compressed, shining. *Stipulas* tight and close.

Haller esteems Loesel's plant a distinct species, and it is his own n. 844. Dillenius has introduced it into Ray's *Synopsis*, next to *P. perfoliatum*. The *leaves* are said by Haller to be firm (*dura*)

like those of the first; but he had seen only a dry specimen collected near Berne, without *flowers*, and the plant was never observed afterwards.

4. *P. densum*. Close-leaved Pond-weed.

Leaves ovate, pointed, opposite, crowded. Stem forked. Spike of four flowers.

P. densum. *Linn. Sp. Pl.* 182. *Willd. v. 1.* 714. *Fl. Br.* 194. *Engl. Bot. v. 6. t.* 397. *Hook. Scot.* 58. *Fl. Dan. t.* 1264.

P. n. 849. *Hall. Hist. v. 1.* 376.

P. seu Fontalis media lucens. *Bauh. Hist. v. 3.* 769. *f. Raii Syn.* 149.

Tribulus aquaticus minor 2. *Clus. Hist. v. 2.* 252.

T. aquat. minor, muscatellæ floribus. *Goodyer in Ger. Em.* 823; but the figure is *P. crispum*.

In ditches, ponds and slow streams, not uncommon.

Perennial. *June*.

Smaller than the last, and of a much brighter green. All the leaves are under water, somewhat recurved, an inch or inch and half long, very near together. Flower-stalks solitary, from the forks of the stem, each bearing a small quadrangular head of 4 green flowers, well compared, by Clusius and Goodyer, to the flowers of *Adoxa Moschatellina*. This head is just out of the water during impregnation; after which, by the increase of the branches, it sinks, and ripens seed, whilst other flowers come forth above. The deeper the water, the larger is the whole plant.

5. *P. fluitans*. Long-leaved Floating Pond-weed.

Lower leaves lanceolate, pointed and membranous, with distinct ribs; upper elliptic-oblong, stalked, coriaceous, obtuse, floating.

P. fluitans. *Roth Germ. v. 1.* 72. *v. 2. p. 1.* 202. *Willd. Sp. Pl. v. 1.* 713. *Fl. Br.* 1391. *Engl. Bot. v. 18. t.* 1286. *Hook. Scot.* 57. *Fl. Dan. t.* 1450?

P. n. 847. *Hall. Hist. v. 1.* 376; *excl. the syn. of Linnæus*.

Fontinalis lucens major. *Bauh. Hist. v. 3.* 769. *f.*

In ponds, ditches, and slow streams.

In ditches, in marshy ground near Beverley, Yorkshire. *Mr. Teesdale*. Lilleshall mill-pool, Shropshire. *Rev. E. Williams*. In the river at Scole, Norfolk. *Mr. Woodward and Mr. D. Turner*.

Perennial. *July, August*.

As large as the first species, with which it agrees in having the upper leaves floating, and considerably coriaceous; but it is really more akin to *lucens*, from which Haller had much difficulty to distinguish our plant. He speaks of it as very common in Switzerland, and I have many specimens from the late

Mr. Davall. J. Bauhin's figure agrees far better with this than with the following, to which his synonym has always been referred. The *stem* is 5 or 6 feet long. Whole plant nearly immersed, a few of the uppermost *leaves* only being more or less floating, during the flowering season at least. These are firm and coriaceous, though less so than in *P. natans*, elliptic-oblong, bluntish; tapering at the base into *footstalks*, extremely various in length. *Stipulas* sheathing. *Flower-stalks* axillary, solitary, from various parts of the stem, slightly swelling upwards. *Spikes* above an inch long, cylindrical, dense. The lower *leaves* are sessile, occasionally somewhat stalked, lanceolate, mostly acute. The ribs of all the *leaves* are distinct and separate from the very bottom, by which this species essentially differs from the following. All parts of the plant, especially the upper *leaves*, and *flowers*, are tinged with a reddish hue, permanent in dried specimens, and resembling *P. coloratum*, *Fl. Dan. t. 1449*, whatever that may be.

6. *P. lucens*. Shining Pond-weed.

Leaves elliptic-lanceolate, pointed, membranous, stalked, repeatedly triple-ribbed, all submersed. Spike dense, many-flowered.

P. lucens. *Linn. Sp. Pl.* 183. *Willd. v. 1.* 714. *Fl. Br.* 194. *Engl. Bot. v. 6. t. 376.* *Hook. Scot.* 58. *Fl. Dan. t. 195.*

P. n. 846. *Hall. Hist. v. 1.* 376; *excl. the syn. of Linnæus.*

P. aquis immersum, folio pellucido, lato, oblongo, acuto. *Raii Syn.* 148.

P. longis acutis foliis. *Ger. Em.* 822. *f.*

P. altera. *Dod. Pempt.* 582. *f.*

P. alterum nostras, longis et obtusis splendentibus foliis, minutissimè crenatis. *Pluk. Amalth.* 177? *Dill. in Raii Syn.* 150?

Lapathum fluitans, longo serrato folio. *Bauh. Hist. v. 2.* 988. *f.*

Long Pond-weed. *Petiv. H. Brit. t. 5. f. 5.*

In ditches, ponds, lakes, and slow streams, chiefly on a clay soil, frequent.

Perennial. *June, July.*

Rather larger than the last, floating entirely under water, except the *flowers*. *Stem* not much branched. *Leaves* about 4 inches long, all nearly alike, more or less acute, tipped with a small point; their colour olive green, now and then reddish in the upper ones; their base usually tapering into the *footstalk*, sometimes rounded; their margins more or less undulated, becoming plaited when pressed, and the edge is rough, or very finely crenate, but this last character varies. What is most characteristic is the strong network, formed by the numerous transverse veins, connecting the 5 or 7 longitudinal ribs; and especially the union of the side ribs to the middle one, a considerable way above the

base of the *leaf*. The *flower-stalk* swells towards the top. *Spike* 2 inches long, of very numerous, crowded, green *flowers*.

Petiver's figure is justly commended by Haller; but the latter quotes *P. serratum* of Linnæus very erroneously. Plukenet's definition, of which Dillenius could make nothing, answers very well to some of my specimens.

7. *P. lanceolatum*. Lanceolate Pond-weed.

Leaves lanceolate, membranous, flat, entire; contracted at the base; with chain-like reticulations near the ribs. Spikes ovate, dense, of few flowers.

P. lanceolatum. *Engl. Bot.* v. 28. t. 1985. *Comp.* 27. *Davies Welsh Botanol.* 18. *Hook. Scot.* 58.

P. setaceum. *Linn. Sp. Pl.* 184? *Huds.* 76? *Fl. Br.* 198?

P. racemosum angustifolium. *Bauh. Prodr.* 101?

In Anglesey and Scotland.

In the rivulet between Bodafon and Lligwy, Anglesea. *Rev. H. Davies*. Found by Mr. G. Don in the Loch of Linthothen, Angusshire; and by Mr. Maughan in a mill-pool by the bridge at Bervie, Kincardineshire. *Hooker*.

Perennial. *July, August*.

The whole plant, not a quarter the size of the preceding, floats under water, the *flowers* always excepted, and is of a brownish olive-colour. *Leaves* sessile, alternate except under each flower-stalk, hardly 2 inches long, bluntish, even, entire, distinguished by several series of beautiful, oblong, chain-like reticulations, close to each side of the main rib. These unfortunately are not expressed in *Engl. Bot.* *Stipulas* narrow, lanceolate, acute. *Flower-stalks* solitary, from the bosom of one *stipula* of the opposite leaves, shorter than the leaves, rather stout, each bearing a small, short, dense *spike*, of 8—12 little brownish *flowers*.

This species certainly answers to the definition of the hitherto undetermined *P. setaceum* of Linnæus and of Hudson; but nothing can be absolutely affirmed on this subject, nor does the name well agree. Some may be inclined to refer to *P. lanceolatum*, the No. 16 of *Dill. in Raii Syn.* 150, quoted above under *heterophyllum*. I have only conjectures to offer, which some authentic specimens, if they exist at Oxford, or elsewhere, may confirm or refute.

8. *P. crispum*. Curled Pond-weed. Fresh-water Caltrops.

Leaves lanceolate, waved, serrated, alternate; the upper ones opposite. Flowers in loose spikes.

P. crispum. *Linn. Sp. Pl.* 182. *Willd.* v. 1. 714. *Fl. Br.* 195. *Engl. Bot.* v. 15. t. 1012. *Curt. Lond. fasc.* 5. t. 15. *Hook. Scot.* 58. *Fl. Dan.* t. 927. *Br. Prodr.* 343.

P. n. 848. *Hall. Hist. v. 1. 376.*

P. seu Fontinalis crispa. *Raii Syn. 149. Bauh. Hist. v. 3. 770. f.*

Tribulus aquaticus minor, quercus floribus. *Ger. Em. 824. f.*

Pusillum Fonti-lapathum. *Lob. Ic. v. 1. 286. f.*

β. Potamogeton serratum. *Huds. 75; excl. perhaps all the syn.*

Tribulus aquaticus minor. *Clus. Pann. 713. f. 714 & 715. Hist. v. 2. 252. f.*

T. aquat. minor, muscatellæ floribus. *Ger. Em. 824. f. not description.*

In ditches, ponds, and rivulets, frequent.

Perennial. *June, July.*

Whole plant under water, bright green. *Leaves* sessile, or nearly so, 2 inches long, bluntish, elegantly crisped at the edges, and more or less undulated; furnished with slight reticulations next the rib, far less remarkable than the last. The lower *leaves* are usually alternate; upper ones often opposite. *Fl.* yellowish green, with elongated reddish *styles*, in short loose *spikes*. Hudson's *P. serratum* is acknowledged by himself to be too near *crispum*, of which it is doubtless a variety with more of the *leaves* opposite, and all perhaps less undulated; as in Clusius's figure, annexed by Johnson, in Gerarde, to a description belonging to *P. densum*.

9. *P. compressum*. Flat-stalked Pond-weed.

Leaves linear, obtuse, with a very slight point; two lateral ribs meeting just below the extremity. Stem compressed.

P. compressum. *Linn. Sp. Pl. 183. Willd. v. 1. 715. Fl. Br. 195. Engl. Bot. v. 6. t. 418. Hook. Scot. 58. Fl. Dan. t. 203.*

P. caule compresso, folio graminis canini. Raii Syn. 149. Dill. Giss. 112.

In ditches and slow streams.

Perennial. *June, July.*

Stem wavy, alternately branched, much compressed throughout its whole length, though rounded at the edges. *Leaves* sessile, alternate, except a pair or two of the uppermost, perfectly linear, in which this species differs from all the preceding; they are 2 or 3 inches long, and 1-8th of an inch broad, rounded at the end, with a minute, often scarcely perceptible, point. The mid-rib becomes cellular, or vascular, in the upper leaves, as if composed of oblong reticulations, in some degree resembling *P. lanceolatum*. Whether this appearance be owing to air-vessels, produced in the flowering season, to render the plant buoyant, we can but conjecture. At each side are 2 equidistant, parallel, very fine ribs, of which the inner pair only are continued till they form an arch just below the termination of the leaf. *Stipulas* pale, partly cloven, embracing the stem. *Flowers* brownish, 4 or more in each small loose spike, just rising out of the water, terminal till the branch rises above them.

10. *P. cuspidatum*. Pointed-leaved Pond-weed.

Leaves linear, with an oblique taper point; three principal ribs, and numerous intermediate ones, all distinct. Stem compressed.

P. cuspidatum. *Schrad. Germ. v. 2.*

P. compressum. *Teesdale Tr. of Linn. Soc. v. 2. 106. Don H. Br. 204.*

P. gramineum latifolium. *Loes. Pruss. 206. t. 66*; excellent.

In ponds and rivulets.

In a rivulet at Hovingham, Yorkshire. *Mr. Robert Teesdale*. In the lake of Rescobie, and also in the lake of Forfar. *Mr. G. Don*. Larger than the last, with which it has, in England, always been confounded. Professor Schrader has communicated it to me as the *P. cuspidatum* of his *Fl. Germ.*, the 2d vol. of which, if published, has not yet reached us, and I have sought out such characters as my specimens afford. The principal one is indicated in the name. The leaves are not rounded at the end, but taper off rather suddenly and obliquely, into a terminal point, formed of the substance of the leaf. There are, moreover, only 2 lateral ribs, 1 at each side, half way between the mid-rib and the margin. These are often very inconspicuous; but there are numerous intermediate ribs, all over the leaf, which do not occur in *P. compressum*. Both the lateral as well as all the intermediate ribs keep distinct, and vanish just below the extremity of the leaf. These characters, though not the intermediate ribs, are clearly expressed in Loesel's figure, which has hitherto been quoted for *P. compressum*, as has likewise Haller's *n. 851*. But his character of the lanceolate leaves long ago caused the accurate Mr. Davall to suspect an error in that reference. This character indeed agrees admirably with specimens in the Linnæan herbarium, of a plant erroneously taken for *compressum*, but which I am told the late Professor Willdenow has somewhere named *complanatum*. Its flower-stalks are near a foot long; leaves 5-ribbed, 1-3d of an inch broad, tapering at each end. This is very possibly Haller's *n. 851*.

11. *P. gramineum*. Grassy Pond-weed.

Leaves linear, tapering downward, with solitary, very slender, lateral ribs. Stem round, forked. Flower-stalks from the forks, scarcely longer than the spikes.

P. gramineum. *Linn. Sp. Pl. 184. Willd. v. 1. 716. Fl. Br. 196. Engl. Bot. v. 32. t. 2253. Teesdale Tr. of Linn. Soc. v. 2. 106. Br. Prodr. 343.*

P. gramineum latiusculum, foliis et ramificationibus densissimè stipatis. *Dill. in Raii Syn. 149. t. 4. f. 3.*

In ponds and ditches.

In ditches near Deptford. *Buddle*. Near Norwich. *Mr. Rose*. In the ponds at Castle Howard, and near Beverley, Yorkshire. *Mr. Teesdale*.

Perennial. *July*.

Herb submersed. *Stem* slender, thread-shaped, wavy, much branched, forked in the upper part. *Leaves* grassy, alternate, except at the forks, crowded, spreading, 3 inches long, of a fine green, linear, though gradually contracted toward the base, bluntish, with an occasional small short point. Their mid-rib is more or less accompanied by very narrow, oblong, parallel reticulations; side ribs solitary, nearer to the margin than to the mid-rib, extremely fine, and sometimes scarcely discernible, vanishing at a greater or less distance below the point. There are no intermediate ribs. *Stipulas* pale, usually convoluted, so as to be narrower than their leaves. *Stalks* from the forks of the stem, perhaps without exception; the remark to the contrary, in some instances, being founded on a specimen of *P. cuspidatum*, mistaken by Linnæus. *Spikes* ovate, dense, generally quite as long as their stalks, just raised above the water. *Seeds* almost globular, with an oblique point.

The ribs of the *leaves* in this and the two preceding species will always clearly ascertain them. They have indeed puzzled botanists who have seen them only superficially, or not at all; but they are not the less distinct on that account.

12. *P. pusillum*. Small Pond-weed.

Leaves linear, spreading at the base, opposite or alternate, with solitary, very slender, lateral ribs. *Stem* round. *Flower-stalks* axillary, mostly lateral, many times longer than their spikes.

P. pusillum. *Linn. Sp. Pl.* 184. *Willd. v.* 1.717. *Fl. Br.* 197. *Engl. Bot. v.* 3. t. 215. *Hook. Scot.* 59. *Ehrh. Herb.* 112. *Fl. Dan. t.* 1451.

P. n. 852. *Hull. Hist. v.* 1. 377.

P. pusillum, gramineo folio, caule tereti. *Raii Syn.* 150. *Vaill. Par.* 164. t. 32. f. 4.

P. gramineum tenuifolium. *Loes. Pruss.* 206. t. 67.

Narrow Grass Pond-weed. *Petiv. H. Brit. t.* 5. f. 11.

In ponds and ditches, especially on a clay soil, not uncommon.

Perennial. *July*.

Much smaller than any of the foregoing. *Stem* slender, round, more or less branched, from 1 to 2 feet long, altogether submersed, the flowers only appearing above water. *Leaves* 1½ or 2 inches long, scarcely a line in breadth, opposite under every flower-stalk, otherwise alternate, rather acute; their mid-rib slightly accompanied by oblong reticulations; lateral ribs towards the margins, solitary, very slender, and often hardly visible; if continued far enough, joining the mid-rib, at some di-

stance below the point, and not quite both together. *Stipulas* sheathing, broader than the leaves. *Flower-stalks* lateral, axillary; the uppermost sometimes surmounted by a pair of branches; all much longer than the small, ovate *spike*, which consists of but few *flowers*, becoming a little distant as the fruit advances. *Seeds* ovate, obliquely beaked.

A perfectly clear and well-known species, though Willdenow has misquoted Haller, and Haller the *Fl. Dan.* A variety somewhat larger than common, but not otherwise different, was found by Mr. Teesdale, near Beverley, which I have from Switzerland for *compressum*, and it is also marked Haller's *n.* 851; a combination of errors, for which the accurate Mr. Davall is not responsible, for he had studied this genus correctly.

13. *P. pectinatum*. Fennel-leaved Pond-weed.

Leaves bristle-shaped, single-ribbed, parallel, thickly set in two ranks; sheathing at the base. Spikes interrupted.

P. pectinatum. Linn. *Sp. Pl.* 183. Willd. *v.* 1. 715. *Fl. Br.* 197. *Engl. Bot. v.* 5. *t.* 323. Hook. *Scot.* 59. Ehrh. *Herb.* 123.

P. marinum. Linn. *Sp. Pl.* 184. Willd. *v.* 1. 716. Huds. 76. *Fl. Dan. t.* 186.

P. n. 853. Hall. *Hist. v.* 1. 377.

P. millefolium, seu *foliis gramineis, ramosum*. Raii *Syn.* 150.

P. maritimum, grandiusculis capitulis, capillaceo folio, nostras. Pluk. *Almag.* 305. *t.* 216. *f.* 5. Dill. in Raii *Syn.* 150.

P. pusillum fluitans. Bocc. *Sic.* 42. *t.* 20. *f.* 5.

P. ramosum foliis gramineis. Vaill. *Par.* 164. *t.* 32. *f.* 5.

Millefolium tenuifolium. Ger. *Em.* 828. *f.*

In rivers, ditches and ponds, whether of fresh or salt water.

Perennial. July.

Root tuberous, with creeping scyons. *Stems* very much branched, various in length, leafy, zigzag. *Leaves* alternate, two-ranked, slender, tapering, acute, their solitary rib connected by transverse alternate veins with the margins; clasping the stem with their elongated sheathing base, which appears to be lined with the *stipula*, whose cloven summit rises a little above the sheath, as in grasses. *Spikes* few, solitary, each from one of the uppermost forks of the branches, on a longish stalk, cylindrical, with considerable interruptions, rising just above the surface, seldom produced but in still waters. *Fl.* 2 or 3 together, dull green. *Seed* scarcely more than 1 or 2 from each flower, gibbous.

Few plants vary more in the size of its herbage, which is most considerable in rapid streams, where the flowers seldom appear. Dillenius says the *leaves* are most slender, and the heads of *flowers* largest, in salt-water ditches; but this is disproved by observation in England, and by Swiss specimens, all from fresh water, as various as any; so that *P. marinum* cannot be marked even as a variety.

82. RUPPIA. Ruppia.

Linn. Gen. 68. *Juss.* 19. *Fl. Br.* 198. *Lam. t.* 90. *Gærtn. t.* 84.
Buccaferrea. Mich. Gen. t. 35.

Nat. Ord. see *n.* 81.

Cal. and Cor. none. *Anth.* 4, sessile, irregularly quadrangular, depressed, bursting by a horizontal transverse fissure. *Germens* 4, occasionally 5, turbinate, at length stalked. *Styles* none. *Stigmas* obtuse, depressed in the centre. *Seeds* 4, naked, ovate, obliquely pointed, convex at one side, bluntly keeled at the other, each elevated on a stalk, 4 or 5 times its own length.

Habit of *Potamogeton*, from which it differs in the want of a *corolla*, in the posture as well as shape of the *anthers*, and in the stalked *seeds*. But Linnæus surely errs in using the term *spadix* here, for what the former genus shows to be a *flower-stalk*. Impregnation in *Ruppia* takes place within the sheath of the leaf, and the *seeds* are subsequently raised above the water to ripen; just the reverse of *Potamogeton*.

1. *R. maritima*. Sea Ruppia. Tassel Pond-weed.

R. maritima. Linn. Sp. Pl. 184. *Willd. v.* 1. 717. *Fl. Br.* 198.
Engl. Bot. v. 2. *t.* 136. *Hook. Lond. t.* 50. *Scot.* 59. *Lightf.* 124.
t. 8. *f.* 1. *Dicks. H. Sicc. fasc.* 17. 9.

Potamogeton maritimum, gramineis longioribus foliis, fructu ferè umbellato. *Raii Syn.* 134. *t.* 6. *f.* 1.

P. maritimum pusillum alterum. Pluk. Phyt. t. 248. *f.* 4.

Fucus ferulaceus. Ger. Em. 1573. *f.*

Tassel Pond-weed. *Petiv. H. Brit. t.* 6. *f.* 1.

Buccaferrea maritima, foliis acutissimis; etiam foliis minùs acutis.
Mich. Gen. 72. *t.* 35.

In salt-water ditches.

Perennial? *August, September.*

Herb submersed. *Roots* fibrous, in tufts, from several of the lower joints of the long, slender, round, much branched, leafy *stem*.

Leaves alternate, linear, extremely narrow, more or less acute, channelled, single-ribbed from about the middle upward, entire; dotted with brown or purple towards the edges; clasping the stem with their sheathing, somewhat dilated, base. *Spikes* usually 2-flowered, on short, solitary, axillary *stalks*. *Fl.* alternate, vertical, as distinct on their common stalk as those of any *Potamogeton*, and inclosed within the sheath of the neighbouring leaf, as it appears, till impregnation is accomplished; my account in *Engl. Bot.* being, in this particular, incorrect. Professor Hooker has rightly explained the process. After flowering, the *flower-*

stalk, often spiral, is greatly lengthened, rising to the surface of the water, and carrying with it the 4 impregnated *germens*, each raised on its own long and firm stalk, produced likewise after the *anthers* are fallen. Each germen becomes an ovate, pointed *seed*, the size of Millet, with a hard shell, that does not burst. Dr. Hooker has admirably illustrated the history of this curious plant, and has named the parts of the seed so as, surely, to leave no room for any improvement. The germination of the plant, when properly investigated, must show which is the real *plumula*.

83. SAGINA. Pearl-wort.

Linn. Gen. 68. *Juss.* 300. *Fl. Br.* 199. *Lam. t.* 90. *Gærtn. t.* 129. *Nat. Ord. Caryophylleæ.* *Linn.* 22. *Juss.* 82.

Cal. inferior, of 4 ovate, concave, equal, widely spreading, bluntish, permanent leaves. *Petals* 4, ovate, obtuse, entire, shorter than the calyx, alternate with its leaves, spreading; sometimes wanting. *Filam.* thread-shaped, ascending, shorter than the cal. and opposite to it. *Anth.* of 2 roundish lobes. *Germ.* superior, ovate. *Styles* terminal, short, rather spreading. *Stigmas* obtuse, downy. *Caps.* ovate, of 1 cell, and 4 ovate, separate, equal valves. *Seeds* numerous, minute, rough, attached, each on its own stalk, to a central cylindrical *receptacle*.

Small, generally smooth, *herbs*, with opposite, narrow, entire *leaves*, and axillary, solitary, stalked, small, greenish or white *flowers*.

1. *S. procumbens*. Procumbent Pearl-wort.

Stems procumbent, smooth. Leaves minutely pointed.

Petals half as long as the calyx.

S. procumbens. *Linn. Sp. Pl.* 185. *Willd. v.* 1. 718. *Fl. Br.* 199. *Engl. Bot. v.* 13. t. 880. *Curt. Lond. fasc.* 3. t. 12. *Hook. Scot.* 59. *Arduin. Spec.* 2. 23. t. 8. f. 2.

Alsine n. 861. *Hall. Hist. v.* 1. 382.

A. pusilla graminea, flore tetrapetalo. *Tourn. Inst.* 243. *Segu. Veron. v.* 1. 421. t. 5. f. 3.

Alsinella muscoso flore repens. *Dill. Giss.* 81. *Raii Syn.* 345.

In sandy ground, or the walks and beds of neglected gardens, as well as on shady walls, and gravelly banks, every where.

Perennial. *May—August.*

Root fibrous. *Stems* 2—4 inches long, spreading on the ground in every direction, leafy, round, taking root at their lower joints, and if not disturbed, remaining through the winter, as Mr. Curtis first remarked. *Leaves* in like manner evergreen, combined by

their membranous bases, three-ribbed, linear, about half an inch long, smooth in every part, obtuse, with a very minute bristly point. *Flower-stalks* longer than the leaves, smooth. *Fl.* drooping, with white roundish *petals*. *Seeds* extremely minute. The late Rev. H. Davies gathered on a green near Beaumaris, in July 1817, a very pretty variety, with rose-like double *flowers*, of from 27 to 32 *petals*. This has found its way into some curious gardens.

A different synonym of Tournefort is quoted in the *Prodr. Fl. Græc.* which nevertheless is correct, though the above ought also to have been noticed.

2. *S. maritima*. Sea Pearl-wort.

Stems nearly upright, divaricated, smooth. Leaves obtuse, without bristles. Petals none.

S. maritima. *Don H. Br.* 155. *Engl. Bot. v. 31. t.* 2195. *Comp.* 28. *Hook. Scot.* 60. *Lond. t.* 115.

On the sea coast of Scotland, as well as of England and Ireland, also on the Highland mountains.

On the coast near Aberdeen, and on the summit of Ben Nevis. *Mr. G. Don*. At Bally-castle, near the Giant's causeway, Ireland. *Mr. R. Brown*. On Hartle-pier, Durham. *Mr. Winch*. In salt marshes at Southwold, Suffolk, abundantly. *Professor Hooker*.

Annual. *May—August*.

Root tapering, fibrous below. *Stems* numerous, 2 or 3 inches high, spreading at the bottom, but otherwise erect, branched, leafy, round, smooth, often purplish. *Leaves* scarcely half the length of the former species, but broader in proportion, thick and blunt, often tipped with a minute point, but no bristle; combined by their membranous bases, and sometimes fringed thereabouts. *Flower-stalks* slender, erect, smooth, usually an inch long. *Calyx-leaves* broadly ovate, obtuse, with a white membranous edge. *Petals* abortive, or entirely wanting. *Capsule* rather longer than the calyx.

Mr. Don found sometimes 8 *stamens*. *Professor Hooker* says the *petals* are entirely wanting, nor can I find any. The edges of the *calyx* are occasionally violet-coloured.

3. *S. apetala*. Annual Small-flowered Pearl-wort.

Stems nearly upright, hairy. Leaves bristle-pointed, fringed. Petals obsolete, or wanting.

S. apetala. *Linn. Mant.* 2. 559. *Willd. Sp. Pl. v. 1.* 719. *Fl. Br.* 199. *Engl. Bot. v. 13. t.* 881. *Curt. Lond. fasc. 5. t.* 14. *Dicks. H. Sicc. fasc. 3. 6.* *Hook. Scot.* 60. *Don H. Br.* 156. *Arduin. Spec. 2. 22. t. 8. f. 1*; bad.

Saxifraga anglica alsinefolia annua. *Raii Syn.* 345.

In dry, sandy, barren ground ; on walls and waste places ; very common.

Annual. *May, June.*

The whole plant is more slender than either of the foregoing. *Stems* numerous, partly reclining but not taking root, more or less hairy, or rough with prominent scattered points. *Leaves* shaped like those of *S. procumbens*, but fringed at the edges, each tipped with a very distinct bristle ; and they are not unfrequently hairy all over. *Flower-stalks* long and slender, and likewise hairy. *Flowers* not perhaps so truly apetalous as the last, though often perfectly so. The *petals*, if present, are white, not half the length of the calyx, either entire or notched. *Caps.* pale, about twice as long as the *calyx*. *Seeds* bordered with a black line ; but this, as in *Spergula* and *Arenaria*, is variable.

84. MËNCHIA. Mœnchia.

Ehrh. Beitr. fasc. 2. 177. Hook. Scot. 48.

Nat. Ord. see *n.* 83.

Cal. inferior, of 4 elliptic-lanceolate, concave, equal, converging, pointed, membranous-edged, permanent leaves. *Pet.* 4, lanceolate, undivided, entire, upright, shorter than the *calyx*, withering. *Filam.* thread-shaped, ascending, shorter than the petals. *Anth.* of 2 roundish lobes. *Germ.* superior, ovate. *Styles* terminal, very short, spreading. *Stigm.* obtuse, downy. *Caps.* the length of the calyx, cylindrical, slightly ovate, of 1 cell, and 1 valve, membranous, opening at the summit with 8, occasionally 10, equal, shallow, acute teeth. *Seeds* numerous, kidney-shaped, rough, attached, each on its own stalk, to a central cylindrical *receptacle*, half the length of the capsule. Herbaceous, smooth, erect, with the habit and fruit of a *Cerastium*, or *Holosteum*.

1. *M. erecta.* Upright Mœnchia.

M. glauca. *Pers. Syn. v. 1. 153. Hook. Scot. 60.*

M. Quaternella. *Ehrh. Phyt. 82. Beitr. v. 2. 178.*

Sagina erecta. *Linn. Sp. Pl. 185. Willd. v. 1. 719. Fl. Br. 200.*

Engl. Bot. v. 9. t. 609. Curt. Lond. fasc. 2. t. 12. Dicks. H. Sicc.

fasc. 6. 6. Dryand. Bibl. Banks. v. 3. 244. Huds. 73. With. 216.

Alsinella foliis caryophylleis. *Raii Syn. 344. t. 15. f. 4.*

Alsine verna glabra. *Vaill. Par. 6. t. 3. f. 2.*

Chamælinum gramineo, seu acuto, folio. *Barrel. Ic. t. 1165.*

In pastures and heathy ground, on a barren gravelly soil.

Annual. *May.*

Root small, fibrous. *Whole herb* glaucous and very smooth.

Stems several, erect, 3 or 4 inches high, round, leafy. *Leaves* opposite, sessile, linear-lanceolate, entire, single-ribbed. *Flowers* erect, solitary, on long terminal stalks, conspicuous for the shining white of their *petals* and the edges of their *calyx-leaves*. *Caps.* of a light shining brown.

An elegant little plant, certainly misplaced in *Sagina*, as its habit and the structure of the *capsule* evince. The uncertainty of its genus is hinted, in *Fl. Brit.* and *Engl. Bot.*; though I had not then seen Ehrhart's work, to consider his characters. The original specific name *erecta* ought not to be changed. We may be thankful to get rid of *Quaternella*.

85. TILLÆA. Tillæa.

Linn. Gen. 68. *Juss.* 307. *Mich. Gen. t.* 20. *Fl. Br.* 201. *Lam. t.* 90. *Gærtn. t.* 112.

Nat. Ord. Succulentæ. *Linn.* 13. *Sempervivæ.* *Juss.* 83.

Cal. in 3 or 4 deep, spreading, large, ovate, succulent segments, inferior. *Pet.* 3 or 4, ovate or lanceolate, acute, flat, thin, rather smaller than the calyx, and alternate with its divisions. *Nect.* none. *Filam.* 3 or 4, simple, awl-shaped, shorter than the corolla, erect. *Anth.* roundish, of 2 cells. *Germens* 3 or 4, ovate, superior. *Styles* terminal, very short. *Stigmas* obtuse. *Caps.* 3 or 4, oblong, pointed, recurved, bursting lengthwise at their upper edge, each of 1 cell, and 2 valves. *Seeds* ovate, 2 in each capsule.

Small, succulent, annual *herbs*, with numerous *branches*, opposite sessile *leaves*, and generally axillary *flowers*. This genus differs from *Crassula* in the want of nectariferous scales, as well as in number of the several parts.

1. *T. muscosa.* Mossy Tillæa.

Stems procumbent. *Flowers* sessile, mostly three-cleft.

T. muscosa. *Linn. Sp. Pl.* 186. *Willd. v.* 1. 721. *Fl. Br.* 201. *Engl. Bot. v.* 2. *t.* 116. *Rose's Elem. append.* 448. *t.* 2. *f.* 2.

T. muscosa annua perfoliata, flore albo. *Mich. Gen.* 22. *t.* 20.

Sempervivum omnium minimum, repens, muscosum, polygoni facie. *Bocc. Mus. v.* 2. 36. *t.* 22.

Polygonum muscosum minimum. *Bocc. Sic.* 56. *t.* 29.

Crassula foliis sessilibus connatis, floribus aggregatis in foliorum alis. *Guett. Obs. v.* 2. 97.

On the most barren sandy heaths.

Frequent in Norfolk and Suffolk. A troublesome weed on the gravel walks at Holkham.

Annual. *May, June.*

Root fibrous, small. Stems at first erect, but soon becoming pro-cumbent, an inch or two in length, round, leafy. Leaves opposite, very succulent, reddish, smooth, oval, obtuse, combined at the base. Fl. axillary, solitary, often accompanied by a pair of smaller leaves. Cal. pointed. Petals narrow, pointed, white with a tinge of red. The whole plant is smooth, so small and depressed that it only becomes remarkable by the ample reddish patches, which it forms over the most dreary sands. The flowers are naturally 3-cleft, and of course triandrous; but they are sometimes 4-cleft in strong plants, and Gærtner says 5-cleft. Still the want of nectaries keeps them generically distinct from the chiefly African genus *Crassula*.

86. RADIOLA. Flax-seed.

Gmel. Syst. v. 2. 289. Fl. Br. 201. Dill. Gen. 126. t. 7.
Linocarpum. Mich. Gen. t. 21.

Nat. Ord. *Grinales*. Linn. 14. Akin to *Caryophyllea*.
Juss. 82. See n. 180. *Lineæ*. DeCand. 15.—It still remains very doubtful to what Order this genus and *Linum* are nearest akin.

Cal. inferior, of one leaf, in 4 principal segments, each of which is deeply and acutely 3-cleft, permanent. Petals 4, obovate, undivided, spreading, the length of the calyx, and alternate with its principal segments. Filam. 4, awl-shaped, the length of the petals, without any intermediate imperfect filaments. Anth. roundish, of 2 lobes. Germ. superior, roundish, 4-lobed. Styles 4, terminal, capillary, very short, permanent. Stigm. capitate, obtuse. Caps. roundish, somewhat pointed, with 8 furrows, 8 valves, with inflexed edges, cohering slightly in pairs, and 8 cells. Seeds solitary, ovate, compressed, polished.

Small, herbaceous. Stem repeatedly forked. Leaves opposite, entire. Fl. from the forks and summits of the stem, stalked. We know but one species, referred by Linnæus to *Linum*, from which it differs in structure, as well as in number and habit.

1. *R. millegrana*. Thyme-leaved Flax-seed.

R. millegrana. Fl. Br. 202. Engl. Bot. v. 13. t. 893. Hook. Scot. 60.
R. linoides. Gmel. Syst. v. 2. 289.
R. vulgaris serpyllifolia. Dill. in Raii Syn. 345. t. 15. f. 3. Jacob Faversh. 92.
Linum Radiola. Linn. Sp. Pl. 402. Syst. Nat. ed. 12. v. 2. 225.
Willd. v. 1. 1542. Huds. 134. Dicks. H. Sicc. fasc. 10. 7. Fl. Dan. t. 178.

L. n. 840. *Hall. Hist. v. 1. 374.*

Linocarpum serpylli folio, multicaule et multiflorum. Mich. Gen. 23. t. 21.

Millegrana minima. Raii Syn. ed. 2. 207. Ger. Em. 569. f.

Chamælinum vulgare. Vaill. Par. 33. t. 4. f. 6.

In wet sandy ground.

Annual. *July, August.*

Root fibrous, small. *Herb* smooth. *Stem* 1—2 inches high, erect, repeatedly forked, leafy, many-flowered, moderately spreading, and somewhat corymbose. *Leaves* sessile, small, ovate, 3-ribbed. *Fl.* stalked, solitary, from the forks of the stem, as well as its ultimate branches, white, very minute. *Caps.* light brown, rather depressed.

Class V. PENTANDRIA. *Stamens 5.*

Order I. MONOGYNIA. *Pistil 1.*

* *Flowers monopetalous, inferior, with 2 or 4 naked seeds. Asperifoliæ.*

96. ECHIUM. Throat of the *corolla* dilated, naked; limb irregular. *Stigma* deeply cloven.
91. PULMONARIA. *Cor.* naked in the throat, funnel-shaped. *Calyx* prismatic, 5-cleft at the margin.
88. LITHOSPERMUM. *Cor.* naked in the throat, funnel-shaped. *Cal.* in 5 deep segments.
92. SYMPHYTUM. *Cor.* closed with awl-shaped converging valves; limb bell-shaped.
93. BORAGO. *Cor.* closed with awl-shaped or notched valves; limb wheel-shaped.
95. LYCOPSIS. *Cor.* closed with concave obtuse valves, funnel-shaped, with a doubly bent tube. *Seeds* concave at the base.
89. ANCHUSA. *Cor.* closed with concave obtuse valves, funnel-shaped; tube straight, tumid below. *Seeds* concave at the base.
94. ASPERUGO. *Cor.* closed with concave obtuse valves, salver-shaped. *Cal.* of the fruit compressed, with jagged parallel lobes.
87. MYOSOTIS. *Cor.* half closed with rounded valves, salver-shaped; lobes obtuse. *Seeds* perforated at the base, borne by the calyx.
90. CYNOGLOSSUM. *Cor.* half closed with rounded valves, funnel-shaped. *Seeds* depressed, imperforate, borne by a central column.
- ** *Fl. monopetalous, inferior, with numerous covered seeds.*
102. ANAGALLIS. *Caps.* of 1 cell, bursting all round. *Cor.* wheel-shaped. *Stam.* hairy.

101. **LYSIMACHIA.** *Caps.* of 1 cell, with 10 valves.
Cor. wheel-shaped.
98. **CYCLAMEN.** *Caps.* of 1 cell, pulpy within. *Cor.*
wheel-shaped, reflexed. *Stigma* simple.
97. **PRIMULA.** *Caps.* of 1 cell, opening with 10 teeth.
Cor. salver-shaped; tube cylindrical; throat open.
Stigma globular.
100. **HOTTONIA.** *Caps.* of 1 cell, with 5 teeth. *Cor.*
salver-shaped. *Stam.* from the margin of the tube.
Stigma globular. *Cal.* in 5 deep segments.
99. **MENYANTHES.** *Caps.* of 1 cell. *Cor.* hairy.
Stigma divided.
117. **ERYTHRÆA.** *Caps.* of 2 incomplete cells. *Cor.*
salver-shaped. *Anth.* finally spiral.
113. **DATURA.** *Caps.* of 2 cells, and 4 valves. *Cor.*
funnel-shaped. *Cal.* deciduous.
114. **HYOSCYAMUS.** *Caps.* of 2 cells, with a lid. *Cor.*
funnel-shaped. *Stigma* capitate.
112. **VERBASCUM.** *Caps.* of 2 cells. *Cor.* wheel-shaped,
irregular. *Stigma* obtuse. *Stam.* declining.
104. **CONVOLVULUS.** *Caps.* of 2 or 3 cells, with 2 seeds
in each. *Cor.* bell-shaped, plaited. *Stigmas* 2.
105. **POLEMONIUM.** *Caps.* of 3 cells. *Cor.* deeply
5-cleft; tube closed by 5 valves. *Stam.* between the
valves, opposite to the segments.
103. **AZALEA.** *Caps.* of 5 cells. *Cor.* bell-shaped. *Stam.*
from the receptacle. *Anth.* with 2 pores. *Stigma*
capitate.
127. **VINCA.** *Follicles* 2, erect. *Cor.* salver-shaped, ob-
lique. *Seeds* simple.
116. **SOLANUM.** *Berry* of 2 cells. *Cor.* wheel-shaped.
Anth. with 2 pores.
115. **ATROPA.** *Berry* of 2 cells. *Cor.* bell-shaped. *Stam.*
distant, incurved. *Anth.* heart-shaped.
- *** *Fl. monopetalous, superior.*
118. **SAMOLUS.** *Caps.* of 1 cell, with 5 recurved valves.
Cor. funnel-shaped, 5-cleft, with intermediate scales.
108. **JASIONE.** *Caps.* half 2-celled, opening at the top.
Cor. wheel-shaped, in 5 deep segments. *Stigma* club-
shaped. *Anth.* combined at the base.

107. PHYTEUMA. *Caps.* of 2 or 3 cells, bursting laterally. *Cor.* wheel-shaped, in 5 deep segments. *Stigma* 2- or 3-cleft.
109. LOBELIA. *Caps.* of 2 or 3 cells. *Cor.* irregular, split lengthwise. *Stigma* capitate, hairy.
106. CAMPANULA. *Caps.* of 2 or 3 cells, with torn fissures at the base. *Cor.* bell-shaped. *Stigma* 2- or 3-cleft, revolute.
119. LONICERA. *Berry* of 1 or more cells, with many seeds. *Cor.* irregular.

Rubia 1.

**** *Fl.* of 5, or 4, petals, inferior.

120. RHAMNUS. *Berry* of several cells. *Cal.* funnel-shaped, bearing the petals.
121. EUONYMUS. *Caps.* of 4 or 5 cells. *Seeds* with a fleshy tunic. *Cal.* flat.
110. IMPATIENS. *Caps.* of 5 cells, and 5 elastic valves. *Cal.* of 2 leaves. *Cor.* irregular.
111. VIOLA. *Caps.* of 1 cell, and 3 valves. *Cal.* of 5 leaves, extended at the base. *Cor.* irregular, spurred.

***** *Fl.* of 5 petals, superior.

122. RIBES. *Berry* with many seeds. *Cal.* bearing the petals. *Style* divided.
123. HEDERA. *Berry* with 3—5 seeds. *Cal.* surrounding the germen. *Style* simple. *Pet.* broadest at the base.

***** *Petals* wanting.

125. GLAUX. *Caps.* superior, with 5 seeds. *Cal.* coloured, of 1 leaf.
124. ILLECEBRUM. *Caps.* superior, with 1 seed. *Cal.* cartilaginous, of 5 leaves.
126. THESIUM. *Drupa* inferior, dry. *Cal.* coriaceous, 5-cleft, bearing the stamens.

Order II. DIGYNIA. *Pistils* 2. See beginning of Vol. II.

PENTANDRIA MONOGYNIA.

87. MYOSOTIS. Scorpion-grass.

Linn. Gen. 73. Juss. 131. Fl. Br. 212. Dill. Gen. 99. t. 3. Lam. t. 91. Gärtn. t. 68.

Nat. Ord. *Asperifoliæ*. Linn. 41. *Boragineæ*. Juss. 42. Nine following genera the same. See *Grammar* 102.

[Professor Schrader, in a small treatise on the *Asperifoliæ*, gives their natural characters as follows:

Root simple or branched, perpendicular, sometimes oblique, very rarely creeping. *Stem* herbaceous, rarely shrubby; branches alternate, axillary. *Leaves* for the most part alternate, entire, sometimes wavy, or broadly toothed, more or less bristly, like the rest of the herb; their bristles proceeding each from a small prominence finally becoming callous; very rarely seated on a tubercle. *Flowers* alternate, with or without *bractæas*, mostly forming a unilateral *cluster*, at first spirally revolute, afterwards elongated; the *partial stalks* enlarged as the *seeds* ripen. *Bractæas*, if present, solitary, generally lateral, more or less leafy, permanent. *Calyx*, except in *Cerithe*, of 1 leaf, more or less deeply 5-cleft, very seldom merely 5-toothed; the segments or teeth generally a little unequal: permanent, enlarged after flowering, and in some instances altered in shape. *Corolla* inferior, of 1 petal, 5-cleft, the segments mostly equal; the mouth either completely, or imperfectly, closed with convex hollow valves; or beset with swellings, or plaits, or dense hairs; or entirely naked and pervious. *Stamens* from the interior part of the tube, seldom from the mouth, alternate, with the segments of the limb, and equal to them in number: *anthers* of 2 cells, distinct, very seldom attached to each other. *Germens* 4, very rarely (in *Cerithe*) 2 only, distinct, seated on a fleshy or glandular *receptacle*, subsequently enlarged, and supporting the ripe *fruit*. *Style* 1, from the disk between the germens, permanent; and terminating in a generally undivided *stigma*. *Fruit* as many close *capsules* (*achenia*) as there are germens, various in substance, each furnished, in some instances, with an umbilical depression, from which proceeds the *strophium*, or crest, hardly occurring but where that depression exists, and which is whitish and fleshy, occupying the whole cavity; but be-

comes contracted and wrinkled as the fruit ripens, so as to render the depression more visible. *Seed* solitary in each *capsule*, with a single *skin*, and no *albumen*; *embryo* inverted; *cotyledons* 2, slightly convex; *radicle* superior. *Receptacle* mostly unaltered, and flat; in some convex; in some conical; in others columnar, or pyramidal; marked with scars, or little hollows, where the *capsules* are attached.

Schrad. Asperif. 17.

I rather, after the example of Linnæus, consider these supposed *achenia* as naked *seeds*; nor is there any advantage in denominating them, after Gærtner and some other writers, *nuts*, which in that case would merely mean *hard seeds*. The kernel within having but a single *skin*, *membrana*; and the near relationship of this Order to the *Verticillatæ* of Ray and Linnæus, the *Labiataæ* of Jussieu, being acknowledged, analogy, though often a treacherous guide, must lead us to consider the second covering as the outer *skin*, *testa*, in one case as well as the other. In the *Verticillatæ* there can be no question about the matter, if naked seeds be ever allowed to exist; and to deny this is merely a dispute of words. In the *Asperifoliaæ*, the outer *skin* is often indeed elaborately constructed; and sometimes downy, or prickly; but such characters are not more appropriate or essential to a *seed-vessel* than to a *seed*. The *seeds* of *Cerithe*, which at first sight seem a difficulty less easy to be surmounted, are merely confluent, or combined laterally, in pairs, like the *nuts* of *Messerschmidia*, which last are the *seeds* of a *drupa*, the only genuine *nuts*, of which a Walnut is the type.]

MYOSOTIS.

Cal. inferior, of 1 leaf, oblong, erect, divided half way down, or more, into 5 acute equal segments, permanent. *Cor.* of one petal, salver-shaped; tube cylindrical; limb ascending, or horizontal, in 5, rather deep, obtuse, often notched, equal segments; mouth half closed with 5 little, rounded, notched, convex slightly prominent valves. *Filam.* very short, in the throat. *Anthers* small, oblong, concealed by the valves. *Germens* 4, roundish, inserted into the base of the calyx. *Style* thread-shaped, central, erect, the length of the tube. *Stigma* obtuse. *Seeds* 4, ovate, rather compressed, pointed, smooth, in the bottom of the somewhat enlarged, closed calyx, each with a small hollow at its point of insertion.

Herbaceous; hairy or bristly. *Leaves* scattered, undivided, entire, single-ribbed. *Clusters* terminal, many-flowered; revolute in the bud. *Cor.* bright blue, or yellowish; red before expansion. *Seeds* various; highly polished in all our species.

* *Roots* perennial, or perhaps biennial.

1. *M. palustris*. Great Water Scorpion-grass.

Seeds smooth. Leaves and calyx roughish with close bristles. Clusters leafless. Calyx funnel-shaped, with short broad spreading teeth. Limb of the corolla horizontal, longer than the tube. Root creeping.

M. palustris. *Roth Germ.* v. 1. 87. v. 2. p. 1. 221. *Comp.* 33. *Engl. Bot.* v. 28. t. 1973. *With.* 225. *Hull* 46. *Relh. ed.* 1. 76. *Sibth.* 68. *Abbot* 40. *Hook. Scot.* 67. *Lehm. Asperif.* 88.

M. scorpioides palustris. *Ger. Em.* 337. f. *Linn. Sp. Pl.* 188. *Fl. Br.* 212 ♂. *Huds.* 78. *Curt. Lond. fasc.* 3. t. 13. *Raii Syn.* 229. *Ehrh. Herb.* 21.

M. scorpioides. *Willd. Sp. Pl.* v. 1. 746. *Wahlenb. Lapp.* 54.

Scorpiurus n. 591 z. *Hall. Hist.* v. 1. 261.

S. palustris perennis, viridioribus foliis. *Moris.* v. 3. 451. *sect.* 11. t. 31. f. 4.

Echium scorpioides palustre. *Bauh. Pin.* 254.

Anagallis aquatica. *Pass. Ic. p. ult. f.* 49.

Cynoglossa minor. *Brunf. Herb.* v. 1. 176. f.

In clear rivulets and ditches, common.

Perennial. *June—August*.

Roots very long, creeping, blackish, with numerous tufts of strong fibres. *Herb* bright green, rather succulent, from 6 to 12 or 18 inches high. *Stems* ascending obliquely, round, branching, leafy, either nearly smooth, or clothed with, more or less spreading, bristly hairs. *Leaves* sessile, nearly uniform, elliptic-oblong, bluntish, $1\frac{1}{2}$ or 2 inches long, clothed on both sides with small close-pressed bristles, which scarcely render them rough to the sight or the touch. *Clusters* many-flowered, 2 or 3 together, on a terminal leafless stalk, or elongation of each branch; each general and partial *stalk*, as well as both sides of the *calyx*, being clothed with erect, or close-pressed, short, straight, simple, rigid, pale, uniform, bristly hairs. *Partial stalks* at first crowded into a dense revolute *spike*, which unrolls gradually, and, after flowering, is greatly elongated, the stalks spreading almost horizontally as the *seeds* ripen, forming a very lax straight *cluster*. *Calyx* about half the length of each partial stalk, after the flower is past; bell-shaped at the base; the limb divided half way down into 5 broad, triangular, rather expanding, segments. *Tube* of the *corolla* about as long as the calyx, whitish; *limb* longer,

horizontal, of a beautiful enamelled sky blue, with white elevated ribs at the base of each rounded, scarcely notched, segment; the valves of the mouth yellow. The *flower-buds* are of a fine pink. *Style* the length of the tube. *Stigma* capitate, umbilicated. *Seeds* ovate, compressed, obtuse, blackish, highly polished, somewhat bordered.

This most elegant plant, the Forget-me-not, or emblem of affection, among the Germans, is the most distinct, and best known, example of its genus, though too long confounded with other common species. The perennial creeping roots, shining green herbage, and enamelled blossoms, are all strikingly characteristic. Linnæus records its being hurtful to sheep; which, like a similar report of *Hydrocotyle vulgaris*, may have arisen from those animals suffering from frequenting the wet situations of these plants.

2. *M. cæspitosa*. Tufted Water Scorpion-grass.

Seeds smooth. Leaves and calyx besprinkled with erect bristles. Clusters leafy at the base. Calyx funnel-shaped, with broad spreading teeth. Limb of the corolla the length of the tube. Root fibrous.

M. cæspitosa. “*Schulz Stargard, suppl. 2. Reichenbach Amæn. 1. 26.*” according to Dr. Panzer of Nuremberg.

In watery places.

Near Tunbridge; and at Binfield, Berks. *Mr. T. F. Forster.*

Perennial, or biennial. *May, June.*

Root fibrous, or slightly creeping. *Stems* numerous, a foot high, crowded, erect, much branched, leafy and many-flowered. Whole *herb* of a weaker, paler, more lax habit than the foregoing, having always a leaf or two at the base of each *cluster*. The *flowers* are smaller, paler, and far less conspicuous. *Calyx* rather more deeply 5-cleft, with fewer, more dispersed and lax, bristles. *Seeds* like the last. The plant remains unchanged by cultivation, and is doubtless a very distinct species.

3. *M. intermedia*. Trailing Hairy Scorpion-grass.

Seeds smooth. Leaves hairy. Clusters leafless. Tube of the calyx clothed with hooked bristles; segments with straight upright hairs. Root creeping. Stems decumbent.

M. intermedia. “*Link. Reichenbach Amæn. 1. 22.*” Dr. Panzer.

M. scorpioides. *Fl. Dan. t. 583, largest figure.*

In dry shady places.

In a small wood at Edgefield, near Holt, Norfolk, in a perfectly dry situation. *Rev. R. B. Francis.* On hedge banks near Norwich, towards Keswick. *Mr. J. Backhouse.*

Perennial. *April, May.*

Root long and creeping. *Herb* of a dull green, copiously clothed with lax spreading hairs, sometimes minutely callous at their origin. *Stems* several, very hairy, leafy, more or less branched, from 4 to 10 inches high; procumbent at the lower part. *Leaves* oblong; the lowermost often obovate, and tapering at the base. *Clusters* in pairs or solitary, on terminal, leafless, upright stalks. *Hairs* on the general and partial stalks erect, but not close-pressed. *Partial stalks* when in fruit longer than the calyx, spreading not quite horizontally. *Calyx* bell-shaped in the lower half, and plentifully clothed with spreading, partly brownish, hooked bristles; in the upper half deeply 5-cleft, the lanceolate converging segments covered with straight, erect, silvery hairs. *Cor.* bright blue, almost equal in size and beauty to that of *M. palustris*. *Seeds* oval, brown, highly polished.

4. *M. sylvatica*. Upright Wood Scorpion-grass.

Seeds smooth. *Leaves* hairy. *Clusters* with a leaf at the base. *Tube* of the calyx clothed with hooked bristles; segments with straight upright hairs. *Root* fibrous. *Stems* erect.

M. sylvatica. *Lehm. Asperif.* 85. *Hook. Scot.* 66.

M. scorpioides sylvatica. *Ehrh. Herb.* 31.

M. scorpioides γ . *Fl. Br.* 212.

M. scorpioides latifolia hirsuta. *Merr. Pin.* 82. *Dill. in Raii Syn.* 229. t. 9. f. 2.

Scorpiurus n. 591 β . *Hall. Hist.* v. 1. 262.

In woods and dry shady places, frequent.

Perennial. *June, July.*

Root fibrous, branching at the summit. *Stems* one or more, erect, 12 or 18 inches high, branched at the upper part, leafy, angular, clothed with soft spreading hairs. *Leaves* oblong, obtuse, clothed and fringed with similar hairs, slightly callous at their base; the lowermost obovate, each tapering into a footstalk. *Clusters* terminal, mostly solitary, very long and straight when in fruit, each with a sessile, ovate, acute leaf, at the base of its stalk. *Partial stalks* moderately spreading, somewhat longer than the calyx, and clothed, like the *common stalks*, with short, upright or incurved, hairs. *Tube* of the *calyx* bell-shaped, densely clothed with fine, spreading, hooked bristles; limb longer than the tube, in 5 deep, unequal, lanceolate segments, rough with erect, straight, brownish-tipped hairs. *Corolla* bright blue; limb horizontal, in 5 obovate, flat segments, longer than the pale tube. The *flowers* vary a little in size, and yield in beauty to those of *M. palustris*. *Tab.* 583 of the *Flora Danica* is, as Dr. Lehmann observes, not a good figure of this species, being unquestionably, I think, drawn from the preceding, which escaped his notice. Dillenius's figure, in Ray's Synopsis, is a good

representation of *M. sylvatica*, which, as Merrett remarks, is very common in woods in Kent.

5. *M. alpestris*. Rock Scorpion-grass.

Seeds smooth. Leaves hairy, radical ones but half the length of their footstalks. Clusters forked at the base, leafless. Calyx deeply five-cleft, clothed with upright hairs; the lowermost incurved. Root fibrous, tufted.

M. alpestris. *Lehm. Asperif.* 86. *Hook. Scot.* 66.

M. alpina. *Don H. Br.* 205.

M. rupicola. *Engl. Bot. v. 36. t. 2559. Comp.* 33.

Lycopsis montana cœrulea. *Barrel. Ic. t. 404.*

On the mountains of Scotland.

Plentiful on the summit of Ben Lawers, and other lofty Highland mountains. *Mr. G. Don, Mr. J. Mackay, &c.*

Perennial. *July, August.*

Root fibrous, or slightly creeping, blackish. Stems several, from 3 to 5 inches high, erect, simple, roundish, leafy, clothed with spreading hairs. Leaves ovate-oblong; the upper ones rather pointed; radical ones elliptical, on linear smooth footstalks, twice or thrice their own length. Clusters either terminal, in pairs, on a leafless stalk, with a solitary flower at the fork, or axillary and solitary; all dense and revolute when in flower, subsequently elongated; their stalks all clothed with erect or close short silky hairs. Calyx in 5 deep, unequal, linear-lanceolate segments, covered with similar upright hairs, those on the very short tube only being slightly curved. Flowers blue, full as large and ornamental as in *M. palustris*, pale pink in the bud, their horizontal limb much longer than the very short tube; valves white.

I have this from *M. Villars* as his alpine variety of *M. scorpioides*. *Haller*, by his reference to *Barrelier*, seems to confound it with the *palustris*, from which none can be more distinct.

** *Roots annual.*

6. *M. arvensis*. Field Scorpion-grass.

Seeds smooth. Leaves hairy. Clusters stalked, with one remote axillary flower. Calyx half-five-cleft, clothed with spreading hairs; those of the tube hooked. Root fibrous.

M. arvensis. *Roth Germ. v. 2. p. 1. 222. Willd. Sp. Pl. v. 1. 747. With.* 225. *Sibth.* 68. *Abbot* 40. *Hook. Scot.* 67. *Engl. Bot. v. 36. t. 2558. Comp.* 33. *Lehm. Asperif.* 90.

M. scorpioides arvensis. *Linn. Sp. Pl.* 188. *Fl. Br.* 212 *α.* *Huds.* 78. *Relh.* 75. *Ehrh. Herb.* 41. *Beitr. v. 5. 176. Bull. Fr. t. 355,* incorrect.

M. scorpioides hirsuta. *Raii Syn.* 229.

Scorpiurus n. 590. *Hall. Hist. v. 1. 261.*

In dry sandy fields and open places, common.

Annual. *June—August.*

Root fibrous, generally simple at the crown, always annual. *Stem* from 3 to 8 inches high, erect, branched and spreading from the base, roundish, slender, leafy, clothed with partly spreading hairs. *Leaves* covered with similar hairs; the lowermost stalked, obovate; the rest sessile, more or less obtuse. *Clusters* many-flowered; at first small, dense, and revolute; but very much elongated, and quite erect, when in fruit; almost always distinguished, as Mr. Borrer first remarked, by having one distant drooping flower-stalk situated in the bosom of the uppermost leaf. Sometimes there are more solitary flowers, or a small cluster or two, so situated. *Partial stalks*, when in fruit, spreading, covered with close hairs, and much longer than the *calyx*; of which the tube is bell-shaped, clothed with spreading or deflexed, hooked, bristly hairs; the segments lanceolate, as long as the tube, their hairs erect. *Corolla* with a white tube, as long as the limb, which is small, bright blue, scarcely reddish in the bud; its valves sunk in the tube. *Seeds* ovate, obtuse, keeled, of a shining brown. The smaller *flowers*, and annual *root*, distinguish this species from all the foregoing. The wooden cuts of old authors do not precisely represent it, the artists probably having *M. sylvatica* and *intermedia* in view at the same time, though they distinguished *M. palustris*.

7. *M. versicolor*. Yellow and blue Scorpion-grass.

Seeds smooth. Leaves hairy. Clusters on long, naked stalks. Calyx longer than the partial stalks; hairs of its tube hooked. Root fibrous.

M. versicolor. "*Pers. Syn. v. 1. 156.*" *Lehm. Asperif. 93. Engl. Bot. v. 36. 2558. t. 480. f. 1. Comp. 33. Hook. Scot. 67.*

M. arvensis β. *Roth Germ. v. 2. p. 1. 223. Willd. Sp. Pl. v. 1. 747.*

M. scorpioides β. *Fl. Br. 212. Huds. 78. Relh. 75.*

M. scorpioides γ. *Linn. Sp. Pl. 189.*

M. scorpioides collina. *Ehrh. Herb. 51. Beitr. v. 5. 177.*

M. scorpioides hirta minor. *Raii Syn. 229.*

Echium Scorpioides minus, flosculis luteis. *Bauh. Prodr. 119. Pin. 254.*

Anchusa lutea. *Cav. Ic. v. 1. 50. t. 69. f. 1; all the synonyms wrong.*

Alsine myosotis ἀνθομυλινος. *Belleval Ic. Ined. t. 1.*

Small Scorpion-grass. *Pet. H. Brit. t. 29. f. 11.*

In dry sandy fields and pastures, or on walls, as well as in moist meadows.

Annual. *April—June.*

Root fibrous, simple at the crown, dark chesnut-coloured. *Stem* as in the last, but rather more erect, usually 3 or 4 inches high, but in wet grassy places from 6 to 12, as Mr. Borrer and Dr.

Lehmann have observed. *Leaves* rather narrower than in *M. arvensis*. *Clusters* elevated, either single or in pairs, on long, terminal, leafless stalks, unattended by a solitary distant flower. *Partial stalks*, even when in fruit, not half the length of the *calyx*, which resembles that of the foregoing, but its hairs are shorter, and less deflexed. *Corolla* small; limb shorter than the tube, blue in the lower half of each cluster, yellow in the upper; and Dr. Lehmann has determined these colours to be immutable in the several flowers. In some instances the flowers are by him said to be larger, and all yellow, in others all blue; the *stigma* in the former being somewhat capitate, in the latter slightly cloven. These last particulars have not been noticed in England. They seem to indicate a specific difference. *Cavanilles* may possibly have taken part of his description from *M. apula* of Linnæus, whose synonyms he has applied to our plant, copying them, as appears by his erroneous reference to *Lobel*, without looking at the books, a practice which cannot be too much reprobated.

88. LITHOSPERMUM. Gromwell.

Linn. Gen. 74. *Juss.* 130. *Fl. Br.* 213. *Tourn. t.* 55. *Lam. t.* 91. *Gærtn. t.* 67.

Nat. Ord. see *n.* 87.

Cal. inferior, of 1 leaf, oblong, in 5 deep, lanceolate, acute, equal, nearly upright, keeled segments, permanent. *Cor.* of 1 petal, funnel-shaped; tube cylindrical, as long as the calyx, or longer, open at the mouth; limb divided half way down into 5 equal, obtuse, upright segments. *Filam.* very short, inserted into some part of the tube. *Anth.* oblong, concealed within the tube. *Germens* 4, inserted into the base of the calyx. *Style* thread-shaped, shorter than the tube. *Stigma* obtuse, notched. *Seeds* 4, ovate, pointed, hard, either even or wrinkled, in the bottom of the moderately spreading calyx.

Herbaceous; minutely rough, or bristly. *Leaves* alternate, or partly opposite, undivided, entire, with one principal rib, and often transverse lateral ones. *Clusters* or *spikes* leafy, many-flowered; revolute in the bud. *Cor.* whitish, yellow, or purplish. *Seeds* grey, in some highly polished, in others opaque and wrinkled.

1. *L. officinale*. Common Gromwell. Grey Mill.
Grey Millet.

Seeds even. Corolla not much longer than the calyx. Leaves lanceolate, rather acute, with lateral transverse ribs.

- L. officinale.* Linn. *Sp. Pl.* 189. Willd. *v.* 1. 751. *Fl. Br.* 213. *Engl. Bot. v. 2. t. 134.* Hook. *Scot.* 68. Schrad. *Asperif.* 24. f. 6. *L. n.* 595. Hall. *Hist. v. 1.* 263.
L. seu Milium Solis. Raii *Syn.* 228.
L. minus. Matth. *Vulgr. v. 2.* 269. f. Camer. *Epit.* 659. f. Ger. *Em.* 609. f.

In dry gravelly or chalky situations, amongst rubbish and ruins. Perennial. *May.*

Root tapering, strong, whitish. Whole *herb* rough with minute, close, callous bristles. *Stem* annual, near 2 feet high, branched, round, leafy. *Leaves* ovate or lanceolate, greyish green, numerous, sessile, alternate; paler and softer beneath. *Clusters* axillary and terminal, leafy, revolute, dense, finally elongated into straight, leafy branches, their leaves often broader than those on the main stem. *Cor.* of a pale buff-colour, with a protuberance at the base of each segment. *Stam.* minute, in the middle of the tube. *Seeds* grey, with a kind of porcelain polish, and a stony hardness, whence they have been falsely reported to contain calcareous earth, effervescing with acids, and to cure the stone, I know not how. There are seldom more than 2 seeds perfected in each flower.

2. *L. arvense.* Corn Gromwell. Bastard Alkanet.

Seeds wrinkled. Corolla not much longer than the calyx. Leaves obtuse, without lateral ribs.

- L. arvense.* Linn. *Sp. Pl.* 190. Willd. *v.* 1. 751. *Fl. Br.* 213. *Engl. Bot. v. 2. t. 123.* Hook. *Scot.* 68. *Fl. Dan. t.* 456.
L. sylvestre. Camer. *Epit.* 660. f.
 Heliotropium n. 594. Hall. *Hist. v. 1.* 263.
 Buglossum arvense annuum, Lithospermi folio. Raii *Syn.* 227.
 Echioides flore albo. Riv. *Monop. Irr. t.* 9.
 Anchusa degener, facie Milii Solis. Ger. *Em.* 610. f.

In cornfields and waste ground.

Annual. *May, June.*

Root tapering, with a bright red bark, which communicates its colour to oily substances, as well as to paper, linen, and pale faces. *Stem* a foot high, generally branched and spreading, often decumbent. *Leaves* of a brighter green, and rather more hairy, than in the former, without transverse veins or ribs. *Spikes* terminal, leafy, at length much elongated. *Cor.* white, with swellings at the base of the limb. *Seeds* brown, polished, curiously wrinkled and pitted, usually all perfected.

Willdenow says he has seen a variety with blue flowers.

3. *L. purpuro-cæruleum.* Creeping, or Purple, Gromwell.

Seeds even. Corolla much longer than the calyx. Leaves

lanceolate, acute, without lateral ribs. Barren stems prostrate.

L. purpuro-cæruleum. *Linn. Sp. Pl.* 190. *Willd. v. 1.* 754. *Fl. Br.* 214. *Engl. Bot. v. 2. t. 117.* *Hook. Lond. t. 12.* *Jacq. Austr. t. 14.* *Ehrh. Herb.* 22.

L. n. 596. *Hall. Hist. v. 1.* 264.

L. majus Dodonæi, flore purpureo, semine Anchusæ. *Raii Syn.* 229.

L. majus. *Dod. Pempt.* 83. *f. Ger. Em.* 609. *f.*

L. repens. *Clus. Pannon.* 684. *f.*

Anchusa repens, lithospermi facie, floribus cæruleis, secundùm folia prorumpentibus. *Pluk. Phyt. t. 76. f. 2.*

In thickets on a chalky soil, but rare.

On the top of a bushy hill, on the north side of Denbigh, Wales ; and near Taunton, Somersetshire. *Ray.* Near Greenhithe, Kent. *John Latham, M.D.* Found in Darent wood, Kent, by the late Mr. Curtis ; at Marychurch, Devonshire, by the Rev. Aaron Neck ; and near Caswell bay, Glamorganshire, by Mr. J. Turner. *Hooker.*

Root woody, blackish, branching and tufted. *Stems* several, round, minutely bristly, leafy ; some procumbent, simple, 12 or 18 inches long, taking root at the extremity, and bearing no flowers ; others erect, a foot high, simple below, corymbose and many-flowered at the top. *Leaves* alternate, lanceolate, taper-pointed, contracted at the base into a short *footstalk* ; clothed on both sides with short close hairs, accompanied on the upper with many callous warts ; the under side palest. *Spikes* 2 or 3, terminal, leafy, erect. *Calyx* narrow, bristly. *Cor.* full twice as long ; externally reddish ; limb expanded, of a violet blue on the upper side, with 5 pale swellings at its base, which do not close the tube, in whose upper part the *stamens* are situated. *Seeds* ovate, hard, of a silvery white, highly polished, slightly rugged, rarely perfected.

Haller quotes Plukenet inaccurately, and is copied by others.

4. *L. maritimum.* Sea Gromwell.

Seeds keeled, even. Leaves ovate, glaucous, besprinkled with callous points. Stems all procumbent.

L. maritimum. "*Lehm. Asperif.* 291." *Hook. Scot.* 68.

Pulmonaria maritima. *Linn. Sp. Pl.* 195. *Willd. v. 1.* 770. *Fl. Br.* 218. *Engl. Bot. v. 6. t. 368.* *Curt. Lond. fasc. 6. t. 18.* *Lightf. 134. t. 7.* *Don H. Br.* 206. *Fl. Dan. t. 25.*

Echium maritimum. *Raii Syn.* 228. *Sibb. Scot. part 2. 55. t. 12.*

Cerithe maritima procumbens, foliis et floribus cæruleis. *Dill. Elth. 75. t. 65.*

C. foliis ovatis petiolatis. *Linn. Hort. Cliff.* 48.

Cynoglossum procumbens glaucophyllum maritimum nostras floribus purpuro-cæruleis, semine lævi. *Pluk. Phyt. t. 172. f. 3.*

Buglossum sive Borrago dulcis mellita Lancastriensis. *Lob. Illustr.* 121.

B. dulce ex insulis Lancastræ. *Park. Theatr.* 765.

On the sea shore, among sand or loose stones.

In many parts of the coasts of Scotland and the north of England.

Perennial. *July, August.*

Root fleshy, tapering. Whole *herb* remarkable for its beautiful glaucous hue; though the late Mr. J. Mackay met with specimens of a grass green, on the coast of Inverness. *Stems* several, entirely procumbent, a foot or more in length, alternately branched, leafy, smooth. *Leaves* rather fleshy, ovate, with a recurved point, a solitary midrib, and a few obsolete transverse veins; the base contracted into a broad *footstalk*; both sides more or less besprinkled with callous points, but, like every other part of the plant, destitute of hairs or bristles. *Flowers* in terminal leafy clusters, with some solitary axillary ones here and there. Segments of the *calyx* deep and broad. *Cor.* twice as long, fine purple; the limb but little expanded, with 5 swellings at its base, slightly overtopped by the *stamens*. *Stigma* capitate, small. *Seeds* large, ovate, pointed, keeled, closely converging, even, but not highly polished.

By the synonyms it appears how differently botanists have, at all times, thought concerning the genus of this plant, whose beauty all have joined in celebrating. That it is a very bad *Pulmonaria* I have long ago pointed out in *Engl. Bot.* The habit agrees with *Cerithe*, but not the *flowers* or *seeds*. Dr. Lehmann and Professor Hooker have, well enough, removed it to *Lithospermum*. When fresh, the *leaves* have a flavour resembling oysters, far from agreeable. The herb turns blackish in drying, which Dillenius says may be prevented by immersion for a night in fresh water.

89. ANCHUSA. Alkanet.

Linn. Gen. 74. *Juss.* 131. *Fl. Br.* 214. *Lam. t.* 92.

Buglossum. *Tourn. t.* 53. *Gærtn. t.* 67.

Nat. Ord. see. *n.* 87.

Cal. inferior, of 1 leaf, oblong, cylindrical, in 5, more or less deep, acute segments, permanent. *Cor.* of 1 petal, funnel-shaped; tube straight, cylindrical, tumid in the lower part, as long as the calyx; limb more or less spreading, in 5 rather deep, obtuse, equal segments; mouth closed with 5 erect, obtuse, vaulted, hairy, converging valves. *Filam.* in the throat, very short, alternate with the valves. *Anth.* oblong, concealed by the valves. *Germ.* 4, attached to the base of the calyx. *Style* cylindrical, shorter than the tube. *Stigma* cloven. *Seeds* 4,

roundish, or obtuse, wrinkled, each hollowed out at the base, so as to form a border to the scar, and all concealed in the enlarged calyx.

Herbaceous, hairy or bristly, mostly perennial, or biennial.

Leaves alternate, seldom stalked, acute, single-ribbed, often marked with callous points. *Clusters* many-flowered, revolute, bracteated or leafy. *Cor.* fine blue or purple, with light-coloured valves.

1. *A. officinalis*. Common Alkanet.

Spikes imbricated, unilateral. Bracteas ovate, as long as the calyx. Leaves lanceolate.

A. officinalis. *Linn. Sp. Pl.* 191. *Willd. v. 1.* 756. *Fl. Br.* 214; excluding the last 5 synonyms. *Engl. Bot. v. 10. t.* 662. *Fl. Dan. t.* 572. *Lehm. Asperif.* 246. *Schrad. Asperif.* 23. *f. 1.* *Ehrh. Pl. Off.* 181.

A. n. 59. *Linn. Mat. Med.* 20.

A. tinctoria. *Woodv. t.* 92.

Buglossum n. 599. *Hall. Hist. v. 1.* 265; comprehending, as it seems, *A. paniculata*, *Fl. Græc. t.* 163.

Buglossa. *Brunf. Herb. v. 1.* 112. *f.*

B. major. *Trag. Hist.* 233. *f.*

In waste ground near the sea.

On the links near Hartley pans, Northumberland. *Rev. Thomas Butt.*

Perennial. *June, July.*

Root long, tapering, blackish, without any dyeing quality. *Herb* all over rough with small bristly hairs, often proceeding from callous warts. *Stem* 1½ or 2 feet high, erect, angular, leafy, somewhat branched; paniced above. *Leaves* lanceolate, long and narrow; the radical ones stalked; the rest sessile, slightly ovate at the base. *Spikes* generally in pairs, stalked, revolute, with ovate, or ovate-lanceolate bracteas. Segments of the calyx varying in depth, as Dr. Lehmann justly remarks. *Cor.* red at first, then deep purple, with hairy blueish valves. *Seeds* ovate, acute, brown, unequally wrinkled.

This has been reckoned one of the four cordial flowers, and as such has come into medical use, along with Borage; but virtues of this kind attributed to either are truly nonsensical. Both plants are mucilaginous, but the Mallow tribe is more so. Dr. Withering confounds the history of this *Anchusa* with that of the true red Alkanet-root, *A. tinctoria*, *Fl. Græc. t.* 166, valuable for the beautiful colour it gives to oily substances, and which Linnæus confounds with his own *Lithospermum tinctorium*.

2. *A. sempervirens*. Evergreen Alkanet.

Flower-stalks axillary, each bearing two dense spikes, with

an intermediate flower, and two principal ovate bracteas.
Leaves ovate.

A. sempervirens. *Linn. Sp. Pl.* 192. *Willd. v. 1.* 759. *Fl. Br.* 215. *Engl. Bot. v. 1. t. 45.* *Hook. Lond. t. 94.* *Scot.* 68. *Lehm. Asperif.* 236.

Buglossum latifolium semper virens. *Bauh. Pin.* 256. *Dill. in Raii Syn.* 227.

B. semper virens. *Lob. Ic.* 575. *f.*

B. folio borraginis hispanicum. *Bauh. Hist. v. 3. p. 2.* 577. *f. good.*

Borago semper virens. *Ger. Em.* 797. *f.*

In waste ground, among ruins, and by road sides.

Near Horns-place, near Rochester. *J. Sherard.* About Norwich in several places, as well as at Haddiscoe, Norfolk. At Walpole by Halesworth, Suffolk; and in several parts of the south of Scotland. *Hooker.* At Inverary. *Rev. W. Wood.* On the ruins of Maes-glâs monastery. Flintshire. *Rev. W. Bingley.* Near Birmingham, Worcester, and Sidmouth. *Withering.* In several places near Settle, Yorkshire. *Dr. Windsor.*

Perennial. *May, June.*

Root thick, mucilaginous; externally black. *Herb* rough with rather rigid hairs. *Stems* 18 inches high, round, leafy, annual. *Radical leaves* stalked, a span long, lasting through the winter; the rest sessile; all ovate, broad, with transverse veins. *Partial bracteas* lanceolate. *Flowers* more salver-shaped than most of the genus; the tube but half as long as the limb, which is of a most brilliant sky-blue; the valves white and downy. The *flower-buds* are reddish. *Seeds* ovate, brown, compressed, with elevated wrinkles. *Lehmann* remarks that the cavity, or perforation, at the base of each *seed* is closed with a scale.

90. CYNOGLOSSUM. Hound's-tongue.

Linn. Gen. 75. *Juss.* 131. *Fl. Br.* 216. *Tourn. t.* 57. *Lam. t.* 92. *Gærtn. t.* 67.

Nat. Ord. see *n.* 87.

Cal. inferior, of 1 leaf, in 5 deep, oblong, slightly acute segments, permanent. *Cor.* of 1 petal, funnel-shaped, scarcely longer than the calyx; tube cylindrical, shorter than the limb, which is divided half way down into 5 rounded segments; mouth about half closed with as many convex, horizontal valves. *Filam.* in the throat, lower than the valves and alternate with them. *Anth.* roundish. *Germens* 4, depressed, horizontal. *Style* central, awl-shaped, almost as long as the tube, permanent. *Stigma* small, notched. *Seeds* 4, depressed, roundish, imperforate at the base, more or less rough with hooked prickles, sometimes bor-

dered, all attached horizontally to a central columnar *receptacle*, formed of the hardened, permanent, angular style.

Herbaceous, seldom perennial. *Herb* downy, hairy or warty, often fetid. *Leaves* alternate, lanceolate, acute; the lower ones stalked, often rounded at the extremity. *Clusters* numerous, stalked, bracteated or naked. *Fl.* dull crimson, purple, or blueish. *Seeds* a kind of bur.

1. *C. officinale*. Common Hound's-tongue.

Stamens shorter than the corolla. Stem-leaves broadly lanceolate, downy, sessile. Flowers without bracteas.

C. officinale. *Linn. Sp. Pl.* 192. *Willd. v. 1.* 760. *Fl. Br.* 216. *Engl. Bot. v. 13. t.* 921. *Curt. Lond. fasc. 4. t.* 16. *Woodv. suppl. t.* 216. *Hook. Scot.* 69. *Lehm. Asperif.* 152. "*Fl. Dan. t.* 1147."

C. n. 587. *Hall. Hist. v. 1.* 260.

Cynoglossum. *Raii Syn.* 226. *Brunf. Herb. v. 1.* 175. *f.*

C. majus vulgare. *Bauh. Pin.* 257. *Ger. Em.* 804. *f.*

C. vulgare. *Matth. Valgr. v. 2.* 531. 532. *f.* *Camer. Epit.* 917. *f.*

In waste ground, and by road sides, common.

Biennial. *June, July.*

Root fleshy, tapering. Whole *herb* of a dull green, downy and very soft, exhaling when touched a pungent and nauseous scent, like that of mice, or, as some say, the urine of dogs. *Stem* 2 feet high, branched, leafy, furrowed, hairy. *Leaves* with a strong mid-rib, and several lateral veins; those on the stem wavy, broad at the base; radical ones larger, a span long, tapering at each end. *Clusters* terminal, paniced, without partial *bracteas*. *Calyx* downy. *Cor.* and its *valves* dull crimson. *Seeds* obovate, very rough.

This plant is esteemed narcotic, and dangerous for internal use.

2. *C. sylvaticum*. Green-leaved Hound's-tongue.

Stamens shorter than the corolla. Leaves lanceolate, somewhat spatulate; the upper ones clasping the stem; all smooth and shining above; hairy and warty beneath. Flowers without bracteas.

C. sylvaticum. *Hænke in Jacq. Coll. v. 2.* 77. *Fl. Br.* 216. *Engl. Bot. v. 23. t.* 1642. *With.* 228. *Sibth.* 70. *Hook. Scot.* 69. *Lehm. Asperif.* 157.

C. officinale γ . *Linn. Sp. Pl.* 193.

C. officinale β . *Willd. v. 1.* 760. *Huds.* 80.

C. n. 588. *Hall. Hist. v. 1.* 260.

Cynoglossa folio virente. *Raii Syn.* 226.

C. media altera, virente folio, rubro flore, montana, frigidarum regionum. *Column. Ecphr.* 176. *t.* 175, excellent.

By road sides and hedges, in shady situations, rare.

In several parts of Essex, Worcestershire, Kent, and Surrey. *Ray*, *Dillenius*. In Oxfordshire. *Sibth*. Near Norwich. *Andrew Caldwell, Esq.* Found by Mr. G. Don, in the Carse of Gowrie, Scotland. *Hooker*.

Biennial. *June*.

Undoubtedly distinct from the common species, in its bright shining green colour, and want of downy softness, besides having scarcely any scent. The *leaves* are smooth on the upper side, except from the prominence of the callous warts of the under surface when pressed; the latter being rough to the touch, and more or less hairy. *Flowers* at first opening reddish; subsequently of a dull blue. The *Stem-leaves* have a few short parallel lateral ribs at the base.

91. PULMONARIA. Lungwort.

Linn. Gen. 75. *Juss.* 130. *Fl. Br.* 217. *Tourn.* t. 55. *Lam.* t. 93.

Nat. Ord. see n. 87.

Cal. inferior, of 1 leaf, tubular, prismatic, with 5 angles; the border in 5 equal segments. *Cor.* of 1 petal, funnel-shaped; tube cylindrical, as long as the calyx; limb in 5 rounded, moderately spreading, segments; mouth naked and open. *Filam.* in the throat, very short. *Anth.* oval, erect, converging. *Germ.* 4, roundish, downy. *Style* thread-shaped, shorter than the calyx. *Stigma* small, bluntish, notched. *Seeds* 4, almost globular, even and polished, hairy, attached to the base of the enlarged, bell-shaped *calyx*.

Herbaceous, hairy, of humble growth. *Fl.* of a violet blue, crowded, erect.

1. *P. officinalis*. Common Lungwort.

Leaves ovate.

P. officinalis. *Linn. Sp. Pl.* 194. *Willd.* v. 1. 768. *Fl. Br.* 217. *Engl. Bot.* v. 2. t. 118, excluding the radical leaves. *Woodv. suppl.* t. 212. *With.* 228. *Abbot* 42. *Hook. Scot.* 69. *Don H. Br.* 157. *Fl. Dan.* t. 482.

P. n. 597. *Hall. Hist.* v. 1. 264.

P. maculosa. *Ger. Em.* 808. *f. Lob. Ic.* 586. *f.*

P. altera. *Matth. Valgr.* v. 2. 387. *f. Camer. Epit.* 784. *f.*

In woods and thickets, but rare.

In Cliff wood, 6 miles west of Darlington, Durham. *Mr. E. Robson*.

Between Thurleigh and Milton-Ernys, Bedfordshire. *Rev. Dr.*

Abbot. Common in Exbury wood, Hampshire. *Mr. Rudge*.

Perennial. *May*.

Root fibrous. *Stems* 9 to 12 inches high, simple, erect, leafy, hairy. *Leaves* ovate, hairy, scarcely warty; paler beneath; mostly speckled with white on the upper side, whence they have been thought to resemble the human lungs, and were therefore supposed good for coughs: the lower ones stand on long, bordered *footstalks*. *Clusters* terminal, corymbose, erect, with a *bractea* or two at the lower part. *Fl.* of a violet blue; reddish in the bud. *Seeds* brown, or blackish, downy.

2. *P. angustifolia*. Narrow-leaved Lungwort.

Leaves lanceolate.

P. angustifolia. *Linn. Sp. Pl.* 194. *Willd. v.* 1. 768. *Comp.* 34. *Engl. Bot. v.* 23. *t.* 1628. *With.* 228. *Fl. Dan. t.* 483. *Park. Parad.* 248. *t.* 251. *f.* 2.

P. n. 598. *Hall. Hist. v.* 1. 265.

P. angustifolia, rubente cæruleo flore. *Bauh. Pin.* 260.

P. angustifolia cæruleo flore. *Clus. Pannon.* 673. *f.* 674. *Bauh. Hist. v.* 3. 596. *f.* *Ger. Em.* 808. *f.* 3.

P. foliis Echii. *Ger. Em.* 808. *f.* 2. *Raii Syn.* 226.

P. alpina, angusto folio. *Bocc. Mus.* 110. *t.* 86.

In woods and thickets, rare.

In a wood by Holbury House, in the New Forest, Hampshire, *Mr. Goodyer*; *Ger. Em.* Among the ruins of the monastery of Maes-glâs, or Green-field, Flintshire, from whence it was sent by *Mr. R. H. Waring* of Leeswood. *Mr. E. Robson*. In a wood between Newport and Ride, in the Isle of Wight. *Mr. Turner*, and *Mr. Borrer*.

Perennial. *May, June*.

About twice as tall as the former, from which it differs in the lanceolate shape of its *leaves*, especially the radical ones, which are a span in length, tapering at each end, seldom spotted. The limb of the *corolla* is shorter, with rounder segments. *Calyx*, when in fruit, bell-shaped, and much dilated in width, without prominent angles, its stalk bent downwards, which seems not to be the case with *P. officinalis*. *Seeds* large, black, downy.

These are the only species of real *Pulmonaria* hitherto discovered, whatever may become of the rest, some of which, as our *maritima*, and the *suffruticosa* of Italy, have the *calyx* of a *Lithospermum*.

92. SYMPHYTUM. Comfrey.

Linn. Gen. 76. *Juss.* 131. *Fl. Br.* 218. *Tourn. t.* 56. *Lam. t.* 93. *Gærtn. t.* 67.

Nat. Ord. see *n.* 87.

Cal. inferior, of 1 leaf, in 5 deep, acute, straight segments, permanent. *Cor.* of 1 petal, bell-shaped; tube about as

long as the limb, which has 5 shallow, spreading, acute, marginal segments; mouth closed with 5 lanceolate, fringed, converging valves, shorter than the limb. *Filam.* short, in the throat, alternate with the valves. *Anth.* arrow-shaped, acute, concealed by the valves. *Germ.* 4, abrupt. *Style* slightly club-shaped, as long as the corolla. *Stigma* simple. *Seeds* 4, ovate, tumid, converging, attached to the base of the enlarged calyx.

Herbaceous, perennial, hairy or bristly. *Leaves* ovate, pointed, veiny. *Clusters* large, revolute, forked. *Fl.* of various colours, spreading or drooping. *Roots* fleshy, abounding in mucilage.

1. *S. officinale*. Common Comfrey.

Leaves ovate-lanceolate, decurrent, finely hairy.

S. officinale. *Linn. Sp. Pl.* 195. *Willd. v.* 1. 770. *Fl. Br.* 218. *Engl. Bot. v.* 12. t. 817. *Curt. Lond. fasc.* 4. t. 18. *Woodv. suppl. t.* 215. *Hook. Scot.* 69. *Fl. Dan. t.* 664. *Schrad. Asperif.* 25. f. 8.

S. n. 600. *Hall. Hist. v.* 1. 266.

S. magnum. *Bauh. Hist. v.* 3. 593. f. *Raii Syn.* 230.

S. majus. *Matth. Valgr. v.* 2. 310. f. *Camer. Epit.* 700. f.

Consolida major. *Ger. Em.* 806. f.

β. *Symphytum patens*. *Sibth.* 70.

In watery meadows, about the banks of rivers and ditches.

Perennial. *May, June.*

Root externally black, oblong, fleshy, yielding much pure insipid mucilage, which renders it useful in coughs, and all internal irritations. *Stems* 3 feet high, hairy, winged with the decurrent bases of the taper-pointed, wavy, rough-edged leaves. *Clusters* hairy, stalked, in pairs, revolute. *Cal.* more or less spreading in the buff-coloured, as well as purple, variety; which last is Dr. Sibthorp's *S. patens*, and Haller describes its *flower* shorter than the other; but I have not been able to find a specific difference.

2. *S. tuberosum*. Tuberous-rooted Comfrey.

Leaves ovate, slightly decurrent, rather harsh; upper ones opposite.

S. tuberosum. *Linn. Sp. Pl.* 195. *Willd. v.* 1. 771. *Fl. Br.* 219. *Engl. Bot. v.* 21. t. 1502. *Lightf.* 1091. *Hook. Scot.* 69. *Don H. Br.* 133. *Jacq. Obs. fasc.* 3. 12. t. 63. *Austr. t.* 225. *Ger. Em.* 806. f. *Bauh. Hist. v.* 3. 594. f.

S. radice tuberosa. *Camer. Epit.* 701. f.

In moist shady places in the north.

Opposite to the new well at the water of Leith, but more plentifully

in Dr. Robertson's walks at North Marchiston, near Edinburgh, first observed by Mr. Yalden. *Lightfoot*. In several other places in the south of Scotland, according to Mr. Hopkirk, Mr. Maughan, &c. *Hooker*. In Durham. *Mr. Robson*.

Perennial. *July*.

Root knobbed and branched, externally whitish. *Herb* of much humbler stature than the last, with a simple, scarcely winged, *stem*, and more ovate, rather harsher, *leaves*. *Flowers* fewer, drooping, yellowish white, tinged with green; their *valves* finely toothed at the edges.

93. BORAGO. Borage.

Linn. Gen. 77. *Juss.* 131. *Fl. Br.* 219. *Tourn. t.* 53. *Lam. t.* 94.

Nat. Ord. see *n.* 87.

Cal. in 5 deep, moderately spreading, segments, permanent.

Cor. of 1 petal, wheel-shaped; tube of various lengths; limb in 5 deep, flat or twisted segments, widely spreading; mouth bordered with 5 short, obtuse, notched valves, or with awl-shaped ones, or with both, in which case the latter bear the stamens at the inner side. *Filam.* awl-shaped, various in length, converging. *Anth.* arrow-shaped, or oblong and notched. *Germ.* 4. *Style* cylindrical. *Stigma* capitate. *Seeds* 4, ovate, converging, rugged or tuberculated, attached to the base of the closed calyx.

Herbaceous, rough with prickly hairs, or bristles. *Flowers* numerous, paniced, handsome, blue or white. Dr. Lehmann has, with the greatest propriety, separated from this genus three tropical Linnæan species, (which have a naked *throat*, and their *seeds* attached to a winged central column,) by the name of *Trichodesma*.

1. *B. officinalis*. Common Borage.

Limb of the corolla flat, much longer than the tube; mouth with a double row of valves; the innermost awl-shaped, bearing the stamens.

B. officinalis. *Linn. Sp. Pl.* 197. *Willd. v.* 1. 776. *Fl. Br.* 219. *Engl. Bot. v.* 1. *t.* 36. *Hook. Scot.* 70. *Lehm. Asperif.* 201.

B. n. 607. *Hall. Hist. v.* 1. 269.

B. hortensis. *Ger. Em.* 797. *f.* *Raii Syn.* 228.

Borago. *Brunf. Herb. v.* 1. 113. *f.*

Buglossum, sive Borrago. *Matth. Valgr. v.* 2. 527. *f.* *Camcr. Epit.* 914. *f.*

Buglossa urbana. *Cord. Hist.* 109. 2. *f.*

In waste or cultivated ground, and by road sides, frequent; yet generally thought not indigenous.

Biennial. *June, July.*

Root tapering, mucilaginous, as well as the herbage, which is clothed all over with very pungent bristles. *Stem* branched, $1\frac{1}{2}$ or 2 feet high, round, spreading, leafy. *Leaves* alternate, ovate, wavy, and more or less toothed; the lower ones broadest, and stalked. *Flowers* numerous, in terminal drooping bunches, very beautiful. *Corolla* an inch broad, of a most brilliant blue; pink in the bud. *Valves* and *anthers* prominent, blackish. *Seeds* wrinkled and warty, of a light shining brown. The whole plant has an odour approaching to Cucumber and Burnet, which gives a flavour to a cool tankard; but its supposed exhilarating qualities, which caused Borage to be reckoned one of the four cordial flowers, along with Alkanet, Roses, and Violets, may justly be doubted.

94. ASPERUGO. Madwort.

Linn. Gen. 77. *Juss.* 131. *Fl. Br.* 220. *Tourn. t.* 54. *Lam. t.* 94. *Schrad. Asperif. f.* 9.

Nat. Ord. see *n.* 87.

Cal. inferior, of 1 leaf, divided half way into 5 small, nearly equal, segments, permanent; subsequently enlarged, compressed, forming two erect, parallel, unequally sinuated and toothed, veiny lobes. *Cor.* of 1 petal, funnel-shaped; tube cylindrical, very short; limb longer, in 5 rounded spreading segments; mouth nearly closed by 5 convex, obtuse valves, converging horizontally. *Filam.* very short, in the throat, alternate with the valves, and concealed by them. *Anth.* small, roundish, of 2 lobes. *Germ.* 4, compressed. *Style* erect, the length of the tube. *Stigma* blunt. *Seeds* 4, obovate, tuberculated, compressed, imperforate at the base, attached laterally in pairs to a central column, formed of the lower part of the style.

Herbaceous, prostrate, rough with minute, rigid, depressed bristles. *Floral leaves* opposite. *Fl.* axillary, blue.

1. *A. procumbens*. German Madwort.

Calyx of the fruit flat.

A. procumbens. *Linn. Sp. Pl.* 198. *Willd. v.* 1. 778. *Fl. Br.* 220. *Engl. Bot. v.* 10. *t.* 661. *Fl. Græc. v.* 2. 65. *t.* 177. *Hook. Scot.* 70. *Don H. Br.* 158. *Fl. Dan. t.* 552. *Lehm. Asperif.* 208. *Schrad. Asperif.* 26. *f.* 9.

A. n. 606. *Hall. Hist. v.* 1. 269.

A. vulgaris. *Raii Syn.* 228.

A. spuria. *Dod. Pempt.* 356. *f.*

Alysson germanicum echioides. *Lob. Ic.* 803. *f.* *Dalech. Hist.* 1143. *f.*

Aparine major Plinii. *Ger. Em.* 1122. *f.*

Borrago minor sylvestris *καρποχρηνοβες*. *Column. Ecphr.* 181. *t.* 183.

Cynoglossa topiaria fortè Plinii. *Bauh. Hist. v.* 3. 601. *f.* The same cut is put in the preceding page, for *C. folio virente* !

German Madwort. *Petiv. H. Brit. t.* 29. *f.* 12.

In rich waste ground, but rare.

Near Newmarket ; by Boxley, in Sussex ; and in the Holy island.

Ray. At Wangford, near Brandon. *Mr. F. Eagle*. Near Purfleet, Essex, found by Mr. Alchorne. *Huds.* About the church at Newmarket. *Relhan*. At Dunbar. *Lightfoot, Hooker*.

Annual. *June, July*.

Root small, tapering. *Stems* prostrate, square, leafy, a foot or two in length, their angles beset with reflexed prickles. *Leaves* 2, 3, or 4 together, dark green, elliptic-lanceolate, bordered with direct prickles, and rough with depressed bristly hairs, so that the plant sticks to the hands or clothes like *Galium Aparine*. *Flowers* small, axillary, solitary, on short stalks ; limb of a fine deep blue ; valves white or reddish. *Cal.* when in fruit deflexed, much enlarged. *Seeds* whitish, finely granulated. *Columna's* Greek appellation compares the enlarged *calyx*, aptly enough, to a Goose's foot. This appears to be the only genuine species of *Asperugo*, so that the specific character is superfluous.

95. LYCOPSIS. Bugloss.

Linn. Gen. 78. *Juss.* 131. *Fl. Br.* 220. *Lam. t.* 92. *Gartn. t.* 67. *Echioides*. *Dill. Gen.* 100. *t.* 3.

Nat. Ord. see *n.* 87.

Cal. inferior, of 1 leaf, in 5 deep, oblong, acute, erect, or somewhat spreading, segments, permanent. *Cor.* of 1 petal, funnel-shaped ; tube cylindrical, curved to one side just above the base, and recurved towards the summit ; limb in 5 rather deep, rounded segments, sometimes oblique, and slightly irregular ; mouth closed with 5 rounded, convex, hairy, converging valves. *Filam.* very small, within the tube at its uppermost curvature. *Anth.* oblong, incumbent. *Germ.* 4. *Style* thread-shaped, half the length of the tube. *Stigma* obtuse, notched. *Seeds* 4, ovate, angular, with a bordered scar, attached to the base of the enlarged swelling calyx.

Herbaceous, bristly and warty. *Leaves* for the most part sessile, alternate, often wavy, or slightly sinuated. *Clusters* terminal, solitary, or in pairs, somewhat bracteated. *Fl.* bright blue, or purplish.

Dr. Lehmann has reduced this genus to *Anchusa*, with which it agrees in the bordered scar of the *seed*; but the curvature of the *tube* affords a remarkable and constant character, and I concur with Professor Hooker in keeping them distinct, notwithstanding the above eminent authority.

1. *L. arvensis*. Small Bugloss.

Leaves lanceolate, wavy, somewhat toothed, very bristly. Stalks of the flowers and fruit erect. Limb of the corolla slightly unequal.

L. arvensis. *Linn. Sp. Pl.* 199. *Willd. v. 1.* 780. *Fl. Br.* 221. *Engl. Bot. v. 14. t.* 938. *Curt. Lond. fasc. 5. t.* 17. *Hook. Scot.* 70. *Fl. Dan. t.* 435. *Ehrh. Pl. Off.* 382.

L. n. 605. *Hall. Hist. v. 1.* 268.

Anchusa arvensis. *Lehm. Asperif.* 225. *Bieberst. Taur.-Caucas. v. 1.* 123.

Buglossa sylvestris minor. *Raii Syn.* 227. *Ger. Em.* 799. *f.*

Echion. *Fuchs. Hist.* 268. *t.* 269.

Echioides. *Riv. Monop. Irr. t.* 7.

In fields, waste ground, and on dry banks, common.

Annual. *June*.

Root small, tapering, whitish. Whole *herb* very bristly and prickly. *Stem* erect, branched, slightly angular, leafy, 1 to 2 feet high. *Leaves* light green, single-ribbed; the lower ones bluntest, and tapering down into footstalks; the rest sessile, or clasping the stem. *Clusters* in pairs, forked, revolute; erect, displaying their enlarged bristly *bracteas*, when in fruit. *Partial stalks* shorter than the calyx, erect, especially in fruit. *Cal.* very bristly. *Cor.* bright blue; *tube* and *valves* white; *limb* a little irregular and inclining. *Seeds* hard, grey, ovate, pointed, wrinkled and granulated.

96. ECHIUM. Viper's-bugloss.

Linn. Gen. 78. *Juss.* 130. *Fl. Br.* 221. *Tourn. t.* 54. *Lam. t.* 94. *Gærtn. t.* 67.

Nat. Ord. see *n.* 87.

Cal. inferior, of 1 leaf, in 5 deep, awl-shaped, upright segments, permanent. *Cor.* of 1 petal, bell-shaped; tube very short; limb erect, gradually dilated upward, its margin in 5, more or less unequal, broad, rather spreading segments, of which the 2 uppermost are longest, the lower one smallest and most reflexed; mouth open and naked. *Filam.* awl-shaped, unequal, declining, as long as the corolla, or longer, inserted into the tube. *Anth.*

roundish, incumbent. *Germ.* 4, rounded. *Style* declining, the length of the stamens, often hairy. *Stigma* deeply cloven, acute. *Seeds* 4, wrinkled or rough, obliquely pointed, attached to the base of the hardened, slightly enlarged, calyx.

Herbaceous or shrubby, either bristly, or merely warty; in some instances hairy, or silky. *Leaves* oblong. *Spikes* in pairs, many-flowered; either terminal and solitary, or lateral and collected into long leafy clusters. *Corolla* blue, red, or white; generally large and handsome.

1. *E. vulgare*. Common Viper's-bugloss.

Stem bristly and warty. Stem-leaves lanceolate, bristly, single-ribbed. Spikes lateral, deflexed, hairy.

E. vulgare. *Linn. Sp. Pl.* 200. *Willd. v.* 1. 787. *Fl. Br.* 222. *Engl. Bot. v.* 3. t. 181. *Mart. Rust. t.* 136. *Hook. Scot.* 70. *Fl. Dan. t.* 445. *Raii Syn.* 227. *Ger. Em.* 802. *f. Bauh. Pin.* 254. *Clus. Hist. v.* 2. 143. *Ehrh. Pl. Off.* 392.

Echium. *Riv. Monop. Irr. t.* 7. *Matth. Valgr. v.* 2. 345. *f. Camer. Epit.* 737. *f.*

E. n. 603. *Hall. Hist. v.* 1. 268.

E. sive Buglossum sylvestre. *Lob. Ic.* 579. *f.*

Buglossa sylvestris. *Brunf. Herb. v.* 1. 111. *f.*

β . *Huds.* 83. *Fl. Br.* 222.

E. alterum, sive Lycopsis anglica. *Merr. Pin.* 35. *Dill. in Raii Syn.* 228.

E. violaceum. *With.* 233? possibly of *Linnæus*.

Echii altera species. *Dod. Pempt.* 631. *f.*

Lycopsis. *Raii Syn.* 227.

L. altera anglica. *Lob. Ic.* 579. *f.*

L. anglica. *Ger. Em.* 802. *f.*

In fields and waste ground, especially on a sandy or gravelly soil; as well as on old walls, and rubbish.

Biennial. *June, July.*

Whole herb very rough with prickly bristles arising from callous points intermixed with smaller hairs. *Stems* one or more, 1 to 2 feet high, erect or spreading, simple, round, leafy. *Leaves* alternate, lanceolate, single-ribbed, entire, dull green, tapering at the base; the lowest stalked. *Clusters* terminal, leafy, composed of numerous, axillary, stalked pairs of dense, reflexed, hairy spikes, each of numerous, crowded, large, beautiful flowers; pink in the bud, then blue or purple, occasionally white. As the seeds ripen, each spike becomes a spreading lax cluster, like the figures indicated under our variety β , all which seem to represent either the *E. vulgare* at an advanced period, or in a dwarf and starved state. Yet some of these figures having been

adopted by Linnæus (through C. Bauhin) for his *E. italicum*, and he having thence been led to mark that species as a native of England, it has been received into all our Floras, and published by Mr. Dickson in his *Hort. Sicc. fasc.* 14. 18, and also in *Engl. Bot. v.* 29. *t.* 1081, from garden specimens, for the *Lycopsis* of Ray, found plentifully, as he reports, in Jersey. The Jersey plant however, as far as I have been able to learn, has blue flowers; whereas *E. italicum* is always white. Ray cites the figure of Dodonæus, which is from the very same block with Lobel's and Gerarde's, as a good representation of his plant. Our *E. vulgare* may frequently be found very nearly answering to this figure, nor have I ever been able to detect a second species in England, whatever may be found in Jersey; on which subject some authentic information, by means of specimens or seeds, is very desirable. Possibly *E. plantagineum*, *Fl. Græc. t.* 179, having lateral ribs to its leaves, like the above wooden cut, may be the plant of Ray and Dodonæus.

97. PRIMULA. Primrose, and Cowslip.

Linn. Gen. 80. *Juss.* 96. *Fl. Br.* 222. *Tourn. t.* 47. *Lam. t.* 98. *Gærtn. t.* 50.

Nat. Ord. Preciæ. *Linn.* 21. *Lysimachiæ.* *Juss.* 34. *Primulaceæ.* *Br. Pr.* 427. *N.* 98 the same, also 100—102. See *Grammar*, 95.

[There appears little reason for Ventenat's change of the original name of this order to *Primulaceæ*. Mr. Brown, who adopts the latter, adds the following characters to those of Jussieu, given in the *Grammar*.

Calyx in 5, rarely 4, segments, regular, permanent. *Corolla* regular; limb in 5, rarely 4, divisions. *Stigma* capitate. *Capsule* with parallel, not imbricated or inflexed, valves. *Seeds* peltate, furnished with *albumen*, in which is lodged the *embryo*, parallel to the scar; *radicle* indeterminate in direction. *Herbs*, with mostly opposite, sometimes whorled, sometimes scattered, *leaves*. See the characters of the *Lentibulariæ*, an order separated from this, p. 27.]

PRIMULA.

Cal. inferior, of 1 leaf, tubular, with 5 angles and 5 teeth, regular, erect, permanent. *Cor.* of 1 petal, salver-shaped; tube cylindrical, as long as the calyx, or longer; limb spreading, in 5, rather deep, inversely heart-shaped, obtuse segments; throat concave, hemispherical, pervious. *Filam.* in the throat, very short, opposite to the segments of the limb. *Anth.* pointed, erect, converging, not prominent. *Germ.*

globular. *Style* thread-shaped, the length of the calyx. *Stigma* globular. *Caps.* cylindrical, as long as the calyx which invests it closely, of 1 cell, opening with ten acute parallel teeth. *Seeds* numerous, roundish, covering a central, ovate-oblong, unconnected *receptacle*.

Herbaceous, stemless, perennial. *Leaves* simple, mostly toothed; tapering at the base, or stalked. *Flower-stalks* umbellate, bracteated. *Cor.* yellow, red, or purplish.

1. *P. vulgaris*. Common Primrose.

Leaves obovate-oblong, toothed, wrinkled. Stalks single-flowered. Limb of the corolla flat.

P. vulgaris. *Huds.* 83. *Fl. Br.* 222. *Engl. Bot.* v. 1. t. 4. *Hook. Scot.* 71.

P. veris γ , *acaulis*. *Linn. Sp. Pl.* 205. *Fl. Dan.* t. 194.

P. veris vulgaris. *Raii Syn.* 284.

P. veris minor. *Ger. Em.* 781. *f.*

P. elatior β , *acaulis*. *Willd.* v. 1. 801.

P. acaulis. *Jacq. Misc.* v. 1. 158. *Curt. Lond. fasc.* 6. t. 16.

P. n. 608. *Hall. Hist.* v. 1. 270.

P. sylvarum. *Lob. Ic.* 568. *f.*

Alisma sylvarum. *Column. Phyt.* 21. *f.*

β . *Primula elatior*. *Hook. Lond.* t. 9.

In groves, thickets, hedges and waste grassy places, abundantly.

Perennial. *April, May.*

Root somewhat fleshy, with long fibres. *Leaves* numerous, radical, obovate-oblong, unequally toothed, soft and somewhat downy, reticulated with veins; tapering gradually downward into broad short footstalks. *Fl.* numerous, large, sulphur-coloured, with a darker radiating spot in the middle; their scent agreeable, though slight. Sometimes the *flower-stalks* form an umbel, being elevated on a common stalk, as tall as the leaves, a few remaining single from the root; but this variety, my β , is distinct from *P. elatior*. I have such a specimen from the Rev. Mr. Relhan. There is always an awl-shaped *bractea* at the base of each particular stalk, whether radical or umbellate.

There are cultivated varieties, white, purplish, or brown, single or double, of which the double sulphur-coloured is peculiarly elegant.

2. *P. elatior*. Oxlip Primrose.

Leaves toothed, wrinkled, contracted towards the middle. Stalk many-flowered. Limb of the corolla flat.

P. elatior. *With.* 234. *Fl. Br.* 223. *Engl. Bot.* v. 8. t. 513. *Cul-lum* 73. *Hook. Scot.* 71. *Willd. Sp. Pl.* v. 1. 801. *Jacq. Misc.* v. 1. 158.

P. veris β , *elatior*. *Linn. Sp. Pl.* 204. *Fl. Dan.* n. 433. t. 434.

P. veris altera. *Camer. Epit.* 884. f.

P. vulgaris β . *Huds.* 84.

P. n. 609. *Hall. Hist.* v. 1. 271.

P. pratensis inodorata lutea. *Raii Syn.* 284.

Herba Paralysis. *Camer. Epit.* 404. f. 2. *Brunf. Herb.* v. 1. 97. f.

In woods, thickets, or pastures, rare.

Perennial. *April*.

Leaves contracted, or sinuated, about the middle, in which respect this species differs from the preceding, and more agrees with the following. The *flowers* are sweet-scented, all umbellate, smaller, with a less expanded limb, than in the former, or its varieties; but larger, paler coloured, and less cup-shaped, than in the Cowslip. It has often been supposed a mule between these two most common species; and having often, perhaps, been confounded with the umbellate variety of the Primrose, its history and true nature have become the more obscure.

3. *P. veris*. Common Cowslip. Paigle.

Leaves toothed, wrinkled, contracted towards the middle.

Stalk many-flowered. Limb of the corolla concave.

P. veris. *Linn. Sp. Pl.* 204. *Willd.* v. 1. 800. *Huds.* 84. *Fl. Br.* 223.

Engl. Bot. v. 1. t. 5. *Hook. Scot.* 71. *Camer. Epit.* 883. f.

P. veris officinalis. *Fl. Dan.* n. 434. t. 433. *Bull. Fr.* t. 171.

P. veris major. *Raii Syn.* 284. *Ger. Em.* 780. f.

P. officinalis. *Jacq. Misc.* v. 1. 159. *With.* 234. *Curt. Lond. fasc.* 6. t. 15.

P. n. 610. *Hall. Hist.* v. 1. 271.

Herba Paralysis. *Brunf. Herb.* v. 1. 96. f.

In meadows and pastures, chiefly on a clay, or chalky, soil.

Perennial. *April, May*.

Leaves hoary, more finely downy and soft than in either of the foregoing, contracted in the middle, so as frequently to become heart-shaped, as it were, with winged footstalks; their margin wavy, as well as toothed. *Flowers* numerous, in one or more umbels, with small partial *bracteas*, on downy common stalks much taller than the leaves. *Cal.* downy. Limb of the *corolla* much smaller than the last, concave, or cup-shaped; of a deeper yellow on the upper side, with 5 orange spots, or freckles, in which Shakspear has supposed their sweet odour to reside. These flowers make a pleasant soporific wine, resembling that of Elder-flowers, or the *Muscat* wines of the south of France.

A dark-flowered variety, called the Black Cowslip, has been sent from Bedfordshire, by the late Rev. Dr. Abbot, with the *calyx* divided to the base; and from Northumberland, by Mr. Winch, with the same part unaltered.

4. *P. farinosa*. Bird's-eye Primrose.

Leaves toothed, even; powdery beneath. Limb of the corolla flat; mouth with a notched border. Stigma undivided.

P. farinosa. *Linn. Sp. Pl.* 205. *Willd. v. 1.* 802. *Fl. Br.* 224. *Engl. Bot. v. 1. t. 6.* *Curt. Lond. fasc. 6. t. 14.* *Hook. Scot.* 71. *Lond. t. 133. f. 6—9.* *Fl. Dan. t. 125.*

P. veris flore rubro. *Ger. Em.* 783. *f. Clus. Pann.* 340. *f.*

Verbasculum umbellatum alpinum minus. *Raii Syn.* 285.

Aretia n. 623. *Hall. Hist. v. 1.* 275.

In wet pastures and by rivulets, on mountains in the north of England, as well as in Scotland.

Perennial. *June, July.*

Half the size of the last; distinguished by the white mealiness of the *flower-stalks* and backs of the *leaves*, whose upper sides are green, smooth, and even; as well as by the beautiful rose-coloured *flowers*, whose mouth is surrounded with a notched yellow glandular border, which caused Haller to make this plant an *Aretia*, such glands forming one of the chief characters of that genus. They are however more remarkable and converging in its genuine species.

5. *P. scotica*. Scottish Primrose.

Leaves finely toothed, even; powdery on both sides. Limb of the corolla flat; mouth with a notched border. Stigma five-cleft.

P. scotica. *Hook. Lond. t. 133.*

P. stricta. *Fl. Dan. t. 1385?*

In the north of Scotland; the soil or situation not recorded.

Found by Mr. Gibb of Inverness, on Holborn Head, near Thurso in Caithness, abundantly, also in the way from Thurso to Dunbeath. *Hooker.*

Perennial. *July.*

Akin to *P. farinosa*, but the mealiness is said to be yellower, existing, more or less, on both surfaces of the *leaves*. Limb of the *corolla* violet; its mouth not more glandular than my specimens of the last. But the *calyx* is rather more tumid, and the 5-notched *stigma*, accompanied by a furrowed *style*, appears to constitute a sound specific character. The *stamens* being situated a little lower in the tube is of no consequence. The variability of that circumstance is well known to cultivators of the *Polyanthus*. Whether this be the *P. stricta* of *Fl. Dan.*, can only be ascertained by specimens, which I have not seen of either. It is much to be wished that specific names, taken from particular countries, perpetually introduced by gardeners, were not sanctioned by superior authorities. It will be fortunate if *stricta*, the older name, should prove to belong to this species.

98. CYCLAMEN. Cyclamen. Sow-bread.

Lim. Gen. 82. *Juss.* 97. *Fl. Br.* 224. *Tourn.* t. 68. *Lam.* t. 100.
Nat. Ord. see n. 97.

Cal. inferior, divided half way into 5 ovate segments, permanent. *Cor.* of 1 petal, wheel-shaped; tube nearly globular, twice as long as the calyx, deflexed; limb many times longer than the tube, reflexed upwards, in 5 deep, lanceolate, oblique, equal segments; mouth open, naked, prominent at the circumference. *Filam.* very short, in the tube. *Anth.* straight, acute, converging, in the mouth of the corolla. *Germen* roundish. *Style* cylindrical, straight, rather longer than the tips of the anthers. *Stigma* simple. *Caps.* globose, of 1 cell, opening at the top with 5 parallel teeth, the inside lined with pulp. *Seeds* numerous, somewhat ovate, angular, covering a central, roundish-ovate, stalked, unconnected, receptacle.

Herbaceous, stemless, perennial, smooth. *Root* orbicular, depressed, intensely bitter and nauseous. *Leaves* variegated. *Flower-stalks* simple, spiral after flowering; sometimes glandular, as well as the *foot-stalks*. *Cor.* more or less purplish, elegant.

*1. *C. hederifolium*. Ivy-leaved Cyclamen.

Leaves heart-shaped, angular, finely toothed; their ribs and footstalks roughish.

C. hederifolium. *Willd. Sp. Pl.* v. 1. 810. *Ait. Hort. Kew.* v. 1. 311.
Curt. Mag. t. 1001? *Comp.* 35.

C. europæum. *Fl. Br.* 224. *Engl. Bot.* v. 8. t. 548.

C. hederæ folio. *Bauh. Pin.* 308. *Ger. Em.* 884.f.

In groves and thickets rare, scarcely indigenous.

On a bank at Bramfield, Suffolk, on a wet clay soil. *Mr. D. E.*

Davy.

Perennial. *April.*

Root globular, brown, sending out many branched fibres. *Leaves* beautifully variegated with dark and glaucous green; their under side paler, purplish, with slightly glandular ribs. *Footstalks* round, more glandular; tapering and wavy at the base. *Flowers* pendulous, on naked wavy stalks, taller than the leaves. *Cor.* white, or flesh-coloured; purplish about the mouth. As the *fruit* advances, the flower-stalks curl spirally, and bury it in the earth. A very acrid plant, especially the *root*, whose acrimony is not much perceived at the first tasting, but soon becomes intolerable.

99. MENYANTHES. Buckbean.

Linn. Gen. 82. *Juss.* 98. *Fl. Br.* 225. *Tourn. t.* 15. *Lam. t.* 100. *Gärtn. t.* 114.

Nymphoides. *Tourn. t.* 67.

Villarsia. *Venten. Choix* 9. *Br. Pr.* 456.

Nat. Ord. doubtful; akin to *Gentiana*. *Juss.* 46.

Cal. inferior, of 1 leaf, in 5 deep, slightly spreading, segments, permanent. *Cor.* of 1 petal, funnel-shaped; tube short, somewhat dilated upward; limb divided beyond the middle, into 5 spreading or recurved, more or less pointed, segments, bearded on the disk, at the base, or at the margin. *Filam.* awl-shaped, short, attached to the tube, alternate with the segments of the limb. *Anth.* cloven at the base, erect. *Germ.* conical. *Style* cylindrical, about equal to the stamens. *Stigma* lobed or notched. *Caps.* ovate, surrounded at the lower part by the calyx, of 1 cell, and 2, more or less separable, valves. *Seeds* numerous, attached to the margins of each valve.

Villarsia is kept distinct from the original *Menyanthes*, by Mr. Brown, after the example of Tournefort, Wiggers, Ventenat, and others, chiefly because of its *corolla* having to each segment a bordered fringed margin; while the base of the limb, not the middle of the disk, is hairy, or bearded. The *leaves* moreover are simple, not ternate. But as this able botanist is doubtful of the natural order of both his genera, which renders their limitation the more precarious; and differs from Wiggers in believing they belong to one and the same order; I greatly scruple to divide them. They are herbaceous, perennial, smooth, aquatic or bog, plants, very vascular, with stalked *leaves* and *flowers*. *Leaves* ternate, and *flowers* clustered, white or reddish, densely shaggy, in *Menyanthes*. *Leaves* simple, undivided, and *fl.* axillary, or clustered, mostly yellow, with a darker, elevated, naked disk, in *Villarsia*.

1. *M. trifoliata*. Common Buckbean, or Bog-bean.
Marsh Trefoil.

Leaves ternate. Disk of the corolla densely shaggy.

M. trifoliata. *Linn. Sp. Pl.* 208. *Willd. v.* 1. 811. *Fl. Br.* 225. *Engl. Bot. v.* 7. t. 495. *Curt. Lond. fasc.* 4. t. 17. *Woodv. Med. Bot. t.* 2. *Hook. Scot.* 71. *Fl. Dan. t.* 541. *Bull. Fr. t.* 131. *Bigelow Med. Bot. Amer. t.* 46.

M. n. 633. *Hall. Hist. v. 1. 280.*

M. palustre triphyllum, latifolium et angustifolium. *Raii Syn.* 285.

M. palustre. *Dalech. Hist.* 1020. 2 fig.

Trifolium paludosum. *Ger. Em.* 1194. f.

In watery meadows, pools, ditches, and spongy boggy ground, frequent.

Perennial. *June, July.*

Root black, creeping, with long stout fibres. *Stems* ascending, round, leafy. *Footstalks* round, stout; sheathing and dilated at the base. *Leaflets* equal, obovate, wavy, each with a thick midrib. *Clusters* stalked, each opposite to a leaf, many-flowered, erect, partly whorled. *Bracteas* ovate, 1 to each partial stalk. *Calyx* obtuse. *Cor.* flesh-coloured; its filamentous clothing white; all together very elegant. *Anthers* yellow. *Fruit* rarely seen. The whole herb is very bitter, and a powerful sudorific. An infusion of the leaves is a popular remedy for the rheumatism; and has been recommended in gout, scurvy, ague, dropsy, &c. In small doses it is tonic.

2. *M. nymphæoides*. Fringed Buckbean. Fringed Water-lily.

Leaves heart-shaped, wavy at the edges, floating. Corolla fringed.

M. nymphæoides. *Lin. Sp. Pl.* 207. *Willd. v. 1. 810. Fl. Br.* 226.

Engl. Bot. v. 4. t. 217. Fl. Dan. t. 339.

Villarsia nymphæoides. *Venten. Ch.* 9.

Waldschmidia nymphæoides. *Wigg. Holsat.* 20.

Nymphæa lutea minor, flore fimbriato. *Raii Syn.* 368.

In ponds, and the marginal recesses of large rivers, rare.

In several parts of the Thames. At Ankerwyck, near Windsor.

Bishop of Carlisle. Near Walton bridge. *Earl of Dartmouth.*

In the lake at Castle Howard, Yorkshire, brought thither from near York, by Mr. Teesdale. *Sir T. G. Cullum, Bart.*

Perennial. *July, August.*

Root long and stringy. *Stems* several feet long, round, branching, floating by means of their roundish-heart-shaped, very smooth leaves, which are mottled above, purplish beneath; involute in the bud, as in *Nymphæa* and *Nuphar*. *Fl.* axillary, on simple aggregate stalks, without *bracteas*. *Cor.* 1½ inch wide, spreading, yellow, with a darker radiating disk. *Germen* with 5 purplish glands at the base. *Stigma* 5-cleft, notched, deciduous. *Caps.* ovate, compressed.

I presume to correct the erroneous construction of the specific name, as Tournefort, who has led every body else to write *nymphoides*, certainly did not mean to compare the plant to a nymph, but to its fellow-creature the *Nymphæa*.

100. **HOTTONIA.** Featherfoil, or Water-violet.

Linn. Gen. 82. *Juss.* 95. *Fl. Br.* 226. *Lam. t.* 100.

Nat. Ord. *Preciæ.* *Linn.* 21. *Lysimachiæ.* *Juss.* 34. *Primulaceæ.* *Br. Pr.* 427. Two following genera the same.

Cal. inferior, of 1 leaf, in 5 deep, linear, rather spreading segments. *Cor.* of 1 petal, salver-shaped; tube cylindrical, open, about as long as the calyx; limb flat, in 5 deep, ovate-oblong, notched, equal segments. *Filam.* awl-shaped, short, from the margin of the tube, each opposite to a segment of the limb. *Anth.* incumbent, oblong. *Germen* globular, pointed. *Style* short, cylindrical. *Stigma* globose, undivided. *Caps.* globose, pointed, of 1 cell, with 5 valves, subtended by the permanent calyx. *Seeds* numerous, roundish, covering the large, globular, central, unconnected receptacle.

Herbaceous, aquatic. *Leaves* many-cleft, immersed, smooth. *Fl.* elegant, numerous, in whorled clusters, raised above the water. The *stamens*, as well as segments of the *flower*, are occasionally 6, 7, or 8.

1. *H. palustris.* Water Featherfoil. Common Water-violet.

Stalks solitary, many-flowered; partial stalks whorled.

H. palustris. *Linn. Sp. Pl.* 208. *Willd. v.* 1. 812. *Fl. Br.* 226. *Engl. Bot. v.* 6. *t.* 364. *Curt. Lond. fasc.* 1. *t.* 11. *Fl. Dan. t.* 487. *Ehrh. Herb.* 83.

H. n. 632. *Hall. Hist. v.* 1. 279.

Hottonia. *Boerh. Ind. Alt. v.* 1. 206. *Raii Syn.* 285. *Ponted. Anthol.* 272.

Myriophyllum alterum. *Matth. Valgr. v.* 2. 511. *f. Camer. Epit.* 897. *f.*

Viola palustris. *Ger. Em.* 826.

In clear ditches and ponds, on a gravelly soil.

Perennial. *June.*

Herbage smooth, entirely under water. *Root* creeping. *Stems* trailing, round, leafy. *Leaves* crowded, 3 or 4 inches long, bright green, deeply pinnatifid, with linear segments. *Stalks* central, solitary, naked below, rising high above the water, with numerous whorls of elegant pink, or deep rose-coloured, *flowers*, of the shape, and nearly the size, of a Primrose, making a very handsome appearance.

101. *LYSIMACHIA*. Loosestrife.

Linn. Gen. 83. *Juss.* 95. *Fl. Br.* 227. *Tourn. t.* 59. *Lam. t.* 101.
Gartn. t. 50.

Nat. Ord. see *n.* 100.

Cal. inferior, of 1 leaf, in 5 deep, spreading, acute segments, permanent. *Cor.* of 1 petal, wheel-shaped; tube none; limb widely expanded, in 5 deep, ovate-oblong segments. *Filam.* awl-shaped, inserted into the base of the corolla, opposite to each segment. *Anth.* oblong, notched at each end. *Germe*n roundish. *Style* thread-shaped, the length of the stamens. *Stigma* obtuse. *Caps.* globular, pointed, of 1 cell, and 10 valves, sometimes cohering in pairs. *Seeds* numerous, angular, covering a large, central, orbicular, unconnected, pitted *receptacle*.

The *stamens* are, in some instances, connected at their origin. *L. Linum-stellatum*, see *Fl. Græc. t.* 189, has really ten valves to the *capsule*, though combined in pairs, as in our *L. nemorum*. The *corolla* of the former indeed is less deeply 5-cleft than it ought, as Linnæus remarks, and has really a short tube.

The whole genus is herbaceous, perennial, less frequently annual. *Leaves* simple, undivided, entire; opposite or whorled; scarcely ever alternate. *Fl.* scentless, terminal and aggregate, or axillary and solitary, rarely axillary and aggregate. *Cor.* yellow; in a few white, or flesh-coloured.

* *Stalks many-flowered.*

1. *L. vulgaris*. Great Yellow Loosestrife.

Clusters panicled, terminal. Leaves ovate-lanceolate, acute.

L. vulgaris. *Linn. Sp. Pl.* 209. *Willd. v.* 1. 816. *Fl. Br.* 227. *Engl. Bot. v.* 11. *t.* 761. *Curt. Lond. fasc.* 5. *t.* 19. *Hook. Scot.* 72. *Fl. Dan. t.* 689. *Bull. Fr. t.* 347.

L. n. 630. *Hall. Hist. v.* 1. 278.

L. lutea. *Raii Syn.* 282. *Ger. Em.* 474. *f.*

Lysimachia. *Matth. Valgr. v.* 2. 298. *f.* *Camer. Epit.* 686. *f.*

In watery shady places, and reedy margins of rivers.

Perennial. *July.*

Root creeping. *Stems* 3 or 4 feet high, erect, leafy, with 4 or more angles, according as the leaves are 2 or more together; simple, except at the top, where each terminates in a copious *panicle* of handsome yellow *flowers*, whose corymbose *clusters* are partly axillary, partly terminal; their *stalks* awl-shaped *bractæas*, and

pointed, fringed *calyx*, all more or less downy. *Leaves* on short stalks, 2, 3, or 4 together, 2 or 3 inches long, varying in breadth, single-ribbed, veiny; often downy beneath. *Fl.* an inch broad. *Stam.* combined, smooth. *Caps.* rarely perfected.

2. *L. thyrsiflora*. Tufted Loosestrife.

Clusters lateral, axillary, stalked.

L. thyrsiflora. *Linn. Sp. Pl.* 209. *Willd. v. 1.* 818. *Fl. Br.* 228. *Engl. Bot. v. 3. t. 176.* *Dicks. H. Sicc. fasc.* 187. *Hook. Scot.* 72. *Fl. Dan. t.* 517.

L. n. 631. *Hall. Hist. v. 1.* 279.

L. lutea, flore globoso. *Raii Syn.* 283. *Ger. Em.* 475. *f. How Phyt.* 71.

L. lutea. *Clus. Hist. v. 2.* 53. *both fig.*

Lysimachium aquatile. *Dod. Pempt.* 607. *f.*

In watery places, very rare in England.

In the East Riding of Yorkshire; Mr. Dodsworth. *Ray*. By King's Langley, Hertfordshire. *How*. In Anglesea; Mr. Lhwyd. *Dillenius*. By the side of Loch Lomond; in a bog at Forfar; and very plentifully in the borders of a lake, 4 miles east of Forfar. *Mr. J. Mackay*. In a marsh beyond Possil, North Britain; Mr. Hopkirk; and by the lakes of Rescabié and Balgawen, Angusshire, frequent; Mr. David Don. *Hooker*.

Perennial. *July*.

Roots creeping, with whorled fibres. *Stems* 1—2 feet high, round, quite simple, erect, leafy, slightly woolly. *Leaves* numerous, opposite, sessile, smooth, lanceolate. *Fl.* small, yellow, in dense, slightly branched, stalked, solitary, ovate, opposite, axillary, downy clusters, about the middle part of the stem. *Cor.* dotted with red, perfectly wheel-shaped, with solitary minute teeth between the segments. *Stam.* smooth, slender, as long as the corolla, or longer. *Capsules* rarely seen.

** *Stalks single-flowered.*

3. *L. nemorum*. Wood Loosestrife. Yellow Pimpernel.

Leaves ovate, acute. Flowers solitary. Stem procumbent. Stamens smooth.

L. nemorum. *Linn. Sp. Pl.* 211. *Willd. v. 1.* 820. *Fl. Br.* 228. *Engl. Bot. v. 8. t. 527.* *Curt. Lond. fasc. 5. t. 18.* *Hook. Scot.* 72. *Fl. Dan. t.* 174. *Ehrh. Phyt.* 33.

L. n. 628. *Hall. Hist. v. 1.* 278.

Anagallis lutea. *Raii Syn.* 282. *Ger. Em.* 618. *f.*

A. flavo flore. *Clus. Hist. v. 2.* 182. *f.*

In moist woods, and shady, rather watery, places.

Perennial. *May—September.*

Stems creeping at the base, decumbent, often pendent from banks and rocks, branched, 12 or 18 inches long, leafy, square, smooth, red and pellucid. *Leaves* opposite, stalked, veiny, of a bright shining green, rather succulent. *Fl.* of a golden yellow, about half the size of *L. vulgaris*, each on a simple, slender, twisting, axillary, solitary stalk, about the length of the adjoining leaf. *Cal.* awl-shaped. *Cor.* divided beyond the middle, fringed with minute glandular hairs. *Stam.* yellow, quite smooth. *Caps.* globular, of 10 narrow valves, connected in pairs. One of our most elegant, though not uncommon, plants.

4. *L. Nummularia.* Creeping Loosestrife. Money wort, or Herb Twopence.

Leaves somewhat heart-shaped. Flowers solitary. Stem prostrate, creeping. Stamens glandular.

L. Nummularia. *Linn. Sp. Pl.* 211. *Willd. v. 1.* 821. *Fl. Br.* 229. *Engl. Bot. v. 8. t. 528.* *Curt. Lond. fasc. 3. t. 14.* *Hook. Scot. 72.* *Fl. Dan. t. 493.*

L. n. 629. *Hall. Hist. v. 1.* 278.

Nummularia. *Raii Syn.* 283. *Ger. Em.* 630. *f. Camer. Epit.* 755. *f.*

In wet meadows, boggy pastures, and the borders of rivulets.

Perennial. *June, July.*

Herb smooth, of a pale green. *Stems* quite prostrate, creeping, compressed, with 4 prominent angles, a foot or 2 in length, scarcely branched. *Leaves* on short stalks, roundish-heart-shaped, wavy, with a small point. *Flower-stalks* angular, axillary, the length of the leaves. *Fl.* rather larger than the last, pale lemon-coloured. *Cal.* ovate, or heart-shaped. *Cor.* clothed with glandular hairs, as are likewise the whitish *stamens*. *Caps.* seldom perfected, the plant increasing much by the roots.

102. ANAGALLIS. Pimpernel.

Linn. Gen. 83. *Juss.* 95. *Fl. Br.* 229. *Tourn. t. 59.* *Lam. t. 101.* *Gærtn. t. 50.*

Nat. Ord. see *n.* 100.

Cal. inferior, of 1 leaf, in 5 deep, spreading, acute, keeled segments, permanent. *Cor.* of 1 petal, wheel-shaped; tube none; limb nearly flat, in 5 deep, roundish-ovate segments, contracted at their base. *Filam.* erect, slender, shorter than the corolla, clothed, in the middle part more especially, with prominent glandular hairs. *Anth.* heart-shaped. *Germ.* globose. *Style* thread-shaped. *Stigma* capitate; or sometimes simple. *Caps.* globular, of 1 cell,

thin and pellucid, splitting horizontally into 2 hemispherical valves. *Seeds* numerous, angular, abrupt, covering a large, central, orbicular, pitted, unconnected *receptacle*. Herbaceous, or slightly shrubby, annual or perennial, smooth, except the *corolla* and *stamens*. *Leaves* mostly opposite, often dotted, as are also the *stems*. *Fl.* elegant; scarlet, blue, or pink; on simple axillary *stalks*.

1. *A. arvensis*. Common Scarlet Pimpernel.

Leaves ovate; dotted beneath. Stem procumbent. Corolla minutely notched.

A. arvensis. *Linn. Sp. Pl.* 211. *Willd. v. 1.* 822, β . *Fl. Br.* 230. *Engl. Bot. v. 8. t. 529.* *Curt. Lond. fasc. 1. t. 12.* *Hook. Scot. 72.* *Fl. Dan. t. 88.*

A. n. 625. *Hall. Hist. v. 1.* 276.

A. flore phœniceo. *Raii Syn.* 282.

A. mas. *Ger. Em.* 617. *f. Matth. Valgr. v. 1.* 569. *f. Camer. Epit.* 394. *f. Brunf. Herb. v. 1.* 238. *f.*

β . *A. phœnicea, foliis amplioribus, ex adverso quaternis.* *Pluk. Alm.* 29. *Raii Syn.* 282.

In fields and gardens, common.

Annual. *June—August.*

Root small. *Stem* branched from the lower part, often dotted with purple, more or less procumbent, square. *Leaves* sessile; in β four together; ovate, many-ribbed; dotted with purple at the back. *Flower-stalks* angular, longer than the leaves, twisted and recurved after flowering. Segments of the *calyx* lanceolate, pointed, keeled, membranous at the edges. *Cor.* bright scarlet, with a violet-coloured mouth; its edges finely crenate, or minutely fringed with glands. *Stam.* purple, hairy; dilated and smooth at the base. *Anth.* yellow, heart-shaped. *Style* purple, permanent. *Stigma* capitate. *Caps.* pale and transparent, the size of a pea, separating all round, the valves marked with some indication of longitudinal separations, which seldom take effect. *Seeds* roughish, abrupt externally, each with a central dot.

The beautiful flowers close at the approach of rain, as farmers and shepherds in general well know. They are very rarely found of a brilliant white.

2. *A. cœrulea*. Blue Pimpernel.

Leaves ovate, or somewhat lanceolate; dotted beneath. Stem erect. Corolla strongly notched.

A. cœrulea. *Schreb. Lips.* 5. *Abbot* 46. *Engl. Bot. v. 26. t. 1823.* *Comp.* 36. *Hook. Scot. 72.* *Fl. Dan. t. 1570.*

- A. arvensis*. *Willd. Sp. Pl.* v. 1. 821, α . *Fl. Br.* 230, γ . *Huds.* 87, δ .
A. n. 626. *Hall. Hist.* v. 1. 277?
A. fœmina. *Raii Syn.* 282. *Ger. Em.* 617. *f. Matth. Valgr.* v. 1.
 570. *f. Camer. Epit.* 395. *f.*, very good.

In cornfields, rare.

Between Stockwell and Camberwell. *Huds.* In Worcestershire. *Nash.* Bedfordshire. *Abbot.* Devonshire, and near Bath; Mr. Martyn. *With.* At Great Saxham, Suffolk. *Rev. G. R. Leathes.* At Tharston, near Long Stratton, Norfolk. *Rev. Mr. Burroughs.* About North Luffenham, near Stamford. *G. Ainslie, Esq.* About Glasgow, and other places in the south of Scotland. *Hooker.*

Annual. *July*.

Very like the last in every part, except the *corolla* being smaller, of a most vivid blue, paler beneath, its margin strongly, acutely, and unequally notched, as the cut of *Camerarius* very well expresses. The *stem* in that cut is, moreover, erect, which Mr. Leathes thinks essential to this species. I have not invariably observed it to be so. There is certainly no difference in the *calyx*. Whether a species or variety, the Blue Pimpernel is reported to be constantly propagated by seed.

3. *A. tenella*. Bog Pimpernel.

Leaves roundish, somewhat pointed, stalked. Stem creeping. *Stigma* acute.

- A. tenella*. *Linn. Syst. Veg. ed.* 14. 196. *Willd. Sp. Pl.* v. 1. 823. *Fl. Br.* 230. *Engl. Bot.* v. 8. t. 530. *Curt. Lond. fasc.* 3. t. 15. *Cullum* 76. *Hook. Scot.* 73. *Don H. Br.* 54.

Lysimachia tenella. *Linn. Sp. Pl.* 211. *Huds.* 87. *Dicks, H. Sicc. fasc.* 2. 12.

Nummularia minor flore purpurascente. *Bauh. Prodr.* 136. *f. Pin.* 310. *Raii Syn.* 283. *Ger. Em.* 630. *f. Moris.* v. 2. 567. *sect.* 5. t. 26. *f.* 2.

N. rubra. *Bauh. Hist.* v. 3. 371. *f.*

On wet, spongy, mossy bogs, not uncommon.

Perennial. *July, August*.

Root and *stems* creeping. Whole plant smooth, except the *stamens*, depressed, branched, with small, roundish-ovate *leaves*, finely dotted underneath. *Flowers* erect, rose-coloured, on slender *stalks* much longer than the leaves, and becoming twisted when in fruit. *Stam.* clothed with white, jointed, woolly filaments. *Anth.* roundish, yellow. *Stigma* simple, rather acute. *Caps.* smaller than the last, but otherwise precisely similar, as well as the *seeds*, with which parts Linnæus was unacquainted when he referred this species to *Lysimachia*. It yields to none of our wild plants in elegance; and being scarcely known on

the continent, except in the south, is a welcome present to German, Swiss and Swedish botanists.

The *corolla* is rather funnel-shaped, as in *Centunculus*, and the herbage most like a *Lysimachia*; but the essential characters are clear.

103. AZALEA. Azalea.

Linn. Gen. 85. *Juss.* 158. *Fl. Br.* 231. *Lam. t.* 110. *f.* 1. *Gärtn. t.* 63.

Nat. Ord. *Bicornes.* *Linn.* 18. *Rhododendra.* *Juss.* 50.

Cal. inferior, of 1 leaf, in 5 deep, acute, upright segments, coloured, permanent. *Cor.* of 1 petal, bell-shaped, divided half way into 5 nearly equal segments, whose margins are inflexed. *Filam.* inserted into the receptacle, thread-shaped, unconnected. *Anth.* roundish, opening by 2 terminal pores. *Germ.* globular, with 5 longitudinal furrows. *Style* cylindrical, erect, the length of the germen, permanent. *Stigma* capitate, umbilicated. *Caps.* roundish, with 5 deep furrows, umbilicated, crowned with the style, of 5 cells, and 5 convex, acute, cloven-pointed valves, whose inflexed edges form the double partitions. *Seeds* numerous, roundish, dotted, attached to an unconnected, tapering, central *column*.

Gærtner found but 2, or more commonly 3, cells to the *capsule*, never 5. I have found 4 or 5.

That the American *Azaleæ* of the gardens must constitute a distinct genus, has long been thought. But whatever shall be determined concerning them, the plant before us is the identical *Azalea*, on which this genus was founded, and which alone, except perhaps *A. lapponica*, answers to the generic description of its author.

Shrubby, depressed, evergreen. *Leaves* smooth, convex, entire. *Fl.* red, on simple, aggregate, terminal *stalks*.

1. *A. procumbens.* Trailing Azalea.

Branches spreading and reclining. *Leaves* opposite, revolute, very smooth.

A. procumbens. *Linn. Sp. Pl.* 205. *Fl. Lapp. ed.* 2. 60. *t.* 6. *f.* 2. *Willd. v.* 1. 832. *Fl. Br.* 231. *Engl. Bot. v.* 13. *t.* 865. *Hook. Scot.* 73. *Don H. Br.* 134. *Fl. Dan. t.* 9. *Pall. Ross. v.* 1. *p.* 2. 52. *t.* 70. *f.* 2.

A. n. 666. *Hall. Hist. v.* 1. 296.

Chamaerhododendros ferruginea supina, thymi folio, alpina. *Bocc. Mus.* 64. t. 53.

Chamaecistus serpyllifolius. *Ger. Em.* 1284. f.

Ch. septimus. *Clus. Hist.* v. 1. 75. f.

Anonymos altera. *Clus. Pann.* 57. f. 58.

A. fruticosa, foliis ericæ bacciferæ Matthioli. *Bauh. Hist.* v. 1. 527. f.

On alpine moors.

On the heathy summits of most of the mountains of Scotland.

Shrub. *July*.

Stems dwarfish, woody, rigid, round, buried in moss, with numerous, alternate, leafy branches, each 2 or 3 inches long, depressed, spreading in all directions. *Leaves* opposite, small, elliptical, obtuse, revolute, shining, on short, broad, fringed, footstalks. *Flowers* small, rose-coloured, on simple, smooth, red, terminal, aggregate stalks, each stalk with a convex bractea at its base. Coat of the capsule spongy, with a deciduous cuticle. The anthers consist of 2 cells, each cell opening by a rather wide pore, with a blunt border; nor have I ever found them bursting longitudinally, as described by an eminent French writer, which is an extremely rare character in this natural order, if not absolutely inconsistent therewith. See *Hooker* 230.

104. CONVULVULUS. Bindweed.

Linn. Gen. 86. *Juss.* 133. *Fl. Br.* 232. *Tourn.* t. 57. *Lam.* t. 104.

Gartn. t. 134. *Br. Pr.* 482.

Calystegia. *Br. Pr.* 483.

Nat. Ord. *Campanaceæ*. *Linn.* 29. *Convolvuli*. *Juss.* 43.

Cal. inferior of 1 leaf, small, in 5 rather deep, ovate, imbricated, converging, permanent segments. *Cor.* of 1 petal, large, bell-shaped, regular, spreading, with 5 prominent plaits, and as many very shallow lobes. *Nect.* a gland under the germen. *Filam.* from the base of the corolla, and half its length, awl-shaped, converging. *Anth.* terminal, erect, arrow-shaped. *Germ.* roundish. *Style* thread-shaped, as long as the stamens. *Stigmas* 2, spreading, oblong. *Caps.* invested with the calyx, roundish, either valvular, or bursting irregularly, of 1, 2, or 3, more or less complete, cells, with a central, unconnected, angular receptacle, whose angles are opposite to each suture. *Seeds* large, roundish, 2 in each cell, attached to the base of the receptacle.

Linnæus observes there are few genera in which one part or other of the fructification does not evade a strict limitation of character. Such is the case with the seed-vessel in the very natural genus *Convolvulus*.

The plants have a milky juice. *Stem* leafy, herbaceous, rarely woody, generally twining, from right to left, or procumbent. *Leaves* alternate, simple, stalked, without *stipulas*. *Fl.* axillary or terminal, on bracteated stalks; their colours various. Ours have all axillary, reddish or white, *flowers*, and their *roots* are perennial, creeping extensively.

1. *C. arvensis*. Small Bindweed.

Leaves arrow-shaped, acute at each end. Stalks mostly single-flowered. Bracteas minute, remote from the flower.

C. arvensis. *Linn. Sp. Pl.* 218. *Willd. v. 1.* 844. *Fl. Br.* 232. *Engl. Bot. v. 5. t. 312.* *Curt. Lond. fasc. 2. t. 13.* *Mart. Rust. t. 89.* *Hook. Scot. 73.* *Fl. Dan. t. 459.* *Bull. Fr. t. 269.*

C. n. 664. *Hall. Hist. v. 1.* 295.

C. minor vulgaris. *Raii Syn.* 275.

Smilax lenis minor. *Ger. Em.* 861. *f.*

Helxine cissampelos. *Matth. Valgr. v. 2.* 359. *f.* *Camer. Epit. 753. f.* *Fuchs. Hist.* 258. *f.*

β . *Convolvulus arvensis minimus.* *Raii Syn.* 276.

C. angustissimo folio nostras, cum auriculis. *Pluk. Phyt. t. 24. f. 3.*

γ . *C. flore minimo, ad unguem ferè secto.* *Dill. in Raii Syn.* 276.

In hedges, fields and gardens, very common; an almost unconquerable weed, especially on a gravelly soil.

Perennial. *June, July.*

Root creeping, branching, extending to a great depth. *Stems* numerous, angular, twining or prostrate, leafy, slightly downy, not much branched. *Leaves* various in breadth, entire, smooth, on channelled downy *footstalks*, not one fourth of their own length. *Flower-stalks* as long as the leaves, sometimes divided, angular, swelling upward, bearing 2 minute, downy, lanceolate *bracteas* about their middle. *Fl.* fragrant like Heliotrope, but fainter, very beautiful, of every shade of pink, with paler, or yellowish plaits, and stains of crimson in the lower part; sometimes they are nearly white. They close before rain. *Anth.* red, or white. *Stigmas* linear, downy, almost equal in length to the *style*. I have never seen the *capsule* or *seeds*.

2. *C. sepium*. Great Bindweed.

Leaves arrow-shaped, abrupt at the posterior lobes. Stalks square, single-flowered. Bracteas heart-shaped, close to the flower.

C. sepium. *Linn. Sp. Pl.* 218. *Willd. v. 1.* 844. *Fl. Br.* 233. *Engl. Bot. v. 5. t. 313.* *Curt. Lond. fasc. 1. t. 13.* *Mart. Rust. t. 88.* *Hook. Scot. 74.* *Fl. Dan. t. 458.*

C. n. 663. *Hall. Hist. v. 1.* 295.

C. major. *Raii Syn.* 275. *Bauh. Hist. v. 2.* 154. *f.*

Calystegia sepium. *Br. Pr.* 483.

Smilax lenis, sive lævis, major. *Ger. Em.* 861. *f.* *Dod. Pempt.* 392. *f.*

S. lævis. *Fuchs. Hist.* 720. *f.* *Matth. Valgr. v. 2.* 552. *f.* *Camer. Epit.* 932. *f.*

In moist hedges, osier holts, and thickets.

Perennial. *July, August.*

Roots long, creeping extensively, rather fleshy. *Stems* twining, several feet long, leafy, angular, smooth, slightly branched. *Leaves* nearly vertical, on smooth stalks; pointed at the end; variously lopped at the base, which the wooden cuts of old authors, except Dodonæus and Gerarde, do not express. *Fl.* solitary, large, pure white for the most part; occasionally of an uniform flesh-colour, or rose-colour. *Stam.* and *Pist.* white. *Stigmas* short and blunt. The large *bracteas* inclose the *calyx*, which is one of the characters of Mr. Brown's *Calystegia*, as its name implies. I have not seen the *fruit*. The *root* has been used as a purgative, being near akin to the acrid and violent Scammony.

3. *C. Soldanella.* Sea Bindweed.

Leaves kidney-shaped, somewhat angular. Stalks single-flowered, their angles membranous. Stems procumbent.

C. Soldanella, *Linn. Sp. Pl.* 226. *Willd. v. 1.* 876. *Fl. Br.* 233. *Engl. Bot. v. 5. t.* 314.

C. maritimus, Soldanella dictus. *Raii Syn.* 276.

Soldanella marina. *Ger. Em.* 838. *f.*

Brassica marina. *Cord. Hist.* 205. 2. *f.* *Matth. Valgr. v. 1.* 427. *f.* *Camer. Epit.* 253. *f.*

B. marina, sive Soldanella. *Bauh. Hist. v. 2.* 166. *f.* *Dalech. Hist.* 526. *f.*

On the sandy sea shore.

Perennial. *June, July.*

Root extensively creeping. *Herb* smooth, rather succulent. *Stems* lax, procumbent, spreading in a circular form, slightly branched, angular, often purplish, 1 to 2 feet long. *Leaves* on longish stalks, heart- or kidney-shaped, more or less pointed, entire, or sometimes angular. *Fl.* very large in proportion, and remarkably handsome, on long, solitary, angular stalks swelling upward, their 4 angles bordered and purplish. *Bracteas* ovate, close to the calyx, but rather shorter. *Cor.* as large as the last, of a delicate purplish pink, with pale yellow plaits. *Stigmas* short, awl-shaped. *Caps.* roundish, somewhat lobed. *Seeds* large. The *flowers* expand in the sun-shine only, and are of short duration.

105. POLEMONIUM. Jacob's Ladder.

Linn. Gen. 87. *Juss.* 136. *Fl. Br.* 234. *Tourn. t.* 61. *Lam. t.* 106. *Gartn. t.* 62.

Nat. Ord. *Campanaceæ*. *Linn.* 29. *Polemonia*. *Juss.* 44.

Cal. inferior, of 1 leaf, cup-shaped, divided half way into 5 broad, rather acute, segments, permanent. *Cor.* of 1 petal, wheel-shaped; tube very short, closed at the top by 5 convex, downy valves; limb large, dilated, spreading, slightly concave, in 5 deep, roundish-ovate, obtuse, equal segments. *Filam.* awl-shaped, inclining, shorter than the corolla, inserted into the tube, between the valves, and opposite to each segment of the limb. *Anth.* terminal, erect, oblong; roundish after bursting. *Germ.* ovate, acute. *Style* cylindrical, the length of the stamens. *Stigma* in 3 acute, revolute segments. *Caps.* ovate, with 3 blunt angles, invested with the calyx, of 3 cells, and 3 valves, separating at the top; partitions contrary to the valves. *Seeds* numerous, oblong, triangular, attached to the innermost angle of each cell.

Herbaceous, with mostly pinnate *leaves*, and terminal, pinnicled, blue or purplish, *flowers*.

1. *P. cæruleum*. Blue Jacob's Ladder. Greek Valerian.

Leaves pinnate. Flowers erect. Root fibrous.

P. cæruleum. *Linn. Sp. Pl.* 230. *Willd. v.* 1. 886. *Fl. Br.* 234. *Engl. Bot. v.* 1. *t.* 14. *Hook. Scot.* 74. *Fl. Dan. t.* 255.

P. n. 665. *Hall. Hist. v.* 1. 296.

P. vulgare cæruleum. *Raii Syn.* 288.

Valeriana græca. *Dod. Pempt.* 351. *f.* 352. *Ger. Em.* 1076. *f.* *Bauh. Hist. v.* 3. *p.* 2. 212. *f.*

In bushy places, in the north of England, and south of Scotland, but rare.

At Malham Cove, in Craven, Yorkshire, also in other parts of that neighbourhood, first found by Dr. Martin Lister; and subsequently by Dr. Richardson. *Raii Syn.* At the Lover's Leap, Buxton. *Rev. Mr. Wood*. Near Bakewell, Derbyshire; Mr. Whately; and in Gordale, Yorkshire; Mr. Gough. *Withering*. Two miles east of Queen's Ferry, on the coast; Mr. Maughan; in Arncliffe woods; Mr. Arnott; Delvine woods; Mr. Murray. *Hooker*.

Perennial. *June*.

Root fibrous, not creeping. *Herb* nearly smooth, $1\frac{1}{2}$ or 2 feet high. *Stem* angular, leafy, hollow, often reddish, unbranched; pa-

niced at the top. *Leaves* alternate, of many elliptic-lanceolate, entire *leaflets*, with an odd one of nearly equal size. *Fl.* rather drooping, numerous, blue, occasionally white. *Stalks* and *calyx* a little downy. A common ornament of rustic gardens, of no particular qualities, notwithstanding its name of Valerian, derived perhaps from the leaves, which resemble those of some *Valeriana*. It is not known to be a Greek plant, nor does Dioscorides appear to have mentioned it.

106. CAMPANULA. Bell-flower.

Linn. Gen. 88. *Juss.* 164. *Fl. Br.* 234. *Tourn. t.* 37. *Lam. t.* 123. *Gærtn. t.* 31.

Nat. Ord. Campanaceæ. *Linn.* 29. *Campanulaceæ.* *Juss.* 52. Three following genera the same. See *Grammar* 117.

Cal. superior of 1 leaf, in 5 deep, acute, rather spreading segments; in some with intermediate, reflexed, tumid lobes; permanent. *Cor.* of 1 petal, bell-shaped, more or less expanded, withering; impervious at the base, combined with the calyx, and furnished at the lower part with 5 acute, converging valves, concealing the summit of the germen; limb in 5 broad, spreading, regular segments. *Filam.* from the point of each valve, capillary, short, retractile. *Anth.* longer than their filaments, linear, compressed, spreading. *Germ.* inferior, angular. *Style* thread-shaped, downy, longer than the stamens. *Stigma* in 2 or 3 oblong, revolute segments. *Caps.* roundish, obovate, or prismatic, angular and ribbed, of 3 cells, rarely 2 only, bursting by 3 torn lateral openings, between the ribs; or sometimes valvular at the summit. *Seeds* numerous, small, polished.

Milky herbs; seldom shrubby. *Leaves* almost always alternate; simple, or rarely compound; smooth or rough. *Fl.* variously situated, mostly blue, inodorous. The *style*, partly very hairy, receives the pollen before it reaches the *stigma*, and retains it long.

1. *C. rotundifolia.* Round-leaved Bell-flower.

Radical leaves heart- or kidney-shaped, serrated; stem-leaves linear, entire.

C. rotundifolia. *Linn. Sp. Pl.* 232. *Willd. v.* 1. 892. *Fl. Br.* 235. *Engl. Bot. v.* 13. *t.* 866. *Curt. Lond. fasc.* 4. *t.* 21. *Hook. Scot.* 74. *Fl. Dan. t.* 855. *Ger. Em.* 452. *f. Raii Syn.* 277; excluding the reference to *J. Bauhin*.

C. n. 701. *Hall. Hist. v.* 1. 310; excluding *Oeder's syn.*

C. minor rotundifolia vulgaris. Bauh. Pin. 93.

C. minor alpina, rotundioribus imis foliis. Clus. Hist. v. 2. 173, as to the figure, which is Gerarde's.

C. sylvestris minima. Dod. Pempt. 167; the same figure.

On heaths, walls, banks, and about the borders of fields, common. Perennial. July, August.

Root somewhat creeping, rather woody. Herb smooth, dark green. Stems more or less crowded, upright, round, sometimes a little downy, about a span high, slightly, if at all, branched, each terminating in a loose cluster of a few drooping, blue flowers, on long, slender, tremulous stalks, with an awl-shaped bractea to each. The radical leaves are numerous, heart-shaped, with a blunt point, and 4 or 5 bluntish serratures at each side; their footstalks thrice as long as the leaves, linear and very narrow; some of these leaves are often kidney-shaped; others ovate, or lanceolate, and entire. They all usually wither very soon, so that the plant, when in flower, is found with stem-leaves only, which are long, linear, acute, entire and very narrow, tapering at the base into short footstalks. Segments of the calyx linear-awl-shaped, entire, spreading. Cor. thrice as long, twisted in decay. Capsule roundish. Sometimes, though rarely, the flowers are white.

On mountain rocks this species may perhaps assume a more humble stature, with fewer flowers; nor are such variations unusual with it in barren ground. One of them was originally taken for *C. uniflora* of Linnæus, a very different plant, by Mr. Hudson; and probably by Ray for *C. alpina rotundifolia minor*, of Bauh. Prodr. 34. This latter is really *C. parva Anguillaræ Cantabrica*, Bauh. Hist. v. 2. 796; and there is a good figure in each of these places. It is *C. n.* 702 of Haller; *C. t.* 189 of Fl. Dan.; and *C. pumila* of Dr. Sims in Curt. Mag. t. 512; being *C. cæspitosa* of Villars, and of Scopoli, as well as *pusilla* of Hænke in Jacq. Coll. v. 2. 79. In our gardens it is usually white, and grows luxuriantly under a frame, or in the open border; being doubtless a constant and very distinct species, characterized by the numerous serrated, obovate or lanceolate, stem-leaves; to say nothing of its smaller size, and brighter green hue. I have no authority for believing that this *C. cæspitosa*, for so it should be called, has ever been seen wild in Britain. In the Fl. Brit. I relied on former authors, who have every one of them committed some error in the synonyms, which the detail here given will enable the reader to trace.

2. *C. patula.* Spreading Bell-flower.

Radical leaves obovate, or elliptic-lanceolate; the rest linear-lanceolate; all even, crenate and roughish. Stem with several fringed angles. Panicle spreading. Calyx minutely toothed.

C. patula. Linn. *Sp. Pl.* 232. Willd. v. 1. 896. *Fl. Br.* 235. *Engl. Bot.* v. 1. t. 42. Hook. *Lond.* t. 51. *Fl. Dan.* t. 373. Purton v. 3. 342.

C. n. 698. Hall. *Hist.* v. 1. 309.

C. esculentæ facie, ramis et floribus patulis. Dill. *Elth.* 68. t. 58.

C. minor alba, sive purpurea. Ger. *Em.* 452. f. ?

In pastures, borders of fields, and hedges, rare.

On the outside of Buddon wood, Leicestershire. Mr. Woodward.

In many parts of Worcestershire and Staffordshire. Withering.

Near Holt, Norfolk. Rev. R. B. Francis. At Cobham, Surry.

Engl. Bot. In several parts of that county and Kent. Mr. Graves.

In many places about Alcester. Purton.

Biennial. July, August.

Root small, tapering, white. Stem erect, 2 feet high, leafy, having about 5 angles, fringed with short deflexed hairs; panicled and spreading at the summit. Radical leaves stalked, spreading, obovate, elliptical, or oblong, obtuse, bluntly crenate, roughish, or fringed; turning yellow, and withering when the flowers appear; the stem-leaves are alternate, sessile, lanceolate or linear, acute, less crenate, and rather smoother. Fl. of a fine blue, larger than the preceding, more tapering at the lower part; the limb ribbed, gradually spreading. Segments of the calyx awl-shaped, with one or more livid teeth on each side, towards the base. The herbage, though bitter and milky, is often eaten by cattle.

3. *C. Rapunculus.* Rampion Bell-flower.

Leaves wavy, crenate, roughish; radical ones elliptic-lanceolate. Stem angular; hairy below. Panicle compact. Calyx entire.

C. Rapunculus. Linn. *Sp. Pl.* 232. Willd. v. 1. 896. *Fl. Br.* 236. *Engl. Bot.* v. 4. t. 283. Hook. *Lond.* t. 80. *Fl. Dan.* t. 855. and t. 1326.

C. n. 699. Hall. *Hist.* v. 1. 310.

Rapunculus. Camer. *Epit.* 221. f. bad. Matth. *Valgr.* v. 1. 397. f. much worse; like a *Linum*.

R. esculentus. Bauh. *Pin.* 92. Raii *Syn.* 277.

Rapuntium parvum. Ger. *Em.* 453. f.

Rapum sylvestre. Fuchs. *Hist.* 214. f. Ic. 122.

Raponeoli. Brunf. *Herb.* v. 2. 84. f.

On banks, and about the borders of fields, not common.

About Old Buckenham castle, Norfolk. Mr. Pitchford. In many parts of Kent and Surry, as well as in other places, on a gravelly soil; having formerly perhaps escaped from gardens.

Biennial. July, August.

Root spindle-shaped, white, milky, sweet, with a bitterish pungency; when cultivated, milder. It was formerly eaten raw, or variously dressed. Stem a yard high, leafy, angular, more or

less rough all over its lower part. *Leaves* longer, broader, and more uniform, than in the last species; the lower ones tapering into *footstalks*. *Panicle* long, cylindrical, of a regular series of shortish, unequal, aggregate or subdivided, smooth, bracteated stalks. *Cal.* slender, almost entirely without teeth. *Cor.* light blue, swelling in the lower part.

4. *C. persicifolia*. Peach-leaved Bell-flower.

Leaves smooth, slightly serrated; radical ones obovate; those of the stem linear-lanceolate, sessile, remote. Stem round, very smooth, with few flowers.

C. persicifolia. *Linn. Sp. Pl.* 232. *Fl. Suec. ed.* 2. 66. *Willd. v.* 1. 897. *Don H. Br.* 180. *Hook. Scot.* 74. *Fl. Dan. t.* 1087. *Bull. Fr. t.* 367. *Fl. Græc. v.* 3. 4. t. 205. *Ger. Em.* 451. *f. Lob. Ic.* 327. *f. Scop. Carn. ed.* 2. v. 1. 145.

C. n. 697. *Hall. Hist. v.* 1. 307.

C. persicæ folio. *Clus. Hist. v.* 2. 171. *f.*

C. media. *Dod. Pempt.* 166. *f.*

Phyteuma. *Matth. Valgr. v.* 2. 533. *f. bad.*

In woods in Scotland.

Near Cullen. *Don.*

Perennial. *July.*

Root somewhat creeping. *Stems* 1½ or 2 feet high, erect, simple, round, pale, very smooth, more or less leafy. *Leaves* long and narrow, with very shallow serratures, especially the uppermost, which are acute, and nearly entire. *Fl.* very large, above an inch wide, of a fine blue, erect. *Germen* often hairy, as Scopoli remarks; but this character is not invariable. Segments of the *calyx* long, lanceolate, entire, very smooth and even. Haller erroneously applies to this species Linnæus's remark of the toothed *calyx* in *C. patula*.

The *flowers* are often solitary in wild specimens. In gardens, where they are generally double, and often of a brilliant white, there are always several on each stem. This plant being a native of most parts of the continent, from Sweden to Greece, may well be found also in Scotland, and I concur with Professor Hooker in admitting it. Mr. G. Don's specimens have a perfectly wild aspect.

5. *C. latifolia*. Giant Bell-flower.

Leaves roughish, ovate-lanceolate. Stem unbranched, round. Stalks single-flowered. Fruit drooping.

C. latifolia. *Linn. Sp. Pl.* 233. *Willd. v.* 1. 900. *Fl. Br.* 236. *Engl. Bot.* 5. t. 302. *Hook. Scot.* 75. *Fl. Dan. t.* 85.

C. n. 691. *Hall. Hist. v.* 1. 307.

C. maxima, foliis latissimis. *Bauh. Pin.* 94. *Raii Syn.* 276.

C. pulchra. *Bauh. Hist. v. 2. 807. f.*

Trachelium majus Belgarum, sive giganteum. *Ger. Em. 448. f.*

In moist woods and thickets, by the sides of rivulets.

Not unfrequent in Scotland, and the north of England; more rare in the south. In Forehoe wood near Kimberley, Norfolk.

Mr. Rose. In Suffolk, on a clay soil. *Mr. Woodward.* Near Dunstable. *Rev. Dr. Abbot.* In shady woods at Matlock bath, Derbyshire.

Perennial. *July, August.*

Root rather fleshy, very milky, as well as the whole herb. *Stem* erect, 3 or 4 feet high, quite simple, leafy, round, with several slightly prominent ribs, roughish with fine hairs. *Leaves* numerous, alternate, on short stalks, ovate, pointed, doubly and bluntly serrated, veiny, finely hairy, 3 or 4 inches long; the uppermost lanceolate. *Panicle* terminal, but slightly branched, leafy; the upper leaves diminishing to linear, mostly entire, bracteas. *Fl.* erect, large, deep blue; in gardens sometimes white, with a purple eye. *Calyx* lanceolate, pointed, entire, or partly serrated. *Caps.* pendulous, hemispherical, smooth. It varies with a spreading *panicle* and smoother *leaves*.

6. *C. rapunculoides.* Creeping Bell-flower.

Leaves roughish; radical ones heart-shaped, crenate, stalked; uppermost sessile, lanceolate. *Flowers* drooping, unilateral, in a terminal, bracteated, upright cluster. *Calyx* reflexed.

C. rapunculoides. *Linn. Sp. Pl. 234. Willd. v. 1. 901. Fl. Br. 237. Engl. Bot. v. 20. t. 1369. Hook. Scot. 75. Fl. Dan. t. 1327. Don H. Br. 55.*

C. Trachelium. *Bull. Fr. t. 319.*

C. n. 692. Hall. Hist. v. 1. 307.

C. repens, flore minore cæruleo. *Bauh. Hist. v. 2. 806. f. bad.*

C. hortensis, Rapunculi radice repente. *Moris. v. 2. 460. sect. 5. t. 3. f. 32.*

In woods and fields, but rare.

In some woods in Oxfordshire, amongst yew trees. *Buddle's herbarium.* At Blair in Scotland. *Dr. Skrimshire.* In cornfields 2 miles north-west from Kirkcaldy, where it is considered as a troublesome weed; *Mr. Chalders. Hooker.*

Perennial. *July, August.*

Root creeping widely. *Stems* 18 inches or 2 feet high, erect, leafy, slightly angular, roughish with minute deflexed hairs, simple, except some small rudiments of branches rarely protruded. *Leaves* veiny, rugged, scarcely roughish to the touch, bluntly and unequally serrated, of a rather deep shining green; radical ones very like those of Violets, heart-shaped, on long stalks; upper ones sessile, deflexed, ovate, or lanceolate; gradually diminish-

ing to the lanceolate, or linear, *bracteas*, of the long, straight, simple, many-flowered, terminal *cluster*. *Fl.* on very short stalks, bright purplish blue, hairy, half the size of the last, drooping all to one side. *Cal.* recurved, rough-edged, entire, not serrated. *Caps.* roundish, with 3 prominent angles, opening by 3 large intermediate pores near its base.

7. *C. Trachelium*. Nettle-leaved Bell-flower.

Stem angular. Leaves lanceolate, partly heart-shaped, sharply serrated, bristly as well as the calyx. Stalks axillary, with few flowers.

C. Trachelium. *Linn. Sp. Pl.* 235. *Willd. v.* 1. 903. *Fl. Br.* 238. *Engl. Bot. v.* 1. *t.* 12. *Hook. Lond. t.* 109. *Scot.* 75. *Fl. Dan. t.* 1026.

C. n. 690. *Hall. Hist. v.* 1. 307.

C. vulgator, foliis urticæ, vel major et asperior. *Bauh. Pin.* 94. *Raii Syn.* 276.

C. Cervicaria dicta. *Fuchs. Hist.* 431. *t.* 432.

Trachelium majus. *Ger. Em.* 448. *f.*

Uvularia major. *Trag. Hist.* 926. *t.* 927.

Cervicaria major. *Dod. Pempt.* 164. *f.*

In groves, thickets, and hedges, frequent.

Perennial. *July*.

Root thick, and rather woody. *Stem* 2 or 3 feet high, simple, straight, leafy, with several slightly winged and roughish angles. *Leaves* harsh, coarsely and unequally serrated, taper-pointed, ribbed; the lowest large, on long stalks, heart-shaped, much resembling the Common Perennial Nettle; the upper ones on shorter stalks, and more lanceolate, or ovate. *Fl.* on shortish, simple or divided, stalks, from the bosoms of many of the uppermost leaves, large, deep blue, sometimes white. *Cal.* simply 5-cleft, generally bristly at the base and margin. *Cor.* perfectly bell-shaped, more or less fringed. The bristles of the *leaves* are often as pungent as those of a Nettle, though not venomous.

The name *Trachelium*, from *τραχηλος*, *the neck*, alludes to the reputed virtues of this plant in disorders of the throat, to which the other appellations of old authors allude. A decoction of the herb, which is bitter and somewhat acrid, was used as a gargle.

8. *C. glomerata*. Clustered Bell-flower.

Stem angular, simple. Flowers sessile, most of them in a terminal head. Leaves ovate, crenate.

C. glomerata. *Linn. Sp. Pl.* 235. *Willd. v.* 1. 903. *Fl. Br.* 238. *Engl. Bot. v.* 2. *t.* 90. *Hook. Scot.* 75.

C. n. 685. *Hall. Hist. v.* 1. 305.

C. pratensis, flore conglomerato. *Bauh. Pin.* 94. *Raii Syn.* 277.

Trachelium minus. Ger. Em. 449. f.

T. alpinum, floribus conglomeratis. Herm. Parad. 235. t. 235.

Rapunculus calyculatus. Barrel. Ic. t. 523. f. 3.

Gentiana collina. With. 282. t. 11. f. 8. From the author.

In dry open chalky pastures.

Perennial. July, August.

Root rather woody, with long fibres. Stem from 1 to 18 inches high, never branched unless injured, erect, straight, angular, hoary with short deflexed hairs. Radical and lower stem-leaves oblong-heart-shaped, on long stalks; upper ones more acute, ovate, sessile, clasping the stem; all crenate, hoary all over with short close hairs; paler at the back. Fl. of a purplish, deep, but rich, blue, most of them in a dense terminal head, subtended by 2 broad, concave, pointed, hoary bracteas; a few occasionally, solitary or in pairs, sessile from the bosoms of the upper leaves. Cal. simply 5-cleft, hoary. Cor. rather cylindrical, hairy, about one third the size of the last.

In a cultivated state the herbage becomes over luxuriant, and less hoary; the flowers paler, more numerous, but far less handsome. Such is the case with many of the true chalk-country plants.

9. *C. hybrida.* Corn Bell-flower.

Stem often branched from the base, straight. Leaves oblong, crenate, wavy. Corolla widely spreading, shorter than the calyx. Capsule prismatic.

C. hybrida. Linn. Sp. Pl. 239. Willd. v. 1. 913. Fl. Br. 239. Engl. Bot. v. 6. t. 375.

C. n. 704. Hall. Hist. v. 1. 311.

C. arvensis erecta. Raii Syn. 278. Moris. v. 2. 457. sect. 5. t. 2. f. 22.

Speculum Veneris minus. Ger. Em. 439. f.

Onobrychis altera Belgarum et Dodonæi. Lob. Ic. 418. f.

In dry or chalky cornfields.

Annual. August.

Root small, tapering. Herb barely a span high, pale greyish green, rough with prominent, rigid, minute hairs, especially the stem, and the undulating margins of the oval sessile leaves. Fl. few, terminal, solitary, sessile. Segments of the calyx lanceolate, spreading, rough. Cor. scarcely half their length, almost wheel-shaped, with 5 plaits, deep blue, with a pale centre. Germen much lengthened after impregnation, becoming a long triangular, downy capsule, opening towards the summit by 3 lateral pores.

10. *C. hederacea.* Ivy-leaved Bell-flower.

Stem flaccid, much branched, procumbent. Leaves stalked, smooth, heart-shaped, with angular lobes.

- C. hederacea*. *Linn. Sp. Pl.* 240. *Willd. v. 1.* 916. *Fl. Br.* 239. *Engl. Bot. v. 2. t. 73.* *Hook. Scot.* 75. *Lond. t.* 93. *Dicks. Dr. Pl.* 56. *H. Sicc. fasc.* 10. 9. *Fl. Dan. t.* 330. *bad.*
- C. Cymbalariae foliis*. *Raii Syn.* 277. *Ger. Em.* 452. *f. Bauh. Prodr.* 34. *Moris. v. 2.* 456. *sect. 5. t. 2. f.* 18. *Pluk. Phyt. t.* 23. *f. 1.*
- C. folio hederaceo*. *Bauh. Hist. v. 2.* 797. *f.*

In watery shady places, not general.

Abundant in Cornwall, and many parts of the west of England, as well as about Sheffield, Yorkshire. *Ray*. In Bagley wood, near Oxford. *Lawson*. In Wales; *Dr. Richardson. Dill.* In Sussex abundant. *Hudson, Dickson, and Borrer*. On a bog near High-Beech, Epping forest. *Mr. E. Forster*. On Hartlebury Common, Worcestershire. *Rev. T. Butt*. In the County of Cork, Ireland. *Mr. J. T. Mackay*. In several parts of the lowlands of Scotland, and in the Scilly islands. *Hooker*.

Perennial. *June—August*.

A delicate little smooth plant, whose long, trailing, entangled, variously branched stems creep very far. *Leaves* about $\frac{1}{2}$ an inch wide, rarely a little hairy, scattered, on longish slender stalks, heart-shaped, with 5 acute principal angles, and a few smaller intermediate ones. *Fl.* terminal, solitary, on long slender stalks, more or less drooping, short-lived, light blue. Segments of the calyx awl-shaped, entire, permanent, the capsule opening at the summit, between them, with 3 valves, though even dried specimens have indications of lateral pores, which do not open. *Seeds* numerous, minute.

107. PHYTEUMA. Rampion.

Linn. Gen. 89. *Juss.* 165. *Fl. Br.* 240. *Lam. t.* 124. *Gartn. t.* 30. *Rapunculus. Tourn. t.* 38.

Nat. Ord. see *n.* 106.

Cal. superior, of 1 leaf, in 5 deep, acute, rather spreading segments, permanent. *Cor.* of 1 petal, wheel-shaped, in 5 deep, linear, acute, recurved segments. *Filam.* thread-shaped, dilated at the base, scarcely attached to the corolla, much shorter than its segments. *Anth.* oblong. *Germ.* inferior, angular. *Style* cylindrical, curved, longer than the stamens. *Stigma* in 2 or 3 spreading segments. *Caps.* roundish, of 2 or 3 cells, with strong ribs, between which it bursts by three irregular openings. *Seeds* numerous, small, obovate.

Herbaceous, mostly perennial, milky, generally nearly smooth. *Fl.* blue, numerous, spiked or capitate. *Leaves*

simple, crenate or entire; in some almost grassy. Most of the oriental species bears scattered *flowers*; and one, *Ph. pinnatum*, see *Fl. Græc. t. 220*, has compound *leaves*.

1. *Ph. orbiculare*. Round-headed Rampion.

Flowers in a roundish head. Leaves crenate; radical ones heart-shaped, or elliptic-lanceolate.

Ph. orbiculare. *Linn. Sp. Pl.* 242. *Willd. v. 1.* 921. *Fl. Br.* 240. *Engl. Bot. v. 2. t. 142.* *Hook. Lond. t. 55.* *Jacq. Austr. t. 437.*

Rapunculus n. 681. *Hall. Hist. v. 1.* 304.

R. corniculatus. *Riv. Monop. Irr. t. 109. f. 1.*

R. corniculatus montanus. *Raii Syn.* 278. *Ger. Em.* 455. *f.*

R. corniculatus, folio oblongo, spicâ orbiculari. *Moris. v. 2.* 463. *sect. 5. t. 5. f. 47.*

R. corniculatus cæruleus minor. *Barrel. Ic. t. 525.*

Rapuntium montanum rarius, corniculatum. *Column. Ecphr.* 223. *t. 224.*

In pastures, and by road sides, on a chalky soil, but rare.

On the downs of Sussex and Hampshire, in many places. *Ray*.
In several parts of Surry and Kent. *Hudson, Hooker*. Plentiful near Leatherhead.

Perennial. *August*.

Root long and woody, divided at the crown. *Herb* milky, not acrid. *Stems* solitary, simple, leafy, somewhat angular, smooth, a foot high, or more. *Leaves* smooth, crenate, with a midrib and many reticulated veins; the earliest radical ones heart-shaped; the next, like those on the lower part of the stem, elliptic-lanceolate; all on long stalks: those on the upper part ovate or lanceolate, sessile, fringed at the base. *Fl.* of an intensely brilliant deep blue, numerous, inodorous, sessile, forming a round head, accompanied by several close, ovate-lanceolate, leafy *bracteas*. As the 3-celled *capsules* ripen, the head becomes oval, and the parts of the *flower*, after lasting long in a faded state, are finally, as Professor Hooker observes, deciduous, except the fringed *calyx*. The figures of Morison and Barrelier are copied from that of Columna.

108. JASIONE. Sheep's-bit.

Linn. Gen. 455. *Juss.* 166. *Fl. Br.* 241. *Lam. t. 724.* *Gærtn. t. 30.*

Nat. Ord. see *n.* 106.

Cal. superior, of 1 leaf, in 5 deep, acute segments, permanent. *Cor.* wheel-shaped, in 5 deep, lanceolate, equal, straight, moderately spreading segments. *Filam.* awl-shaped, short. *Anth.* oblong, combined at the base.

Germ. roundish, inferior. *Style* cylindrical, erect, longer than the stamens. *Stigma* cloven; in some flowers club-shaped and only slightly notched. *Caps.* bladderly, roundish, with 5 angles, imperfectly 2-celled, opening by a round pore at the top; the partitions perpendicular, opposite, not completely meeting. *Seeds* numerous, elliptic-oblong, very minute, covering a globular, stalked, unconnected *receptacle*, in the bottom of the capsule.

The central *flowers* having often a club-shaped *stigma*, are abortive, while their *anthers* are the most perfect.

Herbaceous, with simple *leaves*, and aggregate blue *flowers*. Only one certain species. See *Curt. Mag. t.* 2198.

1. *J. montana*. Common Sheep's-bit. Sheep's Scabious.

J. montana. *Linn. Sp. Pl.* 1317. *Willd. v.* 1. 888. *Fl. Br.* 241. *Engl. Bot. v.* 13. *t.* 882. *Curt. Lond. fasc.* 4. *t.* 58. *Hook. Scot.* 76. *Fl. Dan. t.* 319.

Rapunculus n. 678. *Hall. Hist. v.* 1. 303.

R. Scabiosæ capitulo cæruleo. *Bauh. Pin.* 92. *Raii Syn.* 278.

Rapuntium alterum leptophyllum capitatum. *Column. Eepr.* 226. *t.* 227.

Scabiosa minima hirsuta. *Ger. Em.* 723. *f.*

S. media. *Lob. Ic.* 536. *f.*

In dry sandy fields, and heathy ground, plentiful.

Annual. *June, July.*

Root tapering, rather woody, said to be occasionally perennial in the south of Europe; see Willdenow. *Herb* rough with short rigid hairs. *Stems* several, a span high, simple or branched, roundish, leafy. *Leaves* sessile, oblong, bluntish, wavy, entire or unequally serrated, gradually smaller from the root upwards, alternate. *Fl.* small, in round, solitary, terminal tufts, on short partial stalks, each *tuft* surrounded by several ovate *bracteas*, analogous to those of *Phyteuma*, which Linnæus esteemed a general calyx, misled by the idea of a compound flower, suggested probably by the combined *anthers*. *Corolla* light blue. *Stigma* purplish.

This plant is closely related to *Phyteuma*; but the partitions of the *capsule*, and its terminal entire orifice, added to the combined *anthers*, afford perhaps good marks of generic distinction.

109. LOBELIA. Lobelia.

Linn. Gen. Pl. 456. *Juss.* 165. *Fl. Br.* 242. *Lam. t.* 724.

Rapuntium. *Tourn. t.* 51. *Gærtn. t.* 30.

Nat. Ord. see *n.* 106.

Cal. superior, of 1 leaf, in 5 deep, small, nearly regular, permanent segments, surrounding the summit of the germen. *Cor.* of 1 petal, irregular; tube cylindrical, longer than the calyx, split along the upper side; limb in 5 deep, lanceolate segments; the 2 uppermost small, most reflexed, and most deeply separated, constituting the upper lip; the rest more spreading, generally larger, forming the under lip. *Filam.* awl-shaped, the length of the tube, combined at the top. *Anthers* united into a cylinder, more or less curved at the extremity, separating after a while at the base into 5 parts. *Germen* pointed, inferior. *Style* cylindrical, as long as the stamens. *Stigma* capitate, hairy. *Caps.* elliptical, angular, of 2 or 3 cells and as many valves, bursting at the top, within the circumference of the calyx; partitions contrary to the valves. *Seeds* numerous, minute, covering the conical receptacle.

Herbaceous or shrubby, milky, acrid. *Leaves* simple, undivided. *Fl.* racemose or solitary, various in colour, inodorous. *Pubescence* various.

1. *L. Dortmanna.* Water Lobelia.

Leaves linear, entire, of two longitudinal cells. Stem nearly naked.

L. Dortmanna. *Linn. Sp. Pl.* 1318. *Willd. v.* 1. 938. *Fl. Br.* 242. *Engl. Bot. v.* 2. *t.* 140. *Lightf.* 505. *t.* 21. *Hook. Scot.* 76. *Fl. Dan. t.* 39.

Dortmanna lacustris, floribus sparsis pendulis. *Rudb. Act. Suec. ann.* 1720. 97. *t.* 2.

Gladiolus palustris. *Bauh. Pin.* 41. *Rudb. Elys. v.* 2. 17. *f.* 7.

G. lacustris Dortmanni. *Clus. Cur. Post.* 40. *f.* *Raii Syn.* *287.

G. lacustris. *Ger. Em.* 105. *f.*

In the lakes of Wales, Scotland, Ireland, and the north of England. Abundant in those of North Wales and Scotland. *Richardson, Lightfoot.* In most of the lakes, with clear gravelly bottoms, in Westmoreland and Cumberland.

Perennial. *July.*

Root of many long, simple, whitish fibres. *Herb* smooth, immersed in water like the *Hottonia*. *Leaves* numerous, 2 inches long, mostly radical, obtuse, recurved, tumid, divided internally, by a longitudinal partition, into 2 cells. *Stem* solitary, erect, round, hollow, slightly leafy, terminating in a simple cluster of light blue, drooping, alternate *flowers*, raised several inches above the water. *Bracteas* small, solitary, at the base of each partial stalk. *Cor.* bearded at the mouth, as are the *anthers* at their tips. *Cap-*

sule elliptic-oblong, with 5 angles, crowned, a little below the summit, with the upright *calyx*.

2. *L. urens*. Acrid Lobelia.

Stem nearly upright. Lower leaves obovate, slightly toothed; upper lanceolate, serrated. Clusters terminal.

L. urens. *Linn. Sp. Pl.* 1321. *Willd. v. 1.* 946. *Fl. Br.* 243. *Engl. Bot. v. 14. t. 953.* *Curt. Lond. fasc. 6. t. 63.* *Dicks. H. Sicc. fasc. 16. 9.* *Bull. Fr. t. 9.*

Rapunculus galeatus blæsenensis, seu soloniensis, flore violaceo minore. *Moris. v. 2. 467. sect. 5. t. 5. f. 56.*

Rapuntium urens soloniense. *Bocc. Sic. 21. t. 11. f. 3.*

Draba flore cæruleo galeato. *Bauh. Pin. 110. Prodr. 53.*

On bushy heaths in Devonshire.

On Shute Common, between Axminster and Honiton. *Mr. Newberry.* On the slope of Kilmington hill, two miles from Axminster; Lord Webb Seymour. *Curtis.* Near Ottery St. Mary. *Miss Burgess.*

Perennial. *August, September.*

Root fibrous. *Stem* a foot or more in height, branched, leafy, angular, roughish, not hairy. *Leaves* alternate, oblong, with shallow, irregular, tooth-like serratures, nearly smooth; the lowermost stalked. *Clusters* erect, long, simple, lax, with short, roughish partial stalks, and linear-lanceolate *bracteas*. *Calyx* and *germen* rough. *Corolla* light purplish blue, downy, with a pale ribbed tube not an inch in length. *Anthers* incurved, downy externally, blackish. *Caps.* of 2 cells. The whole herb is milky, fetid, and very acrid.

110. IMPATIENS. Balsam.

Linn. Gen. 458. *Fl. Br.* 243. *Riv. Tetrap. Irr. t. 121.* *Lam. t. 725.*

Balsamina. *Juss.* 270. *Tourn. t. 235.* *Riv. Tetrap. Irr. t. 120.* *Gærtn. t. 113.*

Nat. Ord. Corydales. *Linn.* 24. *Akin to Gerania.* *Juss.* 73.

Perhaps allied in some points to *Corchorus*.

Cal. inferior, small, of 2 roundish, pointed, concave, lateral, rather unequal, coloured, deciduous leaves. *Cor.* of 5 unequal petals, ringent; upper one roundish, flat, erect, slightly 3-cleft, pointed in the middle, constituting the upper lip; lower pair very large, reflexed, dilated outwards, obtuse, irregular, constituting the lower lip; intermediate pair opposite, at the base of the upper lip, sometimes united to the lower petals, sometimes wanting. *Nectary* of 1 leaf, tubular, oblique at the mouth, whose upper edge is attached to the receptacle, tapering at the base

into a curved spur. *Filam.* from the receptacle, very short, incurved, narrower towards the base. *Anth.* combined at the base. *Germ.* superior, of 5 cells, ovate, pointed. *Style* none. *Stigma* simple, shorter than the anthers. *Caps.* ovate-oblong, of 5 cells, and 5 linear valves, separating elastically, and curved spirally inwards. *Seeds* several, oval, attached to a membranous-bordered central column.

Annual herbs, with a branched, very succulent, leafy *stem*. *Leaves* undivided, serrated. *Fl.* axillary, stalked, pendulous, red or yellow, inodorous, very ornamental.

1. I. *Noli-me-tangere*. Yellow Balsam. Touch me not.

Stalks solitary, many-flowered. Leaves ovate. Joints of the stem swelling.

I. *Noli-me-tangere*. *Limn. Sp. Pl.* 1329. *Willd. v. 1.* 1176. *Fl. Br.* 243. *Engl. Bot. v. 14. t.* 937. *Hook. Scot.* 76. *Fl. Dan. t.* 582. Impatiens. *Riv. Tetrap. Irr. t.* 121.

I. n. 557. *Hall. Hist. v. 1.* 239.

I. herba. *Dod. Pempt.* 659. f.

Balsamine lutea, sive Noli me tangere. *Raii Syn.* 316.

Balsamina lutea polonica. *Barrel. Ic. t.* 1197.

Noli me tangere, Balsamita altera. *Column. Eephr.* 149. t. 150.

Persicaria siliquosa. *Ger. Em.* 446. f.

In watery shady places in the North, but rarely.

In several parts of Westmoreland; also in Yorkshire, Lancashire, and Wales. *Ray*. On the banks of Wynandermere, in little brooks, and watery places, near Rydall hall, plentifully.

Annual. *July, August.*

Root fleshy, with numerous, entangled, horizontal fibres. *Herb* smooth. *Stem* erect, pellucid, 12 or 18 inches high, very juicy. *Leaves* alternate, stalked, ovate or elliptical, sharply serrated; the lowermost serratures crowded and elongated. *Stipulas* none. *Fl.* large and handsome, yellow, spotted internally with red, 4 or 5 together, on branching axillary stalks. *Caps.* succulent; when nearly ripe elastic, bursting asunder with the slightest touch, and scattering its *seeds*. In a dry garden the *corolla* is often abortive. The *leaves* wither very soon after gathering; but I cannot find that they hang down in a flaccid state during the night, as *Villars* reports, whatever may be the case after a day of southern sunshine, as he saw them in Dauphiny. *Dodonæus* speaks of this as a plant of pernicious qualities: and *Ray* says it is dangerously diuretic.

111. VIOLA. Violet.

Linn. Gen. 457. *Juss.* 294. *Fl. Br.* 244. *Sm. in Rees's Cycl.* v. 37.
Tourn. t. 236. *Lam. t.* 725. *Gartn. t.* 112.

Nat. Ord. Campanaceæ. *Linn.* 24. *Allied to Cisti.* *Juss.* 80.
Violaceæ. *Venten.* *Malmis.* 27. *Decand.* 17.

[*Ventenat* declares, after *Jussieu*, that *Viola* is the type of a natural order, *presumed to exist*, but of which no other genus is known. It were better to say it cannot be referred to any known order; for though it possesses here and there a character of several different orders, it is hardly allied, on the whole, to any one.]

Cal. inferior, permanent, of 5 ovate-oblong, erect, equal, acute leaves, inserted above their obtuse base; 2 of them subtending the uppermost petal; one each of the lateral petals; and one the 2 lowermost. *Cor.* irregular, of 5 unequal petals; the uppermost solitary, broadest, most obtuse, slightly cloven, directed downward (the position of the flower being reversed), terminating at the base in a horn-shaped blunt nectary, projecting betwixt the calyx-leaves; 2 lateral petals opposite, equal, obtuse, straight; 2 lowermost (turned upward) equal, larger. *Filam.* very small, 2 of which, adjoining the odd petal, have 2 combined spurs, which enter the nectary. *Anth.* broad, converging, scarcely connected, obtuse, each terminating in a membranous point. *Germ.* superior, roundish. *Style* thread-shaped, projecting beyond the anthers. *Stigma* oblique, pointed or concave. *Caps.* ovate, triangular, obtuse, of 1 cell and 3 rigid, finally reflexed, valves. *Seeds* several in each cell, ovate, polished, attached to the linear central *receptacle* of each valve.

The *stigma* of *V. odorata*, and its allies, is a simple hooked point; in *V. tricolor*, and others of the Pansy tribe, it is a hollow knob, perforated at the summit, and gaping occasionally. The *flower* is reversed, or inverted, in all the Europæan species; in most of the Indian ones erect.

The species are numerous, almost entirely herbaceous, and of humble stature. *Stem* trailing, or erect, or wanting. *Leaves* stalked, simple, mostly alternate; in some instances deeply divided; in all crenate, or serrated. *Stipulas* in pairs, various and remarkable. *Fl.* on simple stalks, variously coloured; very often streaked in a radiant manner, like *Veronica*. One species especially is highly fragrant, and gives its name to a peculiar deep purplish-blue

colour, as well as to a delicious scent, resembling its own, in the root of *Iris florentina*, and a few cryptogamic vegetables.

1. *V. hirta*. Hairy Violet.

Stem none. Leaves heart-shaped, rough with hairs, as well as their footstalks. Calyx-leaves obtuse. Lateral petals with a hairy central line.

V. hirta. *Linn. Sp. Pl.* 1324. *Willd. v. 1.* 1162. *Fl. Br.* 244. *Engl. Bot. v. 13. t.* 894. *Curt. Lond. fasc. 1. t.* 64. *Hook. Scot.* 76. *Fl. Dan. t.* 618.

V. n. 559. *Hall. Hist. v. 1.* 240.

V. martia major hirsuta inodora. *Moris. v. 2.* 475. *sect. 5. t.* 35. *f. 4.* *Raii Syn.* 365.

V. fol. Trachelii, serotina hirsuta, radice lignosa. *Merr. Pin.* 125. *Viola. Brunf. Herb. v. 1.* 137. *f. 3.*

V. inodora. *Riv. Pentap. Irr. t.* 119. *f. 2.*

In groves and thickets, on a chalky or limestone soil.

In Oxfordshire, Cambridgeshire, Essex and Kent. *Raii Syn.* At Marham, Norfolk. *Mr. Crowe*. Near Bury, Suffolk. *Mr. Woodward*. On St. Vincent's rocks, Bristol. *Mr. Dyer*.

Perennial. *April*.

Root rather woody, cylindrical. *Stem* none, except a few short, simple, horizontal runners, forming leafy tufts, but not taking root. *Leaves* oblong-heart-shaped, veiny, crenate, of a light hoary green, clothed on both sides with short hairs. *Footstalks* longer than the leaves, erect, rough with copious, prominent, horizontal hairs. *Stipulas* lanceolate, chiefly radical, more or less toothed, pale green. *Flower-stalks* taller than the leaves, erect, smooth, with a pair of lanceolate, smooth *bracteas*, below their middle. *Fl.* solitary, drooping, obliquely reversed, of a light greyish blue, streaked with black, scentless. Lateral *petals* marked, just above the *claw*, with a hairy line. *Cal.* smooth. *Stamens* flat. *Anth.* each tipped with a flat, orange-coloured membrane, converging, but not united. *Capsule* rounded, hairy, with several round *seeds*.

2. *V. odorata*. Sweet Violet.

Stem none. Scyons creeping. Leaves heart-shaped, nearly smooth, as well as their footstalks. Calyx-leaves obtuse. Lateral petals with a hairy central line.

V. odorata. *Linn. Sp. Pl.* 1324. *Willd. v. 1.* 1163. *Fl. Br.* 245. *Engl. Bot. v. 9. t.* 619. *Curt. Lond. fasc. 1. t.* 63. *Hook. Scot.* 77. *Fl. Dan. t.* 309. *Bull. Fr. t.* 169. *Renealm. Spec.* 141. *t.* 140. *simplex.* *Ehrh. Pl. Off.* 158.

V. n. 558. *Hall. Hist. v. 1.* 240.

- Viola*. *Brunf. Herb.* v. 1. 137. f. 1, 2. *Riv. Pentap. Irr. t.* 119. f. 1.
V. martia purpurea. *Bauh. Hist.* v. 3. 542. f. *Raii Syn.* 364.
V. nigra, sive purpurea. *Ger. Em.* 850. f.
V. purpurea. *Matth. Valgr.* v. 2. 522. f. *Camer. Epit.* 910. f.
 β . *V. martia* alba. *Raii Syn.* 364.
V. flore albo. *Ger. Em.* 850. f.

In woods, hedges and pastures, frequent.

Perennial. *March, April.*

Root rather woody. *Stem* none, but the long, trailing, leafy scyons spread very far, throwing out abundance of fibrous radicles. *Leaves* of a darker green, and more rounded heart-like figure than the preceding, veiny and somewhat wrinkled, but smooth above, though slightly downy underneath. *Footstalks* nearly smooth. *Stipulas* lanceolate, with taper-pointed teeth. *Flower-stalks* taller than the leaves, with a pair of narrow *bracteas* above their middle, smooth. *Flower* drooping, deep purplish blue; pale and streaked in the mouth; with orange-tipped, unconnected *anthers*; its scent well known, and universally acceptable, though sometimes causing headache. The *flowers* in β are white, with a blueish *spur*. A double variety, highly fragrant, is cultivated in gardens.

Mr. Curtis has observed the later flowers, of this and *V. hirta*, to be often destitute of *petals*, which is the case with several foreign species.

3. *V. palustris*. Marsh Violet.

Stem none. *Leaves* kidney-shaped, smooth. *Root* creeping. Lateral petals with a hairy central line.

V. palustris. *Linn. Sp. Pl.* 1324. *Willd.* v. 1. 1163. *Fl. Br.* 246. *Engl. Bot.* v. 7. t. 444. *Curt. Lond. fasc.* 3. t. 58. *Abbot* 190. t. 3. *Hook. Scot.* 77.

V. n. 560. *Hall. Hist.* v. 1. 241; excluding the reference to *Boccone* and *Allioni*.

V. palustris rotundifolia glabra. *Moris.* v. 2. 475. *sect.* 5. t. 35. f. 5. *Raii Syn.* 364.

β . *V. rubra striata eboracensis*. *Raii Syn.* 365.

V. palustris. *Fl. Dan.* t. 83.

In mossy bogs, or on sandy turfy heaths, chiefly, though not exclusively, in the northern and mountainous counties.

Perennial. *April.*

Smaller than the last, with creeping *roots*, but no *scyons*, and in every part smooth. *Leaves* delicate, roundish-kidney-shaped, generally pointless; their marginal notches extremely shallow; their under sides often purplish. *Stipulas* radical, ovate, membranous, nearly entire. *Flower-stalks* square, with a pair of lanceolate *bracteas* about the middle. *Fl.* drooping, inodorous,

very pale blue, with purple streaks; or white, in β , with redder lines; the *spur* very short, and rounded. *Anth.* orange-coloured, bordered, distinct. *Stigma* hollow, tumid at the upper side.

4. *V. canina*. Dog's Violet.

Stem at length ascending, channelled. Leaves oblong-heart-shaped. Calyx acute. Stipulas serrated. Bractees awl-shaped, entire.

V. canina. *Linn. Sp. Pl.* 1324. *Willd. v. 1.* 1164. *Fl. Br.* 246. *Engl. Bot. v. 9. t.* 620. *Curt. Lond. fasc. 2. t.* 61. *Hook. Scot.* 77. *Fl. Dan. t.* 1453.

V. n. 563. *Hall. Hist. v. 1.* 242.

V. n. 562. *Hall. Nomencl.* 52.

V. martia inodora sylvestris. *Raii Syn.* 364.

V. inodora major. *Riv. Pentap. Irr. t.* 119. *f.* 4.

V. canina sylvestris. *Ger. Em.* 851. *f.*

β . *V. canina*, flore albo. *Merr. Pin.* 125. *Dill. in Raii Syn.* 364.

γ . *V. alpina*. *Huds. ed.* 1. 379.

V. martia alpina, folio tenello circinato. *Raii Syn.* 366.

In groves, thickets, hedges, and heathy ground, the most common species.

Perennial. *April—August*.

Root rather woody. *Stem* at first none, or very short, but soon rising to several inches in height, rather obliquely, being leafy, angular, and smooth. *Leaves* heart-shaped, more or less elongated into a point, nearly smooth, crenate. *Footstalks* slightly dilated upwards. *Stipulas* rather deeply toothed, or fringed. *Flower-stalks* square, erect; the earliest ones radical; the rest axillary, solitary. *Bractees* towards the upper part, narrow, entire. *Fl.* nodding, inodorous, blue, with purple lines in the mouth, and a greenish white, abrupt spur; they are far less handsome than *V. odorata*, more resembling *V. hirta*. *Calyx-leaves* linear-lanceolate. *Anth.* orange-tipped, scarcely cohering. *Caps.* oblong; its valves compressed.

The white variety is not frequent. The alpine one, γ , is a very uncertain plant, of which I know nothing but from the authors quoted.

5. *V. lactea*. Cream-coloured Violet.

Stem ascending, round. Leaves ovate-lanceolate. Stipulas jagged. Bractees lanceolate, somewhat serrated.

V. lactea. *Fl. Br.* 247. *R. Cycl. n.* 27. *Engl. Bot. v. 7. t.* 445. *Hook. Scot.* 77. *Sym. Syn.* 61. *Ait. H. Kew. ed. 2. v. 2.* 46. *Forst. Tonbr.* 29.

V. canina var. 3. *With.* 262.

V. Ruppilii. *Allion. Pedem. v. 2. 99. t. 26. f. 6.* *Bertolon. Am. Ital.* 132.

V. n. 562. *Hall. Hist.* v. 1. 241.

V. flore albo. *Riv. Pentap. Irr.* t. 120. f. 1.

V. palustris angustis persicæ foliis mucronatis et serratis, nondum descripta. *Rupp. Gen. ed. Hall.* 289.

V. caule erecto, foliis ovato-lanceolatis serratis. *Boehm. Lips.* 190.

On mountainous boggy heaths.

On the sides of the bogs on Waterdown forest, near Tunbridge.

Mr. T. F. Forster. At Pendarvis, Cornwall; Mr. Stackhouse.

With. In hilly pastures near Peebles, North Britain; Mr.

Maughan. *Hooker.*

Perennial. *May.*

Much smaller than the last, and quite smooth. *Stems* creeping at the base, then ascending, 2 or 3 inches high, round, or very slightly angular in some parts, leafy. *Leaves* ovate-lanceolate, bluntish, finely crenate; the lowermost sometimes very small, ovate, or even heart-shaped. *Footstalks* dilated, or bordered, towards the upper part, generally longer than the leaves. *Stipulas* deeply toothed, cut, or often pinnatifid. *Flower-stalks* much like *canina*. *Flower* smaller. *Calyx-leaves* long, linear. *Petals* milk-white, or of a very pale blue, with purplish streaks. *Anth.* tipped with a yellow membrane, distinct. *Pistil* as in *canina*. The *bracteas* are usually broader than in that species, and more or less serrated, but this character seems variable. So many botanists have distinguished this plant, and it is so little changed by culture, except perhaps, as Boehmer says, in size, that I cannot but retain it as a species, notwithstanding many occasional scruples.

6. *V. flavicornis.* Dwarf Yellow-spurred Violet.

Stem ascending, woody, somewhat angular, much branched.

Leaves heart-shaped, coriaceous, smooth and even. *Stipulas* and *bracteas* fringed. *Calyx-leaves* lanceolate.

V. *canina* γ. *Fl. Br.* 247.

V. *caninæ* varietas minor. *Dill. in Raii Syn.* 364. t. 24. f. 1.

In pastures, and on banks, in a gravelly soil.

About Mitcham, Surrey. *Dubois.* About Norwich. *Mr. Crowe.*

Perennial. *May, June.*

Root of many long fibres. *Stem* an inch or 2 high, partly decumbent, but not creeping, much branched, curved and twisted, perfectly shrubby, and lasting many years. *Leaves* alternate, firm, rigid, very even and smooth, heart-shaped, obtuse, minutely crenate, scarcely half an inch long, on linear *footstalks* about the same length. *Stipulas* deeply serrated, or fringed with glandular teeth. *Flower-stalks* $1\frac{1}{2}$ or 2 inches long, erect, bearing towards the top a pair of minute, linear, finely fringed *bracteas*. *Fl.* half the size of *V. canina*, of a rather deeper blue, with a

short, blunt, yellowish spur. *Calyx-leaves* lanceolate, pointed. *Capsule* shorter and rounder than in *canina*.

This little plant, long ago communicated by the late Mr. Crowe, is not uncommon, though usually neglected as a variety of the *V. canina*. It has remained unchanged, and of the same humble stature, perfectly shrubby, for above 12 years, in a common garden; and seems entitled to rank as a species, under the synonymy of Dillenius, though his figure by no means represents the true nature of the *stem*, nor does it exhibit any of the parts most material for specific discrimination. I have already adverted to this Violet in Rees's *Cyclopædia* under the *canina*, n. 26.

7. *V. tricolor*. Pansy Violet. Heart's-ease.

Stem angular, diffuse, divided. Leaves oblong, deeply crenate. Stipulas lyrate, pinnatifid. Bracteas obsolete.

V. tricolor. *Limn. Sp. Pl.* 1326. *Willd. v. 1.* 1168. *Fl. Br.* 248. *Engl. Bot. v. 18. t.* 1287. *Curt. Lond. fasc. 1. t.* 65. *Woodv. suppl. t.* 252. *Hook. Scot. 77. Fl. Dan. t.* 623. *Raii Syn.* 365. *Ger. Em.* 854. *f. Riv. Pentap. Irr. t.* 122. *Reencalm. Spec.* 144. *t.* 140. *Ehrh. Pl. Off.* 278.

V. n. 568. *Hall. Hist. v. 1.* 244.

Herba Trinitatis. *Fuchs. Hist.* 802. *t.* 803.

Jacea, sive Flos Trinitatis. *Matth. Valgr. v. 2.* 524. *f. Camer. Epit.* 912. *f.*

Garden Pansie. *Pet. H. Brit. t.* 37. *f.* 8.

β . *Viola arvensis*. *Sibth.* 84. *Sym. Syn.* 61.

V. n. 569. *Hall. Hist. v. 1.* 244.

V. bicolor arvensis. *Raii Syn.* 366.

V. bicolor. *Riv. Pentap. Irr. t.* 122. *Ehrh. Pl. Off.* 359.

V. tricolor petraea. *Ger. Em.* 854. *f.*

Jacea altera. *Matth. Valgr. v. 2.* 525. *f. Camer. Epit.* 913. *f.*

Corn Pansie. *Pet. H. Brit. t.* 37. *f.* 9.

In cultivated fields.

Annual. *May—September*.

Root fibrous, small. *Stems* 1 or more, weak, decumbent, a span long, scarcely branched, except at the very bottom, leafy, angular, often zigzag, downy chiefly on one side. *Leaves* alternate, stalked, ovate-oblong, deeply crenate, ribbed, a little downy; the lower ones often heart-shaped, especially in the variety β . *Stipulas* all deeply pinnatifid, with narrow tongue-shaped, or linear, segments; the terminal one very large, ovate, or elliptic-oblong, crenate. *Flower-stalks* axillary, solitary, longer than the leaves, firm, with a pair of minute close *bracteas* near the summit. *Calyx-leaves* lanceolate, acute, smooth or downy, mostly fringed, especially at the base, where they are much and unequally dilated. *Petals* very variable in size and colour, gene-

rally longer than the calyx; the odd one broadest and yellow; lateral ones pale blueish; 2 upper ones (the flower being always reversed,) purple; all more or less marked with black radiating streaks. In β they are all shorter than the calyx, the odd one only being yellow, the rest whitish; but there is no permanent specific difference.

8. *V. lutea*. Yellow Mountain Violet, or Yellow Pansy.

Stem triangular, unbranched. Leaves ovate-oblong, crenate, fringed. Stipulas lobed, palmate. Bracteas minute, scarcely toothed. Spur the length of the calyx.

V. lutea. *Huds. ed. 1.* 331. *Fl. Br.* 248. *Engl. Bot. v. 11. t. 721.* *With.* 263. *Hook. Scot.* 77.

V. grandiflora. *Huds. ed. 2.* 380. *Lightf.* 508.

V. n. 566. β . *Hall. Hist. v. 1.* 243.

V. montana lutea grandiflora nostras. *Raii Syn.* 365.

V. flore luteo majore. *Riv. Pentap. Irr. t.* 121.

Great Yellow Pansy. *Pet. H. Brit. t. 37. f.* 10.

In moist mountainous pastures.

Very common in the mountainous parts of Wales, and the north of England, as well as in Scotland.

Perennial. *May—September.*

Root fibrous, slender. *Stem* 3 or 4 inches high, simple, leafy, triangular, a little downy at one side; tapering, weak, and decumbent at the base, where it is sometimes, though very rarely, divided. *Leaves* alternate, stalked, ovate, strongly crenate, a little hairy, especially at the edges; the lowermost small, rounded, or heart-shaped. *Stipulas* large, deeply palmate, or fingered; their middle segments largest. *Flower-stalks* one or two on each plant, axillary, solitary, rising much above the top of the stem. *Bracteas* towards the upper part of each stalk, alternate, small, oblong, obtuse, occasionally with two small teeth at their base. *Fl.* larger than the last, with which the *calyx* nearly agrees, but the *corolla* is generally yellow, with blackish, branched, radiating lines; the lateral *petals* palest; the 2 upper ones sometimes purple. When all are purple, as sometimes happens, Professor Hooker says this is *V. amæna* of authors. The *anthers* are distinct, with a small orange-coloured appendage. *Style* with a double curvature. *Stigma* club-shaped, hollow, hairy at the sides, marked underneath with a dark purple line. All the *petals* are densely bearded round the mouth of the flower.

Great confusion has existed between this very distinct species and the Linnæan *V. grandiflora*, whose *flowers* are twice as large, and the *spur* twice as long as the posterior lobes of the *calyx*; whereas in *V. lutea* those parts are of the same length; see Rees's *Cycl.* n. 67.

112. VERBASCUM. Mullein.

Linn. Gen. 97. *Juss.* 124. *Fl. Br.* 249. *Tourn. t.* 61. *Lam. t.* 117. *Gartn. t.* 55.

Blattaria. Tourn. t. 61, K.

Nat. Ord. *Luridæ*. *Linn.* 28. *Solanææ*. *Juss.* 41. Four following genera the same. See *Grammar* 101.

[The *Solanææ* of Jussieu are better defined than heretofore, as well as better contrasted with that author's *Scrophulariæ*; by Mr. Brown, *Prodr.* 443, as follows.

Calyx in 5, rarely only 4, divisions, permanent. *Corolla* monopetalous, inferior, deciduous; the limb in 5, rarely 4, segments, regular, or a little unequal; in the most genuine of the tribe, plaited in the bud; in the more doubtful ones, imbricated. *Stam.* attached to the corolla, as many as the segments of its limb, and alternate therewith; one of them sometimes abortive. *Germs* single, of 2 or 4 cells, with many seeds. *Style* 1. *Stigma* obtuse, rarely lobed. *Fruit* with 2 or 4 cells; either a *capsule*, with a parallel and double *partition*; or a *berry* whose *receptacles* are united to the *partition*. *Seeds* numerous, sessile; with a fleshy *albumen*; *embryo* internal, more or less curved, often out of the centre; *radicle* directed towards the *scar*.

Leaves undivided, or lobed. Partial flower-stalks without *bractæas*. For the rest see *Grammar*.

These plants are distinguished from the *Scrophulariæ* of Jussieu and Brown, (many of which are comprehended by Linnæus under his *Luridæ*,) by having a curved or spiral embryo, and a *corolla* plaited in the bud, the flowers being, almost without exception, regular, with as many *stamens* as there are segments. "Hence," as Mr. Brown observes, "the genera whose *corolla* is not plaited, and whose *embryo* is straight, should either be excluded, or should be placed, with such as have an imbricated *corolla*, a slightly curved *embryo*, and 2 long, with 2 shorter, *stamens*, in a separate section, the foundation of a new order."]

VERBASCUM.

Cal. inferior, of 1 leaf, small, in 5 deep, erect, acute, nearly equal, segments, permanent. *Cor.* of 1 petal, wheel-shaped, unequal; tube very short; limb spreading, in 5 deep, rounded segments. *Filam.* 5, awl-shaped, unequal, distant, declining, woolly, shorter than the corolla, in-

served into its base. *Anth.* compressed, erect, more or less kidney-shaped, bursting along the upper edge, imperfectly 2-celled. *Germen* superior, roundish. *Style* thread-shaped, slightly swelling upwards, declining, rather longer than the stamens. *Stigma* obtuse. *Caps.* ovate, slightly compressed, or (in *Blattaria* of Tournefort) nearly globular, of 2 cells and 2 valves, opening at the upper part, the valves sometimes splitting half way down; partition double, from the inflexed parallel margins of the valves, but often incomplete. *Recept.* ovate or globular, central, connected at each side, in an early state, with the valves. *Seeds* numerous, minute, angular, dotted, covering the receptacle.

Herbaceous, usually biennial, more or less woolly, or mealy, mucilaginous, narcotic. *Stem* mostly solitary. *Leaves* simple; either undivided, or pinnatifid; all radical the first year; subsequently all cauline, alternate, sometimes decurrent, simply or doubly crenate, or toothed, rarely entire. *Fl.* very numerous, paniced or spiked, aggregate, yellow; rarely white, brownish, or purple. *Bracteas* ovate, or lanceolate, pointed, of 2 orders, external and internal. Whole genus perhaps European. Species extremely variable, subject to cross impregnation.

The *Blattaria* of Tournefort is smooth, except fine glandular hairs on the stalks.

1. *V. Thapsus*. Great Mullein. High Taper.

Leaves decurrent, crenate, woolly on both sides. Stem simple. Cluster dense. Flowers almost sessile.

V. Thapsus. *Linn. Sp. Pl.* 252. *Willd. v. 1.* 1001. *Fl. Br.* 249. *Engl. Bot. v. 8. t. 549.* *Woodv. Med. Bot. t. 125.* *Hook. Scot.* 78. *Schrad. Verbasc.* 17. *Fl. Dan. t. 631.*

V. n. 581. *Hall. Hist. v. 1.* 256.

V. mas latifolium luteum. *Raii Syn.* 287. *Moris. v. 2.* 485. *n. 1. sect. 5. t. 9. f. 1.*

V. aut Phlomos vulgaris mas. *Lob. Ic.* 561. *f.*

V. candidum mas. *Fuchs. Hist.* 845. *t. 846.*

V. primum. *Matth. Valgr. v. 2.* 487. *f.* *Dalech. Hist.* 1298. *f.* *Cammer. Epit.* 878. *f.*

V. latius. *Dod. Pempt.* 143. *f.*

Thapsus barbatus. *Ger. Em.* 773. *f.*

β . Var. 2. *Thapso-nigrum.* *With.* 248.

On banks, and waste ground, on a chalky or gravelly soil.

Biennial. *July, August.*

Root spindle-shaped. *Stem* erect, straight, 3 or 4 feet high, very

seldom branched, (though so represented in the figure of *Camerarius*, commended by Haller), leafy, woolly, slightly angular, winged. *Leaves* alternate, decurrent, ovate-oblong, minutely crenate, very densely covered on both sides with white, branched, entangled, woolly hairs, the lowermost largest, and stalked. *Cluster* terminal, cylindrical, dense, many-flowered. *Fl.* nearly, but not quite, sessile, large, of a golden yellow, with red *stamens*, and a green *stigma*. *Outer bracteas* ovate-lanceolate, pointed, alternate, often smooth on the upper side; inner aggregate, smaller, very woolly.

β is described with a branched *stem*, the upper *leaves* only decurrent, and the hairs of the *stamens* purple. The late Mr. E. Robson traced its origin to the pollen of *V. nigrum* impregnating *V. Thapsus*. Mr. D. Turner found a variety answering to this description, at Barton, near Swaffham, Norfolk.

2. *V. Lychnitis*. White Mullein.

Leaves wedge-shaped-oblong; stripped of down on their upper side. Stem angular, paniced.

V. Lychnitis. *Linn. Sp. Pl.* 253. *Willd. v. 1.* 1003 β. *Fl. Br.* 250. *Engl. Bot. v. 1. t.* 58. *Hook. Scot.* 78. *Fl. Dan. t.* 586. *Matth. Valgr. v. 2.* 491. *f. Ger. Em.* 775. *f.*

V. n. 583 β. *Hall. Hist. v. 1.* 257.

V. flore albo parvo. *Bauh. Hist. v. 3.* 857. *f. Raii Syn.* 287.

V. candidum fœmina. *Fuchs. Hist.* 847. *f.*

β. *V. Thapsi.* *Linn. Sp. Pl.* 1669.

V. Thapsoides. *Willd. v. 1.* 1001. *Huds.* 90. *With.* 249. *Sym. Syn.* 56. *Schrad. Verbasc.* 25. *t. 5. f. 2.* “*Hoffmanns. et Link Lusit. v. 1.* 214.”

V. angustifolium ramosum, flore aureo, folio crassiore. *Bauh. Hist. v. 3.* 860; according to Linnæus.

In pastures, by road sides, and other waste places, on a chalky soil.

Plentiful in Kent. At Kinver, Staffordshire; according to Dr. Stokes.

In several parts of the south of Scotland. *Hooker.*

β. In Kent. *Huds.*

Biennial. *July, August.*

Stem erect, a yard high, straight, angular, woolly, leafy; paniced at the top. *Leaves* elliptic-oblong, contracted at each end, finely crenate, reticulated with veins; white with a soft downy wooliness beneath; dark green, and almost entirely naked, above, the lowermost stalked; upper ones smaller, sessile, not decurrent, generally numerous. Branches of the *panicle* racemose, many-flowered. *Fl.* stalked, collected into small woolly tufts. *Outer bracteas* lanceolate; inner very small. *Cal.* woolly. *Cor.*

much smaller than the foregoing, cream-coloured, yellow at the mouth; externally mealy. *Filaments* yellowish, hairy. *Anth.* orange-coloured, uniform.

The mule variety β I have never seen wild; nor is there any authentic specimen in the Linnæan herbarium. Mr. Griffith of Denbighshire has favoured me with specimens artificially procured, from *V. Lychnitis* by the pollen of *V. Thapsus*, which answer to the description of Linnæus, except that he mentions "a purplish beard upon the *filaments*, though less so than in *V. Lychnitis*." To explain this, we must recollect that he confounded with the *Lychnitis* our *V. pulverulentum*, whose *stamens* are scarlet, for which colour he often uses the word *purpureus*. Professor Link has sent from Portugal specimens, which agree with Mr. Griffith's, as his *V. Thapsoides*. But the *corolla* of both is yellow; beard of the *filaments* white. Their upper *leaves* are somewhat decurrent. The species of *Verbascum* are extremely obscure, and so, of course, are their intermixed varieties.

3. *V. pulverulentum*. Yellow Hoary Mullein. Norfolk Mullein.

Leaves ovate-oblong, obscurely serrated, clothed on both sides with mealy deciduous wool. Stem round, paniced.

V. pulverulentum. *Villars Dauph. v. 2.* 190. *Fl. Br.* 251. *Engl. Bot. v. 7. t.* 487. *Hook. Scot.* 78.

V. Lychnitis α . *Willd. Sp. Pl. v. 1.* 1003. *With.* 249.

V. Lychnitis β . *Huds.* 90.

V. n. 583, α . *Hall. Hist. v. 1.* 257.

V. pulverulentum, flore luteo parvo. *Bauh. Hist. v. 3.* 856. *f.* 857.

β . *V. nigro-pulverulentum*. *Fl. Br.* 251. *Rees's Cycl.*

By road sides, and in the borders of fields, on a gravelly or chalky soil, chiefly in Norfolk and Suffolk.

About Norwich and Bury; also at Wollerton, near Nottingham.

Ray. Abundant for 2 or 3 miles round Norwich, in fallow fields, and on banks, hillocks, and waste ground.

β . At Hellesdon near Norwich, and in various parts of Norfolk occasionally.

Biennial. *July*.

The whole *herb* is clothed with a white, mealy, somewhat unctuous, woolliness, easily rubbed off. *Stem* from 3 to 5 feet high, erect, round, leafy, copiously paniced, tapering upward, forming a stately pyramid of innumerable golden *flowers*, with scarlet *stamens*, bearded with pale-yellow, or white hairs. *Leaves* above a foot in length; elliptic-oblong, with many transverse ribs and reticulated veins; the radical ones somewhat stalked; upper ones ovate, pointed, sessile, gradually smaller. *Bractees* linear-lanceolate. *Flowers* stalked, disposed as in the last species, but larger, and always bright yellow.

♂ from its characters rather seems to be produced by the *pollen* of this plant falling upon *V. nigrum*, of which latter therefore it ought, perhaps, to be deemed a variety. But the habit most agrees with the *pulverulentum*, though the *stem* and *branches* are more angular, and tinged with purple. *Leaves* less woolly, and more strongly crenate. *Hairs* of the *stamens* violet-coloured. *Radical leaves* considerably stalked. *Root* generally, if not always, perennial.

If the stem of *V. pulverulentum* be smartly struck, 3 or 4 times, with a stick, all the flowers then open will, in a few minutes, throw off their *corolla*, the *calyx* closing round the *germen*, so that after 8 or 10 minutes none will remain on the plant. This curious instance of irritability was first pointed out to me by Don Joseph Correa de Serra, late Portuguese ambassador to the United States, whose scientific knowledge, and philosophical views of every subject, have long procured him universal respect, and at length the notice and confidence of his sovereign.

4. *V. nigrum*. Dark, or Black, Mullein.

Leaves oblong-heart-shaped, stalked, waved and crenate, slightly downy. Cluster mostly solitary.

V. nigrum. *Linn. Sp. Pl.* 253. *Willd. v. 1.* 1004. *Fl. Br.* 251. *Engl. Bot. v. 1. t. 59.* *Hook. Lond. fasc. 2. t. 103.* *Scot.* 78. *Fl. Dan. t. 1088.* *Ger. Em. 775. f.* *Trag. Hist. 218. f.* *Reencalm. Spec. 107. t. 106.*

V. n. 584. *Hall. Hist. v. 1.* 257.

V. tertium. *Matth. Valgr. v. 2.* 489. *f.* *Camer. Epit.* 880. *f.*

V. nigrum, flore parvo, apicibus purpureis. *Bauh. Hist. v. 3.* 857. *f.* *Raii Syn.* 288.

On banks, and by way sides, in shady lanes, on a gravelly or chalky soil.

Perennial. *July, August.*

Stem simple, erect, 2 or 3 feet high, leafy, angular, brown or purplish, terminating in rarely more than one long, upright, cylindrical, spiked cluster, of bright yellow, aggregate flowers, smaller than the last; the *filaments* densely clothed with violet-coloured hairs. *Leaves* heart-shaped, veiny, waved and crenate, of a fine deep green, somewhat downy, but not hoary, all stalked, except some of the small upper ones; the radical ones a foot long, and their stalks nearly as much.

In Switzerland the *flowers* are occasionally white. Seeds of such a variety, sent to England, produced plants with a large copper-coloured *corolla*, in the garden of the late Lady Amelia Hume.

5. *V. virgatum*. Large-flowered Primrose-leaved Mullein.

Leaves ovate-lanceolate, toothed, sessile; radical ones downy,

somewhat lyrate. Stem branched. Flowers aggregate, partly sessile.

V. virgatum. *With.* 250. *Fl. Br.* 252. *Engl. Bot. v. 8. t. 550.*

Blattaria flore amplo. *Ger. Em.* 778. *f.*

B. magno flore. *Bauh. Hist. v. 3. 859. f.* *Lob. Ic.* 564. *f.*

In fields and by way sides, rare.

Found plentifully in a field near Wrexham, by Mrs. Nash; from whose garden at Beverc, near Worcester, it is presumed to have established itself in several parts of that neighbourhood, as mentioned by Dr. Stokes and Dr. Withering. *Rev. Mr. Baker.*

Biennial. *August.*

Root thick, branched. *Whole plant* green, not hoary, though clothed more or less with prominent, short, often forked, glandular hairs. *Stem* 5 or 6 feet high, branched from the bottom, leafy, stout, solid, round, slightly angular, and winged from the partially decurrent leaves. *Radical leaves* resembling those of a Primrose, but larger, more or less lyrate, always clothed with the glandular hairs above described; those of the stem oblong-lanceolate, sessile, doubly toothed, often nearly smooth; the upper ones heart-shaped, taper-pointed, more simply toothed, clasping the stem, and partly decurrent. *Fl.* axillary, usually several together, partly stalked; the uppermost solitary, especially on weak plants, the leaves which accompany them being diminished to slender-pointed *bracteas*. *Calyx* hairy and viscid. *Cor.* large, bright yellow. *Stamens* yellow, bearded in the middle with purple. *Capsule* globular.

6. *V. Blattaria*. Moth Mullein.

Leaves clasping the stem, oblong, smooth, serrated; radical ones sinuated. Clusters paniced, simple. Flower-stalks longer than the bracteas.

V. Blattaria. *Linn. Sp. Pl.* 254. *Willd. v. 1. 1005. Fl. Br.* 253. *Engl. Bot. v. 6. t. 393.*

V. n. 585. *Hall. Hist. v. 1. 258.*

Blattaria. *Matth. Valgr. v. 2. 495. f.* *Camer. Epit.* 885. *f.* *Trag. Hist.* 925. *f.* *Fuchs. Hist.* 182. *t. 183.*

B. lutea. *Dill. in Raii Syn.* 288.

B. Plinii. *Ger. Em.* 776. *f.* *Lob. Ic.* 564. *f.* *Merr. Pin.* 16.

B. flore luteo. *Ger. Em.* 778. *f.*

On banks, in a gravelly soil, but rare.

Between Deptford and Greenwich. *Merrett*. In a lane between Mitcham Common and Carshalton, and near Horn's Place, by Rochester; *J. Sherard. Dill.* On a bank 3 miles from Rochester, near the river Medway. *Mr. Jacob Rayer*. Not uncommon in Devonshire and Cornwall.

Annual. *July.*

Root tapering, whitish. *Stem* 3 or 4 feet high, erect, leafy, smooth, solid, roundish, with several slight angles; simple below; branched at the summit in an alternate manner; each branch terminating in a long, upright, simple *cluster*, of numerous handsome yellow *flowers*. *Leaves* dark green, shining, smooth, veiny, with unequal teeth, or serratures; radical ones a span long, bluntish, sinuated, somewhat lyrate, tapering at the base into a short stalk; the rest sessile, alternate, or partly opposite, acute, spreading; broad and heart-shaped at the base, clasping the stem. *Flower-stalks* solitary, simple, each with a solitary, ovate, pointed *bractea*, shorter than itself, especially in the upper part of each cluster. Segments of the *calyx* lanceolate, recurved, clothed, like the stalks, with small glandular hairs. *Cor.* streaked with purple at the base; stained with brown at the back. *Stam.* very unequal, bearded with purple hairs. *Caps.* globose, with a furrow at each side. Whole herb fetid and acrid. There is a white-flowered variety in gardens, mentioned by C. Bauhin.

113. DATURA. Thorn-apple.

Linn. Gen. 98. *Juss.* 125. *Fl. Br.* 253. *Lam. t.* 113.
Stramonium. Tourn. t. 43, 44. *Gärtn. t.* 132.

Nat. Ord. see *n.* 112.

Cal. inferior, of 1 leaf, oblong, tubular, swelling, with 5 angles and 5 teeth, separating by a horizontal fissure all round, near the base, leaving a circular, reflexed, permanent portion underneath the germen. *Cor.* of 1 petal, funnel-shaped, regular; tube cylindrical, rather longer than the calyx; limb moderately spreading, with 5 plaits, 5 angles, and 5 shallow, pointed, equal lobes. *Filam.* equal, awl-shaped, as long as the tube, to which they are united for about half their length. *Anth.* heart-shaped-oblong, erect, compressed, obtuse. *Germ.* ovate, of 4 cells. *Style* central, thread-shaped, straight, erect, the length of the stamens. *Stigma* thick, obtuse, of 2 oblique lobes, united above. *Caps.* roundish-ovate, often prickly, subtended by the permanent base of the calyx, of 2 half divided cells, and 4 valves; receptacles 2 to each cell, columnar, vertical, spongy, dotted, each attached, by a lateral process, to the principal transverse partition. *Seeds* kidney-shaped, dotted, very numerous, covering the receptacles.

Herbaceous, or shrubby. *Stem* round, branched. *Leaves* scattered, stalked, pliable, simple, either entire or toothed.

Fl. lateral, or, with some of the leaves, from the forks of the stem, solitary, stalked, large, fragrant, white, or purplish. *Caps.* beset with spines, or tubercles, or smooth, occasionally in the same species.

* 1. *D. Stramonium*. Common Thorn-apple.

Fruit spinous, ovate, erect. Leaves ovate, smooth, sinuated.

D. Stramonium. *Linn. Sp. Pl.* 255. *Willd. v. 1.* 1008. *Fl. Br.* 254. *Engl. Bot. v. 18. t.* 1288. *Curt. Lond. fasc. 6. t.* 17. *Woodv. Med. Bot. t.* 124. *Fl. Dan. t.* 436. *Bull. Fr. t.* 13.

Stramonium n. 586. *Hall. Hist. v. 1.* 258.

S. spinosum. *Ger. Em.* 348. *f.*

Solanum pomo spinoso oblongo, flore calathoides, Stramonium vulgò dictum. *Raii Syn.* 266.

S. Manicum Dioscoridis. *Column. Phytob.* 46. *t.* 47. *ed. 2.* 37. *t.* 12.

Tatula. *Camer. Epit.* 176. *f.*

In waste ground, and on dunghills; supposed to be the outcast of gardens.

By the road side beyond Brook, Norfolk, in the way to Bungay; observed for many years, apparently wild. About London not uncommon.

Annual. *July.*

A bushy, smooth, fetid herb, 2 or 3 feet high, of a narcotic quality, and greatly in repute as a remedy for the asthma, being smoked like tobacco. *Stem* much branched, forked, spreading, leafy. *Leaves* from the forks of the stem, large, unequal at the base, variously and acutely sinuated and toothed, single-ribbed, veiny, of a dull green. *Fl.* axillary, erect, white, sweet-scented, especially at night, about 3 inches long. *Fruit* as big as a walnut in its outer coat, very prickly. *Seeds* black.

The mention of this plant is interposed in Ray's *Synopsis*, ed. 2, 150, between several paragraphs which relate altogether to the *Atropa Belladonna*; an error which Dillenius has perpetuated in his edition, 266.

114. HYOSCYAMUS. Henbane.

Linn. Gen. 98. *Juss.* 124. *Fl. Br.* 254. *Tourn. t.* 42. *Lam. t.* 117. *Gartn. t.* 76.

Nat. Ord. see *n.* 112.

Cal. inferior, of 1 leaf, tubular, swelling below; limb in 5 acute segments; permanent. *Cor.* of 1 petal, funnel-shaped, irregular; tube cylindrical, short; limb rather spreading, divided half way into 5 obtuse, rounded segments, one broader than the rest. *Filam.* from some part

of the tube, awl-shaped, inclining, somewhat unequal in length. *Anth.* heart-shaped, incumbent. *Germ.* roundish. *Style* thread-shaped, reclining, the length of the longer stamens. *Stigma* capitate. *Caps.* ovate, filling the body of the calyx, obtuse, marked with a longitudinal furrow at each side, of 2 cells, opening transversely by a convex lid; receptacles oblong, convex, attached to the perpendicular partition. *Seeds* numerous, obovate, curved, dotted, covering the receptacles.

Downy, fetid, narcotic herbs, occasionally somewhat shrubby. *Stem* round, branched. *Leaves* alternate, sinuated or angular. *Fl.* axillary, solitary, yellow or whitish, variegated with purple.

1. *H. niger*. Common Henbane.

Leaves sinuated, clasping the stem. Flowers sessile.

H. niger. *Linn. Sp. Pl.* 257. *Willd. v. 1.* 1010. *Fl. Br.* 254. *Engl. Bot. v. 9. t.* 591. *Woodv. Med. Bot. t.* 52. *Sims in Curt. Mag. t.* 2394. *Hook. Scot.* 78. *Ger. Em.* 353. *f. Dreves Bilderb. t.* 47. *Bull. Fr. t.* 93. *Fl. Dan. t.* 1452.

H. n. 580. *Hall. Hist. v. 1.* 254.

H. vulgaris. *Raii Syn.* 274.

Hyoscyamus. *Brunf. Herb. v. 1.* 224. *f. Trag. Hist.* 132. *t.* 133. *Matth. Vulgr. v. 2.* 410. *f. Camer. Epit.* 807. *f. Riv. Monop. Irr. t.* 102.

H. flavus. *Fuchs, Hist.* 833. *f.*

On waste ground, banks, and commons, especially in a dry chalky soil.

Annual. *July*.

Root spindle-shaped. *Stem* bushy. *Leaves* sessile, soft and pliant, sharply lobed, downy and viscid, exhaling a powerful and oppressive odour, like all the rest of the plant. *Fl.* numerous from the bosoms of the crowded upper leaves, almost entirely sessile, of an elegant straw-colour, pencilled with dark-purple veins. A variety without these veins, mentioned by several writers, was found at Fincham in Norfolk, by the Rev. R. Forby, with an intermediate kind, very faintly veiny. The *capsules* and *seeds* of Henbane, smoked like tobacco, are a rustic remedy for the tooth-ache; but convulsions and temporary insanity are said to be sometimes the consequences of their use. The *seeds*, abounding with oil, may safely be eaten raw, at least in small quantities; and an extract of the herb, very cautiously administered, is recommended by some physicians as an opiate.

115. ATROPA. Dwale.

Linn. Gen. 99. *Juss.* 125. *Fl. Br.* 255. *Lam. t.* 114. *Gærtn. t.* 131. *Belladonna. Fourn. t.* 13.

Nat. Ord. see *n.* 112.

Cal. inferior, of 1 leaf, in 5 deep, acute, somewhat unequal segments, permanent. *Cor.* of 1 petal, bell-shaped; tube very short; limb tumid, ovate, longer than the calyx, with 5 shallow, nearly equal, spreading marginal segments. *Filam.* from the tube, awl-shaped, nearly as long as the limb, spreading and curved in their upper part. *Anth.* deflexed, heart-shaped, 4-lobed, tumid. *Germ.* ovate, with a nectariferous gland underneath. *Style* thread-shaped, reclining, as long as the corolla. *Stigma* capitate, ascending. *Berry* subtended by the enlarged calyx, globular, with 2 lateral furrows, of 2 cells; receptacles fleshy, 1 in each cell, attached to the transverse partition. *Seeds* numerous, kidney-shaped.

Herbaceous or shrubby, smooth or downy, of a narcotic and dangerous quality. *Leaves* stalked, simple, mostly undivided. *Fl.* lateral; solitary or aggregate.

1. *A. Belladonna*. Common Dwale. Deadly Nightshade.

Stem herbaceous. Leaves ovate, undivided. Flowers solitary.

A. Belladonna. Linn. Sp. Pl. 260. *Willd. v.* 1. 1017. *Fl. Br.* 255. *Engl. Bot. v.* 9. *t.* 592. *Curt. Lond. fasc.* 5. *t.* 16. *Woodv. Med. Bot. t.* 1. *Hook. Scot.* 78. *Jacq. Austr. t.* 309. *Bull. Fr. t.* 29.

Belladonna. Raii Syn. 265. *Mill. Ic. t.* 62.

B. n. 579. *Hall. Hist. v.* 1. 251.

Solanum lethale. Ger. Em. 340. *f.*

S. majus, sive *Herba Belladonna. Matth. Valgr. v.* 2. 419. *f. Camer. Epit.* 817. *f.*

In hedges and waste ground, on a calcareous soil; frequently about antient ruins.

Perennial. *June.*

Root fleshy, creeping. Whole plant fetid when bruised, of a dark and lurid aspect, indicative of its deadly narcotic quality. *Stems* herbaceous, annual, three feet high, round, branched, leafy, slightly downy. *Leaves* lateral, mostly 2 together of unequal size, ovate, acute, entire, smooth. *Fl.* imperfectly axillary, solitary, stalked, drooping, dark dull purple in the border, paler downwards, about an inch long. *Berry* of a shining violet black, the size of a small cherry, sweetish, and not nauseous, so that children have often been tempted to eat it, to their own de-

struction. Only half one of these fruits is said to have proved fatal, producing a deadly stupor. To make the patients swallow vinegar, and to keep them from sleeping, may avert the fatal consequences. Emetics do not take effect. The leaves applied externally, as well as taken in powder, or infusion, have been recommended to cure cancers; but their use in any way occasions dreadful uneasiness, horrors and swoonings, so that few practitioners can persevere long in prescribing so distressing and ambiguous a remedy.

116. SOLANUM. Nightshade.

Lim. Gen. 100. *Juss.* 126. *Fl. Br.* 256. *Dunal. Solan.* 115. *Tourn.* t. 62. *Lam. t.* 115. *Gertn. t.* 131.

Nat. Ord. see n. 112.

Cal. inferior, of 1 leaf, in 5, more or less deep, acute segments, permanent. *Cor.* of 1 petal, wheel-shaped; tube very short; limb much longer, reflexed, plaited, in 5 acute, equal, rather deep, segments. *Filam.* short, awl-shaped. *Anth.* much longer, oblong, angular, converging, sometimes unequal, opening by two terminal pores. *Germ.* roundish. *Style* thread-shaped, projecting beyond the anthers, deciduous. *Stigma* obtuse, simple or notched. *Berry* roundish or ovate, smooth, with a terminal scar, of 2, occasionally more, cells, with a fleshy receptacle to each, connected with the partition. *Seeds* numerous, roundish, compressed, imbedded in pulp; sometimes minutely dotted.

A numerous, principally tropical, genus of shrubs or herbs, more or less narcotic, though in some cases rendered eatable by cookery. *Stem* leafy, in some exotic species prickly. *Leaves* alternate, stalked, rarely decurrent, mostly simple, often variously lobed; in some compound. *Fl.* variously disposed, solitary or aggregate, drooping, inodorous. *Anth.* yellow, prominent. *Cor.* generally purplish, or white. *Lycopersicum* seems well distinguished as a genus by M. Dunal, after the example of Tournefort and others.

1. *S. Dulcamara.* Woody Nightshade. Bitter-sweet.

Stem shrubby, zigzag, without thorns. Upper leaves hastate. Clusters cymose.

S. Dulcamara. *Lim. Sp. Pl.* 264. *Willd.* v. 1. 1028. *Fl. Br.* 256. *Engl. Bot.* v. 8. t. 365. *Curt. Lond. fasc.* 1. t. 14. *Woodv. Med.*

Bot. t. 33. Hook. Scot. 79. Fl. Dan. t. 607. Bull. Fr. t. 23. Dunal 140.

S. n. 575. *Hall. Hist. v. 1. 248.*

S. lignosum, seu Dulcamara. *Raii Syn. 265.*

Amara dulcis. *Ger. Em. 350. f.*

Vitis sylvestris. *Matth. Valgr. v. 2. 619. f. Camer. Epit. 986. f.*

β. Solanum lignosum, seu Dulcamara marina. *Raii Syn. 265.*

In hedges and thickets, especially in watery situations.

β. On the southern coast. *Ray.*

Shrub. *June, July.*

Root woody. *Stem* shrubby, twining, branched, rising, when supported, to the height of many feet. *Leaves* acute, generally smooth; in variety β hairy; the lower ones ovate, or heart-shaped; upper more or less perfectly halberd-shaped; all entire at the margin. *Clusters* either opposite to the leaves or terminal, drooping, spreading, smooth, alternately subdivided, and resembling cymes, though not really such. *Bractees* minute. *Fl.* elegant, purple with 2 round green spots at the base of each segment. They are reported to vary occasionally to white or flesh-colour, the spots being also sometimes white. *Berries* oval, scarlet, juicy, bitter and poisonous. The *root* and young branches, in the form of a decoction, much diluted with milk, have been recommended in scrophulous or glandular obstructions.

The *leaves* are not unfrequently found variegated.

2. *S. nigrum.* Common, or Garden, Nightshade.

Stem herbaceous, without thorns. *Leaves* ovate, bluntly toothed, or wavy. *Umbels* lateral, drooping.

S. nigrum. *Lim. Sp. Pl. 266. Willd. v. 1. 1035. Fl. Br. 256. Engl. Bot. v. 8. t. 566. Curt. Lond. fasc. 2. t. 14. Woodv. Med. Bot. t. 226. Hook. Scot. 79. Fl. Dan. t. 460. Bull. Fr. t. 67. Dunal 152.*

S. n. 576. *Hall. Hist. v. 1. 249.*

S. vulgare. *Raii Syn. 265.*

S. hortense. *Ger. Em. 339. f. Matth. Valgr. v. 2. 415. f. Camer. Epit. 812. f. Fuchs. Hist. 686. f. Brunf. Herb. v. 2. 29. f.*

Common in waste, as well as cultivated, ground, and on dunghills. Annual; occasionally perennial. *June—September.*

Root fibrous. *Herb* fetid, narcotic, bushy, with numerous, angular, or winged, leafy branches. *Leaves* undivided; lengthened out at the base, smooth. *Umbels* from the intermediate spaces between the leaves, solitary, stalked, simple, downy. *Fl.* white, with a musky scent. *Berries* globular, black; sometimes, as it is reported, yellow. A grain or two of the dried leaf has sometimes been given to promote various secretions, possibly by exciting a great, and rather dangerous, agitation in the viscera.

Many exotic varieties of this *Solanum* are mentioned by authors, which perhaps may be entitled to rank as species.

117. ERYTHRÆA. Centaury.

Revealm. Spec. 77. "Borchh. in Roem. Archiv. v. 1. 28." *Br. Pr.* 451. *Hook. Scot.* 62.

Chironia. *Curt. Lond. fasc.* 4. 22. *Fl. Br.* 257. *Fl. Græc.* v. 3. 31. *Centaureum minus.* *Tourn. t.* 48.

Nat. Ord. *Rotaceæ.* Linn. 20. *Gentianæ.* Juss. 46. See n. 134, 135.

Cal. inferior, of 1 leaf, in 5 deep, erect, acute, awl-shaped segments, sometimes united below by a membranous border, permanent. *Cor.* of 1 petal, salver-shaped; tube nearly cylindrical, slender, longer than the calyx; limb in 5 deep, ovate or lanceolate, equal, spreading segments, about half the length of the tube, withering. *Filam.* thread-shaped, equal, inserted into the tube, alternate with the segments of the limb, and much shorter. *Anth.* oblong, incumbent, twisting spirally as the pollen ripens. *Germen* elliptic-oblong, or nearly linear, compressed. *Style* terminal, cylindrical, prominent, on a level with the stamens, straight, and generally erect. *Stigmas* 2, roundish, spreading till after impregnation. *Caps.* elliptic-oblong, nearly linear, acute at each end, compressed, imperfectly 2-celled, of 2 valves with inflexed margins. *Seeds* numerous, roundish, in 4 rows, placed alternately on the inflexed margins of the valves.

Herbaceous, annual, almost perfectly smooth, very bitter. *Stem* erect, square, either simple or very much branched, in the same species. *Leaves* opposite, sessile, ribbed, undivided, entire. *Inflor.* simple, spiked, forked, or corymbose. *Fl.* rose-coloured, or yellow.

A very natural genus, well distinguished from *Chironia* by the above characters; particularly the long tube and short limb; straight style; 2 stigmas; and almost linear capsule, destitute of a separate partition, or receptacle. The annual root and whole habit differ also from *Chironia*, which is shrubby. The name *Erythræa*, alluding to the red colour of most of the flowers, is justly retained for its priority of date, and fortunately is unexceptionable. *Chironia* however, alluding to the botanical Centaur, would more properly have belonged to the *Centaureum minus*, the type of our present *Erythræa*; though from the first appropriated to an African genus, from which it can by no means be removed.

1. *E. Centaurium*. Common Centaury.

Stem nearly simple. Panicle forked, corymbose. Leaves ovate-lanceolate. Calyx half the length of the tube; its segments partly combined by a membrane.

E. Centaurium. "*Pers. Syn. v. 1. 283.*" *Hook. Scot. 79.*

E. vulgò Centaurium minus. *Reuealm. Spec. 77. t. 76.*

Chironia Centaurium. *Curt. Lond. fasc. 4. t. 22. With. 255. Fl. Br. 257. Engl. Bot. v. 6. t. 417. Woodv. Med. Bot. t. 157. Willd. Sp. Pl. v. 1. 1068.*

Gentiana Centaurium. *Linn. Sp. Pl. 332. Huds. 102. Bull. Fr. t. 253. Fl. Dan. t. 617.*

G. n. 648. *Hall. Hist. v. 1. 288.*

Centaurium minus. *Bauh. Pin. 278. Raii Syn. 286. Tillands Ic. t. 29. Trag. Hist. 139. t. 140. Camer. Epit. 426. f. Fuchs. Hist. 387. f.*

C. parvum. *Ger. Em. 547. f. Matth. Valgr. v. 2. 19. f.*

In dry gravelly pastures.

Annual. *July, August.*

Root small, tapering. *Stem* about a foot high, leafy, sometimes branched at the upper part, and, when very luxuriant, from the base also. *Radical leaves* obovate, numerous, depressed; the rest acute, ovate, or elliptic-lanceolate; all three-ribbed, bright green. *Fl.* nearly sessile, from the forks and terminations of a corymbose, more or less dense, repeatedly subdivided, leafy or bracteated, *panicle*. *Bractæas* opposite, awl-shaped. *Cal.* slender, partly membranous, sometimes more than half as long as the pale greenish tube of the *corolla*, whose limb is of a most exquisite and brilliant pink, rarely white; expanded only in sunshine, and closing as soon as gathered. *Anth.* yellow, spiral, with 3 convolutions, after bursting. *Style* rather oblique, if not curved or deflexed. *Caps.* slender, brown, invested closely with the permanent dilated tube of the *corolla*.

A celebrated stomachic and tonic, now left to rustic practitioners.

2. *E. littoralis*. Dwarf Tufted Centaury.

Stem simple, straight. Leaves linear-obovate; obscurely three-ribbed. Flowers densely corymbose, nearly sessile. Calyx as long as the tube; its segments combined below.

E. littoralis. *Hook. Scot. 80.*

Chironia littoralis. *Turn. and Dillw. Guide, 469. Winch v. 2. pref. 3. Engl. Bot. v. 33. t. 2305.*

Ch. pulchella. *Don H. Brit. 7.*

β. *Ch. Centaurium*; variety 1st. *Fl. Br. 1393.*

On the sandy sea coasts of Scotland, Northumberland, Lancashire, and Wales.

On the coast of Elgin. *Mr. Brodie of Brodie.* Guillon Links ; Mr. Maughan ; shores of the Moray Frith ; Mr. D. Don. *Hooker.* On the Links, south of Bamborough castle, and on Holy Island, abundantly. *Winch.* On the Welch coast. *Mrs. Dowson.*

β . On the sandy sea shore to the north of Liverpool. *Dr. Bostock and Mr. Shepherd.*

Annual. *June, July.*

Stems generally about 2 inches high, stout, simple and solitary ; sometimes, especially in the variety β , there are several together from the crown of the root ; from 3 to 5 or 6 inches in height, and somewhat forked at the top, like the first species. *Leaves* all linear-obovate, obtuse, often roughish at the edges, with an obscure marginal rib at each side, not extending so far as the mid-rib ; radical ones very little larger or broader than the rest, which are variously disposed, mostly crowded about the top and bottom of the stem, and an inch long. All the *leaves* indeed seem liable to vary in breadth, and when they become almost elliptical, there are 2 additional ribs. *Fl.* rather larger and handsomer than the foregoing, for the most part sessile, and crowded into a dense head, or a partly forked, compact, corymbose panicle, which last is most usual in β . Segments of the *calyx* more or less combined above the base, their edges somewhat, but not uniformly, membranous ; they are often minutely downy, sometimes 3-ribbed. As the *capsule* swells, the tube of the *corolla* becomes longer than the calyx ; but never till the flower fades. The *style* is perfectly straight and upright. The variety β is the Swedish plant mentioned in *Engl. Bot.* v. 7. at the bottom of page 458.

3. *E. latifolia.* Broad-leaved Tufted Centaury.

Stem three-cleft at the top. Flowers in dense forked tufts.

Calyx as long as the tube. Segments of the *corolla* lanceolate. Lower leaves broadly elliptical, with five or seven ribs.

Chironia Centaurium ; variety 2nd. *Fl. Br.* 1393.

On the sea shore of Lancashire.

In sandy ground near the sea, to the north of Liverpool. *Dr. Bostock and Mr. Shepherd.* 1803.

Annual. *July.*

Root with many long fibres. *Stem* solitary, erect, scarcely 3 inches high, leafy ; simple below ; divided at the top into 3 principal branches, each terminated by a very compact, round, densely forked, tuft, or head, of *flowers*, which are but half the size of *E. Centaurium*, the segments of their *corolla* being lanceolate, and much narrower than in either that species or the last. There is now and then a smaller tuft, or two, situated lower down. The *leaves*, especially the lower ones, are very different

from the last species, as well as from *E. Centaurium*, being sometimes almost orbicular, with 7 ribs in their lower part; more generally broadly elliptical, and obtuse, with 5 ribs. The *calyx* is as long as the tube, or longer; its segments broad and membranous below; tapering at the upper part. *Anth.* spiral when old. *Style* erect, cloven, with 2 large *stigmas*.

The broad many-ribbed *leaves*, and small tufted *flowers*, sufficiently distinguish this species at first sight. I have not seen living specimens.

4. *E. pulchella*. Dwarf Branched Centaury.

Stem forked, variously branched, or simple, winged. Flowers solitary, stalked. Calyx above half as long as the tube. Segments of the corolla lanceolate. Leaves ovate.

E. pulchella. *Hook. Scot.* 79.

Chironia pulchella. *Willd. Sp. Pl.* v. 1. 1067. *With.* 255. *Fl. Br.* 258. *Engl. Bot.* v. 7. t. 458.

Ch. ramosissima. *Ehrh. Herb.* 124.

Gentiana pulchella. *Swartz in Stockholm Trans.* for 1783. 85. t. 3. f. 8, 9.

G. Centaurium β . *Linn. Sp. Pl.* 333. *Willd.* v. 1. 1068. *With.* 255.

Centaurium minus palustre ramosissimum, flore purpureo. *Vaill. Paris.* 32. t. 6. f. 1.

In sandy ground, chiefly near the sea.

Near Gorleston, Suffolk. *Mr. Stone*. On the downs at Port Owen, on the north coast of Cornwall. *Mr. Watt*. Braunton Burrows, Devonshire. *Bishop of Carlisle*. Hinton moor, Cambridgeshire. *Rev. Mr. Relhan*. On the Denes at Lowestoft, Suffolk.

Annual. *August, September*.

Root tapering. *Stem* solitary, erect, from 1 to 2 or 3 inches high, sometimes more, varying extremely in luxuriance, being naturally much branched in a forked corymbose manner; but in a starved state, as Dr. Swartz met with it, quite simple and single-flowered; in every form it is leafy, and square, with membranous, more or less dilated, angles. *Leaves* ovate, bluntish, with 3 or 5 slender ribs; the upper ones more lanceolate; lowest obovate, or round. *Fl.* stalked, from each fork, as well as from each termination, of the stem, erect, slender. *Cal.* above half as long as the tube even in an advanced state; at an early period full as long, with slender awl-shaped segments, combined by a membranous base. *Cor.* with a pale slender tube; the limb of a full pink, as delicate and narrow as in the last, much less ovate than in the two former species. The *anthers* are less spiral than in any of them, making scarcely one turn. *Style* a little oblique, with large spreading *stigmas*. *Caps.* long, tumid, invested with the *corolla*, as in other species.

118. SAMOLUS. Brook-weed.

Linn. Gen. 89. *Juss.* 97. *Fl. Br.* 259. *Br. Pr.* 428. *Tourn.* t. 60.
Lam. t. 101. *Gærtu.* t. 30.

Nat. Ord. *Preciæ.* Linn. 21. Akin to *Lysimachiæ.* Juss. 34.

Cal. inferior, of 1 leaf; tube hemispherical, closely investing the lower half of the germen; margin in 5 deep, triangular, equal, permanent segments. *Cor.* of 1 petal, funnel-shaped; tube wide, as long as the calyx; limb spreading, in 5 deep, obtuse segments, with 5 small, intermediate, converging scales at their base. *Filam.* from the middle of the tube, opposite to the segments of the limb, awl-shaped, short. *Anth.* sheltered by the scales of the corolla, roundish, 2-lobed. *Germ.* superior, invested with the tube of the calyx, nearly globular. *Style* erect, short, columnar. *Stigma* capitate. *Caps.* globular, of 1 cell; its lower half closely invested with the tube of the calyx; upper opening with 5 recurved valves. *Seeds* numerous, small, angular, attached to the globose, central, unconnected receptacle.

Herbaceous. *Leaves* alternate, undivided; tapering at the base into footstalks. *Fl.* terminal, racemose, bracteated, white.

This genus has marks of considerable affinity to *Montia*, n. 62, and therefore to Jussieu's 86th order, *Portulacææ*. The apparently half inferior situation of the germen has caused some doubts in the minds of the ablest botanists, whether it could be referred to the *Lysimachiææ*, now termed *Primulacææ*. But that part is surely to be reckoned superior; nor, were it otherwise, is such a difference always essential; witness *Vaccinium* and *Erica*. See *Grammar* 112, 214, 216.

1. *S. Valerandi.* Common Brook-weed. Water Pimpernel.

Leaves obovate, obtuse. Clusters corymbose, many-flowered. *Bracteas* solitary, in the middle of each partial stalk.

S. Valerandi. *Linn. Sp. Pl.* 243. *Willd.* v. 1. 927. *Fl. Br.* 259. *Engl. Bot.* v. 10. t. 703. *Br. Pr.* 428. *Curt. Lond. fasc.* 4. t. 20. *Hook. Scot.* 80. *Fl. Dan.* t. 198. *Raii Syn.* 283. *Bauh. Hist.* v. 3. 780. f. *Ehrh. Phyt.* 92.

S. n. 707. *Hall. Hist.* v. 1. 312.

Anagallis aquatica rotundifolia. *Ger. Em.* 620. f.

A. aquatica tertia. *Lob. Ic.* 467. *f.*

Veronica aquatica, folio subrotundo non crenato. *Moris. v.* 2. 323. *sect.* 3. *t.* 24. *f.* 26.

Planta heteroclita, &c. *Moris. v.* 2. 324.

Alsine aquatica perennis, foliis becabungæ. *Moris. ibid. sect.* 3. *t.* 24. *f.* 28.

In clear watery places, on a gravelly soil. Found also in New South Wales, according to Mr. Brown; as well as in Africa and North America.

Perennial. *July*.

Root fibrous, white. *Herb* smooth, slightly succulent, pale green.

Stem erect, round, leafy, a foot high, more or less, terminating in one or more corymbose, alternate, upright clusters, of small, white, scentless flowers. *Bractæas* solitary, at a slight bend in the middle of each partial stalk, lanceolate, acute, deciduous.

Leaves an inch or 2 long, entire; the upper ones nearly sessile.

Capsules erect, each embraced by the pale tube of the calyx, and encompassed by its withered segments. *Seeds* black, turbinate, angular, abrupt.

No particular qualities are attributed to this plant.

119. LONICERA. Honeysuckle.

Linn. Gen. 93. *Fl. Br.* 260. *Lam. t.* 150.

Caprifolium. *Juss.* 212. *Tourn. t.* 378. *Gærtn. t.* 27.

Xylosteon. *Juss.* 212. *Tourn. t.* 379.

Nat. Ord. Aggregatæ. *Linn.* 48. *Caprifolia*. *Juss.* 58. See *Grammar* 129.

Cal. superior, small, of 1 leaf, in 5 deep segments. *Cor.* of 1 petal, tubular; tube oblong, swelling at one side; limb in 5 deep revolute segments, one of them more deeply separated than the rest. *Filam.* awl-shaped, inserted into the upper part of the tube, and about equal to the limb. *Anth.* incumbent, oblong. *Germ.* roundish, inferior. *Style* thread-shaped, reclining, about the length of the corolla. *Stigma* bluntly capitate. *Berry* roundish with a concave scar, of 1 or more cells, sometimes double and confluent. *Seeds* several, roundish, compressed.

Caprifolium, which includes the original *Periclymenum*, though not that of Tournefort, has the limb of the corolla very unequally divided. The flowers are whorled, or capitate, bracteated. *Berries* solitary and distinct. *Stem* twining.

Xylosteon, or rather *Xylosteum*, has a more deeply divided, but not more regular, corolla, the tube being very short.

Fl. in pairs, bracteated. *Berries* single-celled, distinct.
Stem erect.

The *branches*, as well as *leaves*, of both are opposite; the latter simple, undivided, except casually; in some partly confluent and perfoliate. *Fl.* often fragrant. *Fruit* not eatable.

With the other Linnæan sections, whether entitled to rank as distinct genera or not, we have no concern in an English Flora. I cannot account for the words "*stylis indivisis*" in the original specific character of *L. cærulea*, which apply, as Mr. Brown observes, to the whole genus. The *germens* of each pair of flowers are indeed perfectly united, or "undivided," in this species; so that, as Linnæus expresses it in his manuscript, "there are 2 flowers to the same germen;" and perhaps he wrote originally "*baccis coadunato-globosis, stylis divisis.*"

1. *L. Caprifolium*. Pale Perfoliate Honeysuckle.

Flowers ringent, whorled, terminal. Leaves deciduous; the uppermost confluent and perfoliate.

L. Caprifolium. Linn. *Sp. Pl.* 246. Willd. *v.* 1. 982. *Fl. Br.* 260.
Engl. Bot. v. 12. *t.* 799. *Hook. Scot.* 80. *Jacq. Austr. t.* 357.
Ehrh. Pl. Exsicc. 141.

Caprifolium italicum perfoliatum præcox. *Engl. Gard. Cat.* 14. *t.* 5.

C. italicum. *Dod. Pempt.* 411. *f.*

Periclymenum. *Matth. Valgr. v.* 2. 321. *f.* *Camer. Epit.* 713. *f.*

P. italicum. *Riv. Monop. Irr. t.* 123.

P. perfoliatum. *Ger. Em.* 891. *f.*

In woods and thickets, but rare.

In a wood near Elsfeld, Oxfordshire, plentifully. *Rev. T. Butt.*
In Chalk-pit Close, Hinton, Cambridgeshire, certainly wild;
also in another coppice in the same parish. *Rev. R. Relhan.* In
several woods in the south of Scotland. *Hooker.*

Shrub. *May, June.*

Stem woody, round, smooth, somewhat branched, twining from left to right, and climbing, where it meets with support, to a considerable height. *Buds* axillary, opposite, solitary, acute, glaucous. *Leaves* obovate, entire, smooth, glaucous beneath; the lower ones distinct, and somewhat stalked; 2 or 3 of the upper pairs united; the uppermost of all forming a concave cup. *Fl.* in one or more axillary whorls, 6 in each whorl; the uppermost terminal, with a central bud; highly fragrant, 2 inches long, yellowish, with a blush-coloured tube. *Cal.* slightly toothed. *Berries* elliptical, of a tawny orange, each crowned with the almost entire *calyx*.

2. *L. Periclymenum*. Common Honeysuckle, or Woodbine.

Heads of flowers ovate, imbricated, terminal. Leaves all separate, deciduous. Flowers ringent.

L. Periclymenum. *Linn. Sp. Pl.* 247. *Willd. v. 1.* 984. *Fl. Br.* 260. *Engl. Bot. v. 12.* t. 800. *Curt. Lond. fasc. 1.* t. 15. *Hook. Scot.* 80. *Fl. Dan. t.* 908. *Ehrh. Pl. Off.* 432.

Caprifolium n. 673. *Hall. Hist. v. 1.* 301.

C. germanicum. *Raii Syn.* 458. *Dod. Pempt.* 411. f. *Engl. Gard. Cat. t.* 5.

Periclymenum. *Ger. Em.* 891. f. *Fuchs. Hist.* 645. t. 646.

P. germanicum. *Riv. Monop. Irr. t.* 122.

P. hortense. *Gesn. Ic. Pict. fasc. 1.* 38. t. 7. f. 49.

β. *Caprifolium non perfoliatum, foliis sinuosis et variegatis*. *Tourn. Inst.* 608. *Dill. in Raii Syn.* 458.

Periclymenum foliis quercinis. *Merr. Pin.* 92.

In hedges, groves and thickets, common.

β. In a wood near Kimberley, Norfolk. *Mr. Woodward.*

Shrub. *June, July, to October.*

Stem twining and climbing, as in the foregoing, with opposite branches. *Leaves* of a darker green, all distinct, sometimes downy; glaucous beneath; by the sea side occasionally more glaucous, and rather succulent; in variety β sinuated, like those of an oak, and variegated. *Heads of flowers* all terminal, ovate, most fragrant in an evening. *Cal.* distinctly 5-toothed. *Cor.* externally deep red; or in the earlier-flowering varieties all over buff-coloured; in the maritime plant smaller, and greenish. *Berries* nearly globular, deep red, bitter and nauseous; often roughish; accompanied by permanent *bracteas*.

A favourite plant in gardens and shrubberies. The true Woodbine of poets, though likewise the "Twisted Eglantine" of Milton. Notwithstanding Curtis's imperfect quotation, Shakspear is guiltless of this blunder. He says

"So doth the woodbine, the sweet honeysuckle,
Gently entwist the maple."

3. *L. Xylosteum*. Upright Fly Honeysuckle.

Stalks two-flowered. Berries distinct. Leaves entire, downy.

L. Xylosteum. *Linn. Sp. Pl.* 248. *Willd. v. 1.* 986. *Comp.* 39. *Engl. Bot. v. 13.* t. 916. *Fl. Græc. v. 3.* 18. t. 223. *Berk. Outl. ed. 1.* v. 2. 60. *With.* 247. *Fl. Dan. t.* 808.

Caprifolium n. 677. *Hall. Hist. v. 1.* 302.

Chamæcerasus dumetorum, fructu gemino rubro. *Bauh. Pin.* 451. *Duham. Arb. v. 1.* 153. t. 59.

Periclymenum rectum germanicum. *Ger. Em.* 1294. f.

P. rectum sylvestre. *Gesn. Ic. Pict. fasc. 1.* 36. t. 14. f. 47.

Xylosteum. *Dod. Pempt.* 412. *f. Riv. Monop. Irr. t.* 120.

In thickets and rocky places.

In the fissures of rocks, under the Roman wall near Shewing-Sheels, or rather Sewenshele, Northumberland. *Wallis*. Plentifully, and certainly wild, in a coppice called the Hacketts, to the east of Houghton bridge, 4 miles from Arundel, Sussex. *Mr. Borrer*.

Shrub. *July*.

Stem erect, bushy, 4 or 5 feet high, with numerous, round branches; the young ones leafy and downy. *Leaves* deciduous, stalked, ovate, acute, dull green, soft and flexible. *Fl.* small, cream-coloured, or reddish, scentless, in pairs, on axillary simple stalks. *Bracteas* hairy, double; the 2 outermost lanceolate, spreading; inner a small concave scale under each germen. *Cal.* in 5 obtuse lobes. *Cor.* downy. *Berries* scarlet, oval, distinct, of 1 cell, with about 6 seeds in each. A shrub of little beauty, and no known utility, though common in plantations; where I have never seen any ripe fruit.

120. RHAMNUS. Buckthorn.

Linn. Gen. 105. *Juss.* 380. *Fl. Br.* 261. *Tourn. t.* 366. *Lam. t.* 128. *Gærtn. t.* 106.

Frangula. *Tourn. t.* 383.

Nat. Ord. *Dumosa.* *Linn.* 43. *Rhamni*. *Juss.* 95. *N.* 121 the same.

Cal. inferior, of 1 leaf, funnel-shaped; coloured internally; limb in 5, sometimes only 4, acute, equal, spreading segments. *Petals* as many as the segments of the calyx, alternate with them, small, converging, sometimes imperfect, or wanting. *Filam.* in the mouth of the calyx, opposite to each petal, awl-shaped, short. *Anth.* roundish, two-lobed, small. *Germ.* superior, roundish, seated on a glandular disk. *Style* short, cylindrical, rarely divided. *Stigma* in 2, 3, or 4 lobes. *Berry* nearly globular, of 2, 3, or 4 cells. *Seeds* solitary in each cell, rounded externally, flattened at the inner side.

The flowers are often more or less diœcious.

Stem shrubby. *Leaves* stalked, simple and undivided. *Stipulas* small, deciduous. *Fl.* small, on aggregate stalks, yellowish. *Berries* blueish-black, purgative.

1. *R. catharticus*. Common Buckthorn.

Thorns terminal. Flowers four-cleft, diœcious. Leaves ovate, serrated. Stem erect. Berry with four seeds.

R. catharticus. *Linn. Sp. Pl.* 279. *Willd. v. 1.* 1092. *Fl. Br.* 261. *Engl. Bot. v. 23. t.* 1629. *Hook. Scot.* 80. *Woodv. Med. Bot. t.* 114. *Fl. Dan. t.* 850. *Raii Syn.* 466. *Bauh. Pin.* 478. *Dalech. Hist.* 145. *f.* 146. *Ehrh. Pl. Off.* 200.

R. n. 824. *Hall. Hist. v. 1.* 366.

R. solutivus. *Dod. Pempt.* 756. *f.* *Ger. Em.* 1337. *f.* 1, 2.

Cervispina. *Cord. Hist.* 175. *f.*

Spina infectoria. *Matth. Valgr. v. 1.* 143. *f.* *Camer. Epit.* 82. *f.* *Lob. Ic. v. 2.* 181. *f.*

In hedges, groves and thickets.

Shrub. *May.* Fruit in *September.*

Branches alternate, or nearly opposite, spreading, straight, round, smooth, hard and rigid, each terminating in a strong thorn, after the first year. *Leaves* deciduous, bright green, smooth, ribbed; the young ones downy; the earlier ones in tufts from the flowering buds; the rest opposite, on the young branches. *Footstalks* downy. *Stipulas* linear. *Fl.* yellowish-green, on the last year's branches, numerous; the fertile ones with narrow petals, rudiments of stamens, and a deeply 4-cleft style; barren ones with an abortive germen, and broader petals. *Berries* globular, blueish black, nauseous, violently purgative, with 4 cells, and as many seeds; by which last character they are easily known, by druggists, from the fruit of the following, which is supposed to be less active. The unripe berries dye yellow.

2. R. Frangula. Alder Buckthorn. Berry-bearing Alder.

Thorns none. Flowers all perfect. Style simple. Leaves entire, smooth. Berry with two seeds.

R. Frangula. *Linn. Sp. Pl.* 280. *Willd. v. 1.* 1098. *Fl. Br.* 262. *Engl. Bot. v. 4. t.* 250. *Hook. Scot.* 81. *Fl. Dan. t.* 278.

R. n. 821. *Hall. Hist. v. 1.* 365.

Frangula. *Dod. Pempt.* 784. *f.* *Matth. Valgr. v. 2.* 609. *f.* *Camer. Epit.* 978. *f.* *Duham. Arb. v. 1.* 245. *t.* 100. *Dalech. Hist.* 200. *f.* *Raii Syn.* 465.

Alnus nigra, sive Frangula. *Ger. Em.* 1470. *f.* *Dalech. Hist.* 97. *f.*

In woods and thickets. Rather rare in Scotland.

Shrub. *May.* Fruit in *July.*

Stem 3 or 4 feet high, with numerous, alternate, leafy, round, smooth, blackish branches. *Leaves* alternate, (not opposite,) elliptical, or roundish, pointed, entire, deep green, with many parallel transverse ribs. *Footstalks* downy, as well as the minute stipulas. *Fl.* whitish, five-cleft, on simple, aggregate, axillary, smooth stalks. *Anthers* purple. *Style* very short. *Stigma* capitate, cloven. *Berries* dark purple, each with 2 large seeds.

121. EUONYMUS, Spindle-tree.

Linn. Gen. 107. *Juss.* 377. *Fl. Br.* 262. *Tourn. t.* 388. *Lam. t.* 131. *Gartn. t.* 113.

Nat. Ord. see *n.* 120.

Cal. inferior, of 1 leaf, flat, in 5 deep, rounded, concave, permanent segments. *Pet.* 5, oblong, flat, spreading, longer than the calyx. *Filam.* awl-shaped, straight, distant, attached to the germen as well as to the receptacle. *Anth.* 2-lobed. *Germ.* superior, depressed, pointed. *Style* short, simple. *Stigma* obtuse. *Caps.* succulent, coloured, with 5 sides, 5 prominent angles, 5 cells, and 5 coriaceous valves having central partitions. *Seeds* solitary, ovate; each enveloped in a succulent, folded, coloured tunic.

Shrubs with opposite *branches*, hard *wood*, and opposite, stalked, simple, smooth, deciduous *leaves*. *Fl.* on forked axillary stalks; often 4-cleft. *Filam.* in some instances very short.

1. *E. europæus*. Common Spindle-tree, or Prickwood.

Flowers mostly four-cleft. Petals acute. Branches smooth and even.

E. europæus. *Linn. Sp. Pl.* 286. *Willd. v.* 1. 1130. *Fl. Br.* 262. *Engl. Bot. v.* 6. *t.* 362. *Hook. Scot.* 81. *Bull. Fr. t.* 135.

E. vulgaris. *Raii Syn.* 468. *Scop. Carn. v.* 1. 167. *Ehrh. Arb.* 3.

E. n. 829. *Hall. Hist. v.* 1. 370.

Euonymus. *Matth. Valgr. v.* 1. 173. *f. Camer. Epit.* 102. *f. Dod. Pempt.* 783. *f.*

E. Theophrasti. *Ger. Em.* 1468. *f.*

Carpinus Theophrasti. *Trag. Hist.* 982. *t.* 983.

In hedges and thickets.

Shrub, or small tree. *May.*

Fetid in every part when bruised, and esteemed poisonous, whence arose, by antiphrasis, the generic name, signifying in Greek of good repute. *Branches* angular when young; afterwards round, with a green, smooth, not warty, bark. *Leaves* ovate, pointed, finely serrated, about 2 inches long. *Stipulas* awl-shaped, very small, soon falling off. *Fl.* fetid, small, greenish white; the first only 5-cleft. *Caps.* of a fine rose-colour, occasionally white. *Tunics* of the *seeds* always orange-coloured, elegantly contrasting with the red, or white, valves.

The very hard fine-grained wood is preferred for spindles, and for skewers.

122. RIBES. Currant and Gooseberry.

Linn. Gen. 111. *Juss.* 310. *Fl. Br.* 263. *Lam. t.* 146.

Grossularia. *Tourn. t.* 409. *Gartn. t.* 28.

Nat. Ord. *Pomaceæ*. Linn. 36. *Cacti*. Juss. 85. *Grossulariæ*. DeCand. 55.

Cal. superior, of 1 leaf, tumid; the border in 5 deep, spreading, somewhat coloured, withering segments. *Pet.* 5, small, obtuse, erect, from the rim of the calyx. *Filam.* short, awl-shaped, erect, from the rim of the calyx, opposite to each segment. *Anth.* incumbent, compressed, of 2 distant lobes, bursting at the edges. *Germ.* roundish, inferior. *Style* cloven. *Stigmas* obtuse. *Berry* globular, umbilicated, of 1 cell, with 2 lateral, opposite, longitudinal receptacles, very juicy. *Seeds* numerous, roundish, slightly compressed, or angular, each coated with mucilaginous pulp.

Stem shrubby; in the Gooseberry tribe prickly. *Leaves* alternate, stalked, lobed, notched, deciduous. *Fl.* greenish; clustered in the Currants; in most of the Gooseberries simply stalked. *Fruit* wholesome, variously coloured.

* *Without prickles.* Currants.

1. *R. rubrum.* Common Currant.

No prickles. Clusters smooth, pendulous. Flowers but slightly concave. Petals inversely heart-shaped.

R. rubrum. Linn. *Sp. Pl.* 290. Willd. *v.* 1. 1153. *Fl. Br.* 263. *Engl. Bot.* *v.* 18. *t.* 1289. *Hook. Scot.* 81. *Woodv. Med. Bot.* *t.* 74. *Fl. Dan.* *t.* 967.

R. acidum. Ehrh. *Pl. Off.* 232. *Arb.* 81.

R. vulgaris, fructu rubro. Raii *Syn.* 456. *Ger. Em.* 1593. *f. Matth. Valgr.* *v.* 1. 152. *f. Camer. Epit.* 88. *f.*

R. vulgaris acidus ruber. Bauh. *Hist.* *v.* 2. 97. *f.*

R. hortense. *Trag. Hist.* 994. *f.* 995.

β. *R. vulgaris fructu dulci.* Raii *Syn.* 456.

γ. *R. fructu parvo.* Merr. *Pin.* 104. *Dill. in Raii Syn.* 456.

In mountainous woods, especially about the banks of rivers, in the north of England, and in Scotland.

Undoubtedly wild on the banks of the Tees. Mr. E. Robson. In the isle of Isla, amongst brush wood, on the bank of the sound. *Lightf.* In Culross woods, Scotland. Mr. Maughan. Frequent in hedges and thickets, by accident.

Shrub. *May.*

Stem bushy, erect, smooth, with a deciduous cuticle. *Leaves* alternate, on long fringed stalks, 5-lobed, doubly serrated, veiny; most downy beneath. *Clusters* simple, stalked, always pendulous. *Bracteas* ovate, solitary under each partial stalk; often with a pair of smaller ones near the flower. *Cal.* cup-shaped, almost flat. *Pet.* yellowish, obtuse, or slightly cloven. *Berries* globular, smooth, red and shining, each crowned with the wi-

thered flower ; in gardens either red, white, or flesh-coloured ; various in degree of acidity. One of the most wholesome and grateful of fruits, especially if tempered with sugar. I have not seen the small-berried variety γ .

Haller has "*stipule brevissima*," meaning *bractea*; and by mistake, in his *Nomenclator*, has "*foliis*," instead of *floribus*, "*planiusculis*," which error Willdenow copies. Hence it appears that the latter used the *Nomenclator* instead of the original *Historia*.

2. *R. petraeum*. Rock Currant.

No prickles. Clusters somewhat hairy; in flower upright; in fruit pendulous. Flowers slightly concave. Petals bluntish. Bracteas shorter than the flower-stalks. Stem erect.

R. petraeum. *Wulfen in Jacq. Misc. v. 2. 36. Jacq. Ic. Rar. v. 1. t. 49. Willd. Sp. Pl. v. 1. 1153. Fl. Br. 265. Engl. Bot. v. 10. t. 705. Hook. Scot. 81. Don H. Br. 159.*

R. n. 818. Hall. Hist. v. 1. 364; including the cultivated *R. rubrum*.

In the mountainous woods of Durham and Scotland.

Near Eggleston, Durham. *Rev. Mr. Harriman*. Near Conscliffe in the same county. *Mr. E. Robson*. In Scots Wood Dean, Northumberland. *Mr. Winch*.

Shrub. *May, June*.

Stem bushy. *Leaves* like the preceding, but more downy beneath, particularly about the veins. The *clusters* of greenish yellow, often reddish, *flowers*, at first erect, become pendulous when in fruit. *Pet.* generally less blunt and abrupt than in *R. rubrum*. *Bracteas* short, recurved, fringed. *Berries* globose, bright red, acid.

This species, abundant in Switzerland, is certainly what Haller intended under his *n. 818*, though he supposed the cultivated Currants to be the same. He quotes *R. flore rubente* of John Bauhin, *Hist. v. 2. 98*, who gives no figure. Mr. Davall thought this the only wild Swiss Currant, except *alpinum* and *nigrum*. Jacquin's figure is erroneously drawn by Wulfen, with long awl-shaped *bracteas*, quite different from his own specimens.

3. *R. spicatum*. Acid Mountain Currant.

No prickles. Spikes upright. Flowers nearly sessile. Petals oblong. Bracteas shorter than the flowers.

R. spicatum. *Robson in Tr. of Linn. Soc. v. 3. 240. t. 21. With. 265. Fl. Br. 264. Engl. Bot. v. 18. t. 1290.*

In woods in the north of England.

Near Richmond, Yorkshire, and between Piersbridge and Gainford, Durham. *Mr. E. Robson*. At present extinct in the place

last mentioned, according to Mr. Robson himself. *Winch Bot. Guide*, v. 1. 23.

Shrub. *May*.

This has the habit of the two foregoing species, but differs from both in the extreme shortness of the partial *flower-stalks*, rendering the inflorescence a *spike*, rather than a *cluster*, which, moreover, is erect both in flower and fruit. If these characters be not constant, the present species probably belongs to *R. petraeum*; which seems scarcely credible.

4. *R. alpinum*. Tasteless Mountain Currant.

No prickles. Clusters upright, both in flower and fruit. Bractees longer than the flowers. Leaves polished at the back. Stem erect. Berries smooth.

R. alpinum. *Linn. Sp. Pl.* 291. *Willd. v. 1.* 1154. *Fl. Br.* 264. *Engl. Bot. v. 10. t.* 704. *Hook. Scot.* 81. *Jacq. Austr. t.* 47. *Fl. Dan. t.* 968. *Ehrh. Arb.* 51.

R. n. 817. *Hall. Hist. v. 1.* 363.

R. alpinus dulcis. *Bauh. Hist. v. 2.* 98. *f. bad.* *Raii Syn.* 456.

In woods in the north of England; also in Scotland, but rare.

Abundant near Bradford, Yorkshire. *Dr. Richardson*. Near Ripon. *Mr. W. Brunton*. In Durham. *Mr. E. Robson*.

Shrub. *May*.

Branches more upright than in *R. rubrum*. *Leaves* smaller, three-lobed, remarkably shining beneath. *Clusters* erect, dense, with long, narrow, brown *bractees*, and short *partial stalks*. *Fl.* small, greenish, observed by several botanists to be sometimes dioecious. *Berries* of a fine deep scarlet, mucilaginous and insipid.

5. *R. nigrum*. Black Currant.

No prickles. Clusters hairy, pendulous, with a separate flower-stalk at the base of each. Flowers oblong.

R. nigrum. *Linn. Sp. Pl.* 291. *Willd. v. 1.* 1156. *Fl. Br.* 265. *Engl. Bot. v. 18. t.* 1291. *Hook. Scot.* 82. *Woodv. Med. Bot. t.* 75. *Fl. Dan. t.* 556. *Ehrh. Arb.* 91. *Lob. Ic. v. 2.* 202. *f.* Same cut as Gerarde's, hereafter quoted.

R. n. 819. *Hall. Hist. v. 1.* 364.

R. nigrum vulgè dictum, folio olente. *Bauh. Hist. v. 2.* 98. *f.* 99. *Raii Syn.* 456.

R. n. 3. *Ger. Em.* 1593; to which belongs his fig. 2, copied by Dodonæus from John Bauhin, and erroneously given by Gerarde for the White Currant. The solitary flower, faithfully represented at the base of some of the clusters, indicates the present species.

Ribesium fructu nigro. *Dod. Pempt.* 749. *f.* good.

In sandy swamps and thickets, about the banks of rivers.

In Cambridgeshire, Bedfordshire, Warwickshire, Cumberland and Essex. *Ray*. In Costesy island, near Norwich. *Mr. Rose*. Between Norwich and Yarmouth, by the river, in several places; as also in Scotland.

Shrub. *May*.

Stem lower, and more spreading, than *R. rubrum*. *Leaves* larger and softer, glandular, with a strong Savine-like scent, when rubbed. *Fl.* green, in drooping hairy clusters, remarkable for a separate stalk at the base, whose fruit is earlier and larger than the rest. *Cal.* tubular-bell-shaped, with reflexed segments. *Pet.* ovate. *Berries* large, globose, black, gratefully subacid, with some of the flavour of the leaves. They are esteemed very useful in sore throats of any sort; and by some writers are reckoned powerfully diuretic; but according to Dr. Woodville this wants confirmation. Dr. Withering observed the *petals* to change occasionally into *stamens*; the only instance upon record of such a metamorphosis.

** *Branches prickly.* Gooseberries.

6. *R. Grossularia.* Common Gooseberry.

Prickles one, two or three under each bud. Branches otherwise smooth, spreading. Stalks single-flowered. Bracteas close together. Segments of the calyx reflexed, shorter than the tube.

R. Grossularia. *Linn. Sp. Pl.* 291. *Willd. Sp. Pl. v. 1.* 1158. *Fl. Br.* 266. *Engl. Bot. v. 18. t.* 1292. *Hook. Scot.* 82. *Ehrh. Arb.* 151.

R. Uva crispa. *Fl. Dan. t.* 546.

R. n. 820. *Hall. Hist. v. 1.* 364. Davall.

β. *R. Uva crispa.* *Linn. Sp. Pl.* 292. *Willd. v. 1.* 1158. *Fl. Br.* 266. *Engl. Bot. v. 29. t.* 2057. *Cullum* 88. *Schmid. Ic. 5. t. 1.* *Ehrh. Arb.* 22. *Pl. Off.* 452.

Uva crispa. *Fuchs. Hist.* 187. *f.* *Dod. Pempt.* 748. *f.* *Ger. Em.* 1324. *f.*

U. spina. *Matth. Valgr. v. 1.* 151. *f.* *Camer. Epit.* 87. *f.*

In hedges, thickets, waste ground, and on old buildings, frequent; though supposed generally, in the south of England at least, to have escaped from gardens.

In woods and hedges about Darlington plentiful. *Mr. F. Robson*. Apparently indigenous in Hamilton woods, Scotland. *Mr. Hopkirk*.

Shrub. *April*.

Stem bushy, spreading, with 1, 2, or 3, straight, sharp, strong, divaricated, awl-shaped prickles under each bud, but no bristles or prickles on the intermediate spaces. *Leaves* smaller, rounder, more smooth and shining, than in Common Currants, each

three-lobed, and variously cut, a little hairy, of a pleasant green while young. *Footstalks* hairy. *Fl.* green, or pale flesh-coloured, bell-shaped, on simple drooping stalks, thickened upwards, mostly 2 together, from the same bud as the leaves and future branches. *Bracteas* small, ovate, fringed, in pairs, rarely 3, a little below each flower; sometimes united into a tube at the base, which Linnæus thought a mark of the Smooth-fruited Gooseberry, my β , but it is not at all constant. Segments of the *calyx* reflexed, often coloured. *Pet.* ovate. *Germen* generally hairy. *Style* often scarcely cloven, sometimes double. *Berry* elliptic-oblong, or nearly globular, green or yellowish, rough with scattered hairs; in β smooth; but Mr. Robson found this not a permanent specific character. Cultivated varieties are often red or blackish. The Gooseberry is well known as a most wholesome fruit, chiefly confined to cold or temperate climates, neglected in Switzerland, and with difficulty raised in Italy.

R. *reclinatum* of Linnæus seems a mere variety with long deflexed branches, not uncommon.

123. HEDERA. Ivy.

Linn. Gen. 111. *Juss.* 214. *Fl. Br.* 267. *Tourn. t.* 384. *Lam. t.* 145. *Gartn. t.* 26.

Nat. Ord. *Hederaceæ*. *Linn.* 46. *Araliæ*. *Juss.* 59.

Cal. minute, of 5 teeth, surrounding the germen. *Pet.* 5, alternate with the calyx, oblong, widely spreading; broadest at the base. *Filam.* awl-shaped, erect, the length of the petals, and inserted alternately with them. *Anth.* incumbent, cloven at the base. *Germen* turbinate, surrounded with the annular receptacle of the flower. *Style* very short, furrowed. *Stigma* simple. *Berry* globular, of 1 cell. *Seeds* from 3 to 5, oblong, vertical, convex externally, angular at the inner edge.

Climbing evergreen *shrubs*, with scattered, smooth, stalked *leaves*. *Fl.* in terminal bracteated umbels, or heads, pale or greenish. *Style* sometimes cloven, or aggregate. The character of Jussieu's 59th order should be so modelled as to admit this genus, which he refers to his 58th, *Capri-folia*.

1. *H. Helix*. Common Ivy.

Leaves some ovate, some lobed.

H. Helix. *Linn. Sp. Pl.* 292. *Willd. v.* 1. 1179. *Fl. Br.* 267. *Engl. Bot. v.* 18. *t.* 1267. *Curt. Lond. fasc.* 1. *t.* 16. *Hook. Scot.* 82. *Fl. Dan. t.* 1027. *Bull. Fr. t.* 133.

H. n. 826. *Hall. Hist. v.* 1. 368.

H. communis, major et minor. *Raii Syn.* 459.

H. corymbosa and H. Helix. *Ger. Em.* 857. f.

H. arborea and H. Helix. *Matth. Valg.* v. 1. 572, 573. f.

H. and H. Helix, sive minor. *Camer. Epit.* 398, 399. f.

In woods and hedges, and on old buildings.

Shrub. *October.*

Stem branched, either trailing on the ground, and bearing 5-lobed, white-veined *leaves*, but no flowers; or climbing, flattened, and attached by dense tufted fibres, which serve for support, not nourishment; the flowering branches loosely spreading, round, bearing ovate, undivided *leaves*. *Umbels* aggregate, green, many-flowered, their stalks clothed with starry pubescence, and accompanied at the base by several small *bracteas*. *Petals* reflexed. *Berry* the size of a currant, smooth, black; internally whitish and mealy, with seldom more than 5 *seeds*. The whole plant is somewhat aromatic; and a very fragrant resin exudes from the old stems when bruised.

124. ILLECEBRUM. Knot-grass.

Linn. Gen. 114. *Fl. Br.* 267. *Fl. Gr.* v. 3. 39. *Br. Pr.* 416, obs.

Paronychia. *Tourn. t.* 288. *Juss.* 89. *Lam. t.* 180.

Nat. Ord. Holeraceæ. *Linn.* 12. *Amaranthi.* *Juss.* 30.

Illecebreæ. *Br. Pr.* 413, obs.

Cal. inferior, 5-angled, of 5 coloured, cartilaginous, permanent leaves, with distant spreading points. *Cor.* none. *Filam.* capillary, shorter than the calyx, with 5 intermediate scales or bristles seldom wanting. *Anth.* simple, of 2 cells. *Germen* superior, ovate, acute. *Style* short. *Stigma* obtuse. *Caps.* roundish, pointed at each end, of 1 cell, with 5, more or less distinct, valves. *Seed* solitary, oval, pointed at each end, filling the capsule.

Stem herbaceous, with numerous, opposite, undivided, entire *leaves*, and opposite membranous *stipulas*. *Fl.* axillary, either whorled, or crowded into terminal leafy heads.

1. I. *verticillatum*. Whorled Knot-grass.

Flowers whorled, without bracteas. Stems procumbent.

I. verticillatum. *Linn. Sp. Pl.* 298. *Willd.* v. 1. 1205. *Fl. Br.* 268.

Engl. Bot. v. 13. t. 895. *Dicks. Dr. Pl.* 57. *H. Sicc.* fasc. 12. 13.

Fl. Dan. t. 335.

Corrigiola. *Raii Syn.* 160.

Polygala repens. *Ger. Em.* 563. f. *Lob. Ic.* 416. f. *Dalech. Hist.*

489. f.

Paronychia serpyllifolia palustris. *Vaill. Par.* 157. t. 15. f. 7.

In marshy boggy ground, in Cornwall and Devonshire.

In Devonshire not uncommon. *With.* About Pensans. *F. Borone.*
Perennial. *July.*

Root creeping. *Herb* smooth, branched, procumbent. *Leaves* small, ovate, acute, or sometimes spatulate, scarcely stalked, rather fleshy. *Stipulas* intrafoliaceous, small, white, jagged. *Fl.* small, aggregate, axillary, white or reddish. *Calyx-leaves* abrupt, with long, twisted, terminal bristles; concave at the inner side. *Scales* between the *stamens* lanceolate, reddish, pointed, alternate with the *calyx*, resembling *petals*. *Filam.* very short. *Stigma* notched. *Caps.* of 5 distinct valves.

125. GLAUX. Sea-milkwort.

Linn. Gen. 114. *Juss.* 333. *Fl. Br.* 268. *Tourn. t.* 60. *Lam. t.* 141.

Nat. Ord. *Calycanthemæ.* *Linn.* 17. *Salicariæ.* *Juss.* 91.

Supposed by recent authors, see *Hook. Scot.* 212, to be allied to *Samolus*, p. 323, and therefore to the *Primulacæ*, see p. 269; but their characters and habits are essentially different.

Cal. inferior, of 1 leaf, coloured, bell-shaped, in 5 deep, spreading, obtuse, recurved segments, permanent. *Cor.* none. *Filam.* awl-shaped, erect, not longer than the calyx. *Anth.* roundish. *Germ.* superior, ovate. *Style* cylindrical, as long as the stamens. *Stigma* capitate. *Caps.* globose, pointed, of 1 cell and 5 valves. *Seeds* 5, roundish, attached to a very large, globular, central, pitted *receptacle*.

Herbaceous. *Leaves* opposite, simple, undivided. *Fl.* axillary. In its *calyx* this genus is akin to *Polygonum*, in its *fruit* to *Jussieu's Lysimachicæ*; but cannot well be referred to any natural order yet defined.

1. *G. maritima.* Common Sea-milkwort. Black Saltwort.

G. maritima. *Linn. Sp. Pl.* 301. *Willd. v.* 1. 1210. *Fl. Br.* 268. *Engl. Bot. v.* 1. t. 13. *Hook. Scot.* 82. *Raii Syn.* 285. *Fl. Dan. t.* 548. *Ehrh. Phyt.* 83.

Polygonum maritimum longius radicum nostras. *Raii Syn. ed.* 2. 69. *ed.* 3. 161. *Pluk. Phyt. t.* 53. f. 3.

Newton's Knotgrass. *Pet. H. Brit. t.* 10. f. 6.

Alsine bifolia, fructu Coriandri, radice geniculatâ. *Læs. Pruss. 13. t.* 3.

Herniaria glabra β . *Huds.* 108.

In muddy salt-marshes abundantly.

Perennial. *June, July.*

Root of many long, thick, zigzag fibres. *Stem* erect, 3 or 4 inches high, branched, round, smooth, densely clothed with elliptic-oblong, convex, entire, smooth *leaves*, pale underneath, saltish to the taste. *Footstalks* very short, or scarcely any. *Stipulas* none. *Fl.* axillary, solitary, nearly sessile, flesh-coloured.

126. THESIUM. Bastard-toadflax.

Linn. Gen. 114. *Juss.* 75. *Fl. Br.* 269. *Lam. t.* 142. *Gærtn. t.* 86. *Nat. Ord.* *Vepriculæ.* *Linn.* 31. *Elæagni.* *Juss.* 75. *Santalaceæ.* *Br. Pr.* 350.

Cal. superior, of 1 leaf, internally coloured, divided half way down into 5 spreading segments, with intermediate notches; ultimately closed, coriaceous, permanent. *Cor.* none. *Filam.* short, awl-shaped, erect, inserted into the base of each segment of the calyx, in the centre. *Anth.* roundish. *Germ.* inferior, roundish, ribbed. *Style* cylindrical, as long as the stamens. *Stigma* cloven. *Drupa* oblong, angular, dry, coriaceous, crowned by the inflexed calyx. *Nut* roundish.

Mr. Brown describes a small tuft of hairs at the outside of each *stamen*.

Herbaceous, or shrubby, smooth, rigid, with scattered, narrow *leaves*. *Fl.* clustered, or paniced, bracteated, small, whitish, or yellowish.

1. *T. linophyllum.* Flax-leaved Bastard-toadflax.

Cluster branched. Bracteas three together. Leaves linear-lanceolate. Tube of the calyx very short.

T. linophyllum. *Linn. Sp. Pl.* 301. *Willd. v.* 1. 1211. *Fl. Br.* 269. *Engl. Bot. v.* 4. *t.* 247. *Dicks. H. Sicc. fasc.* 11. 5.

T. pratense. *Ehrh. Herb.* 12.

Linaria montana, flosculis albicantibus. *Bauh. Pin.* 213.

L. adulterina. *Raii Syn.* 202.

Sesamoides procumbens nostras montanum, linariæ folio, floribus albicantibus. *Moris. v.* 3. 601. *sect.* 15. *t.* 1. *f.* 3.

In high open chalky pastures.

In Cambridgeshire frequent; also in Suffolk, on the west side of Bury; and in Dorsetshire. Found by the Rev. R. Forby, on Limekiln hill, near Shouldham, Norfolk.

Perennial. *July.*

Root woody, yellowish. *Stems* widely spreading, angular, leafy, a span or more in length. *Leaves* turned to one side, rough-edged, light green, an inch long at most. *Clusters* terminal,

many-flowered, erect, generally branched or subdivided. *Partial stalks* alternate, erect, single-flowered, with 3 unequal, spreading, lanceolate *bracteas* under the *flower*. *Cal.* with a very short tube, and a broadish, white, sharply toothed border, irregularly notched between the segments.

The varieties of Willdenow seem distinct species; especially *T. montanum*, Ehrh. Herb. 2, a much larger, more upright, herb, with compound, more slender, *panicles*; which is Haller's n. 1573, and likewise Gerarde's plant, *Ger. Em.* 555, taken by Ray for the English species.

127. VINCA. Periwinkle.

Linn. Gen. 115. *Juss.* 144. *Fl. Br.* 269. *Lam. t.* 172. *Gærtn. t.* 117. *Pervinca. Tourn. t.* 45.

Nat. Ord. *Contortæ*. Linn. 30. *Apocineæ*. Juss. 47. See *Grammar* 108.

Cal. inferior, of 1 leaf, in 5 deep, upright, acute, permanent segments. *Cor.* of 1 petal, salver-shaped; tube longer than the calyx, cylindrical in the lower part, dilated and marked with 5 lines above, 5-sided at the mouth; limb horizontal, in 5 deep, oblique, abrupt segments, attached to the summit of the tube. *Filam.* from the middle of the tube, short, doubly curved. *Anth.* membranous, obtuse, erect, incurved, bearing pollen at each lateral margin. *Germens* 2, superior, roundish, accompanied by 2 lateral roundish glands. *Style* 1, common to both germens, cylindrical, shorter than the tube. *Stigma* 1, capitate, seated on a flat orbicular disk. *Follicles* 2, cylindrical, acute, erect, bursting along one side. *Seeds* several, oblong, cylindrical, furrowed, without wings.

Stems trailing or reclining, perennial, somewhat shrubby. *Leaves* opposite, ovate, entire; in our species evergreen. *Fl.* axillary, handsome, inodorous.

1. *V. minor*. Lesser Periwinkle.

Stems procumbent. Leaves elliptic-lanceolate, smooth-edged. Flowers stalked. Segments of the calyx lanceolate.

V. minor. *Linn. Sp. Pl.* 304. *Willd. v.* 1. 1232. *Fl. Br.* 270. *Engl. Bot. v.* 13. t. 917. *Curt. Lond. fasc.* 3. t. 16. *Hook. Scot.* 82. *Ehrh. Arb.* 102.

V. pervinca. *Brunf. Herb. v.* 1. 178. f.

V. pervinca minor. *Raii Syn.* 268. *Ger. Em.* 894. f.

Pervinca. *Trag. Hist.* 394. f.

P. n. 572. *Hall. Hist. v.* 1. 246.

Clematis. *Camer. Epit.* 694. *f.*

C. daphnoides. *Dod. Pempt.* 405. *f.* *Lob. Ic.* 635. *f.*

In bushy places, and about hedges and banks, but rare.

By Honingham church, Norfolk, on a bank facing the south, plentifully; also in several lanes in that parish, undoubtedly wild.

Mr. Crowe. Abundant at Raleigh, Essex. *Rev. R. B. Francis*.

Near Rippon, Yorkshire. *Rev. James Dalton*.

Perennial. *May*.

Root creeping. *Herb* very smooth. *Stems* round, trailing; the flowering branches simple, leafy, erect. *Leaves* dark shining green, on short stalks, opposite, without *stipulas*. *Fl.* solitary, an inch wide, of a fine violet blue. *Fruit* scarcely seen in England. There is a white-flowered variety in gardens, having variegated *leaves*; and another with double, more purple *flowers*, well figured and described in *Camer. Epit.* 695.

2. *V. major*. Greater Periwinkle.

Stems ascending. *Leaves* ovate, fringed. *Flowers* stalked. *Segments* of the calyx bristle-shaped, elongated.

V. major. *Linn. Sp. Pl.* 304. *Willd. v. 1.* 1233. *Fl. Br.* 270. *Engl. Bot. v. 8. t. 514.* *Curt. Lond. fasc. 4. t. 19.* *Hook. Scot.* 82. *Ehrh. Arb.* 112.

Pervinca n. 573. *Hall. Hist. v. 1.* 246.

P. vulgaris latifolia, flore cæruleo. *Garid. Prov. t.* 81.

Clematis. *Matth. Valgr. v. 2.* 305. *f.*

C. daphnoides major. *Bauh. Pin.* 302. *Raii Syn.* 268. *Ger. Em.* 894. *f.* *Dod. Pempt.* 406. *f.*

C. sive Pervinca major. *Lob. Ic.* 636. *f.*

In thickets and groves, especially on a wet soil.

Perennial. *May*.

Nearly twice as large, in every part, as the former. *Stems* branched, ascending while in flower; afterwards procumbent, and taking root near the extremity. *Leaves* fringed with short rigid hairs. *Fl.* of a lighter blue. *Cal.* very narrow, mostly fringed with coarse hairs. *Follicles* unequal, filled with several large whitish *seeds*, one above another.

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