

# The Life and Work of George Don.

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## CONTENTS.

	PAGE.
PREFACE, .. .. .	54
MEMOIR, .. .. .	55
LIST OF THE CHIEF WORKS CONSULTED FOR THIS MEMOIR, ..	90
APPENDICES—	
A George Don's Reputed Discoveries, .. .. .	92
B George Don's Discoveries, .. .. .	126
C George Don's Herbarium Britannicum, .. .. .	144
D George Don's Private Herbarium, .. .. .	183
E Observations on some of the Indigenous Grasses of Britain which seem deserving of Culture for Pasture or Hay. By Mr. George Don, Gardener, Botanic Garden, Edinburgh, .. .. .	191
F Account of the native plants in the County of Forfar and the animals to be found there. By Mr. Don of Forfar, .. .. .	208
G Letters of George Don, .. .. .	256

## PREFACE.

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IN compiling this Memoir of George Don I have to make acknowledgments to Mr. John Knox for his kindness in lending me the Herbarium and Fasciculi of Don's plants, to the authorities of the Linnean Society and British Museum for allowing me to consult their collections, and to Miss Palmer for copying out the labels on the plants of Don which are in her collection and which I have carefully examined.

When I gave a short sketch of the progress of Scottish Botany as my presidential address to the Pharmaceutical Conference at Dundee in 1902, I included necessarily an account of the work of George Don. This drew some attention to the subject of the Memoir, and an appreciative special article which appeared in the *Scotsman* gave wider publicity to the subject. When the local Committee of my meeting at Dundee made up their accounts they found a balance on the right side, and it was determined to subscribe a sum of five pounds for the purpose of starting a fund towards erecting some simple monument to George Don in his native town. Later on I was requested to help in the matter, and I accordingly issued an appeal to the readers of the *Pharmaceutical Journal*, *Chemist and Druggist*, *Gardeners' Chronicle*, *The Journal of Botany*, *Annals of Scottish Natural History*, and the *Scotsman*, which has met with an adequate response. Meanwhile Mr. John Knox and other Forfarians have also been stirring, and our united efforts will be sufficient to remove the reproach of allowing Don to rest in a nameless grave.

To Professor Bayley Balfour I am especially indebted for assistance, not only with regard to the memorial, but for allowing this Memoir, to which he has added, to be issued under the ægis of the Royal Botanic Garden at Edinburgh.

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## Memoir.

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George Don was born on the Farm of Ireland in the parish of Menmuir,<sup>1</sup> in Forfarshire, and was christened on October 11th, 1764, his parents being Alexander Don (1717-1813) and Isobel Fairweather; both parents were descended from respectable farmers in the parish, and his father, as was not uncommon at that period, also carried on the trade of a currier, which he followed on his removal to Forfar, about the year 1772. The name Don as a patronymic means the brown-haired or brown-complexioned individual, being therefore synonymic with that of Brown.

George Don received at Forfar the ordinary elementary education at the parish school. He had a natural turn for mechanics, and acquired a taste for reading and observation, but his real education was obtained in the open air, wandering in the fields or by the loch side, and from his boyish days he took delight in noticing the minute characters of such birds, insects,

<sup>1</sup> The foundation of this memoir is the story of Don's life given by Mr. J. Knox in the *Scottish Naturalist*, 1883-84. I learn through Mr. Druce that Mr. Knox is not assured of the accuracy of many of the details he gives of Don's early life. Mr. A. P. Stevenson of Dundee tells me that there is still some doubt as to Don's birthplace. The certificate upon which Mr. Knox relied may not really refer to the botanist, George Don, and it is suggested the date of his birth must be earlier than 1764. Certainly the story as given of his early life supports such a suspicion, for it says that he was a gardener at Dupplin in 1779 when he would be fifteen years old, yet previously to this he had gone through an apprenticeship to a clock-maker in Dunblane and subsequently as a journeyman had worked in Glasgow. Mr. Stevenson points out also that Don speaks in "Headrick's Forfarshire" (see Appendix F to this Memoir, p. 235) of seeing a peregrine falcon "in the possession of the Laird of Balnamoon's grandfather, and of his servants hunting with it about the year 1771." Don would, if born in 1764, be then seven years old and might well remember. Balnamoon too is, he says, an estate in the parish of Menmuir, and this would support Mr. Knox's statement as to the birthplace.—*I. B. B.*

and plants as came within his reach. He wrote a bold hand, and his style was clear and vigorous. He was apprenticed to a clockmaker in the town of Dunblane, and there formed his first "hortus siccus," consisting of all the flowering plants and mosses which he could collect in the neighbourhood. Unfortunately no trace of it is now extant. In the "Hortus Britannicus," which he afterwards issued, he refers to some of the plants of the neighbourhood, for instance to *Scolopendrium*, No. 143, which came from a well at Dunblane.

When he became a journeyman he removed to Glasgow,<sup>1</sup> and

<sup>1</sup> Gardiner, "Flora of Forfarshire," 1848, Introduction, p. xii, says, without giving date :—"While in this city [Glasgow] his unbounded love for botanical pursuits began to show itself so prominently that he obtained the situation of Assistant to the Professor of Botany in the University. . . . After remaining for some time in this place he went to Edinburgh, where he soon became acquainted with the Messrs. Dicksons, and these gentlemen introduced him to the notice of other votaries of the science, both Scotch and English, more particularly to Sir J. E. Smith, the President of the Linnean Society, who took a great interest in him, and warmly patronised his efforts to extend the knowledge of British Botany."

Mr. A. P. Stevenson of Dundee writes to me :—"Gardiner had no knowledge of Don directly, of course—he was born after Don's death; but his uncle, Douglas Gardiner, who is referred to in the Flora of Forfarshire, p. 61, 'as an intimate friend of Don,' would know something of Don's personal history and would not fail to tell his nephew. In one of Gardiner's MS. magazines he says Douglas Gardiner had promised to contribute some biographical notices; but unfortunately they never appeared."

As the Chair of Botany was not established in Glasgow until 1818 I applied to my friend Dr. Bower, Regius Professor of Botany in the University there, for information that might elucidate Gardiner's statement regarding Don's Assistantship, and he has been so good as to procure for me the following Notes bearing upon this question, which have been prepared by Mr. James Coutts, Assistant Clerk of Senate, University of Glasgow. They are an interesting contribution to the history of Botany in Scotland.

"NOTES ON TEACHING OF BOTANY IN UNIVERSITY OF GLASGOW FROM ABOUT 1779 TILL FOUNDATION OF CHAIR OF BOTANY IN 1818.

"There is no mention in the minutes of a lecturer on Botany at Glasgow University about 1780 to 1790, and the references which occur to the subject of Botany would not lead one to infer that there was such a lecturer. The Professor of Anatomy was also Professor of Botany till a separate chair in the latter subject was founded in 1818.

"In 1779 towards the end of Thomas Hamilton's professorship, when his health was impaired, Dr. William Irvine, then Lecturer on Chemistry and

there he generally worked about five days a week at his business, devoting the rest to botanical exploration, thus being enabled to penetrate into the Highlands as far as to Ben Lomond. During the period of residence in Glasgow he noticed *Lythrum Salicaria* and *Lycopus europæus* near Paisley, and *Scirpus maritimus* near Dumbarton.

He afterwards went to Dupplin Gardens, where a relative was in charge, and there he remained during several years and received his training as a gardener, using his scanty leisure to explore the Ochils, and even the spurs of the Grampians, thus obtaining a good knowledge of the Scottish flora. When at

Materia Medica, wished to teach Botany as well. Hamilton objected, and the Faculty of the College, after hearing statements from both sides, declared that no one connected with the College had a right to teach Botany without Hamilton's permission and appointment; and that, if a Professor did not teach or name a substitute to teach for him, the Faculty had a right to oblige him to adopt one or other alternative, failing which, the Faculty had a right to appoint a substitute. A few days later the Faculty added a further deliverance that no Professor, when unable to teach himself, had a right to appoint a substitute without their consent.

"William Hamilton was Professor of Botany and Anatomy from 1781 to 1790. The minutes show that he was specially careful about the Botanic Garden, taking pains to obtain a good gardener, and procuring allowances from time to time for manure, loam, plants, tools, &c. He also had a hothouse of his own in the Garden. There is no mention of his having any teaching assistant. Looking to the declaration of 1779 that the consent of the Faculty was necessary to the appointment of a substitute, and to the fact that when a substitute was appointed in 1799 the transaction was duly minuted, it would seem that the Professor must have been in charge of the Botany class in William Hamilton's time, though it is conceivable that he might have had a private assistant for subordinate duties.

"James Jeffray became Professor of Anatomy and Botany in 1790, and his catalogues of the Botany class from 1791 to 1798 are still extant. In 1799 Thomas Brown<sup>1</sup> (M.D. Edin. 1798) [referred to by Dr. J. E. Smith in English Botany under *Valeriana pyrenaica*, plate 1591, as Dr. Brown, Lecturer on Botany in the University of Glasgow] was, on the recommendation of Jeffray, allowed to conduct the Botany class. Next year Jeffray was allowed to employ Brown to teach Botany so long as it should be expedient. On a representation made by Brown in 1804, orders were given for the payment of an annual allowance of £5 in use to be made for manure, seeds, &c., for the Botanic Garden. About 1808 Brown seems to have ceased teaching. In 1809 an allowance of £20 was made to Jeffray for plants

<sup>1</sup> Brown married Marion, sister of Jeffray of the Edinburgh Review.

Dupplin, in the late part of the year 1779, he discovered a very small species of moss, which in 1806 was figured in English Botany,<sup>1</sup> and described by Sir James E. Smith, in English Botany t. 1582, as *Gymnostomum Donnianum*, and which is now known as *Anodus Donianus*. As showing how keen his memory was, we may cite the statement he makes with regard to this moss in 1806,<sup>1</sup> "that he had not been able to visit the spot so late in the year (as it is in fruit in December), but that on his return from visiting Ben Lawers in 1804 (twenty-five years after his discovery of it), he 'pointed out the rock on which it grew to his friends, the Millers, and desired that pieces of the rock might be sent him at various seasons,' and thus he was enabled to supply the fruiting specimens for his 'Herbarium Britannicum.'" The moss is extremely small, and probably no trace of it was visible in the autumn when he pointed out the locality to his friends. When he was at Dupplin he also discovered the leopard's-bane, *Doronicum Pardalianches*, which still occurs in the original locality. During his residence at Dupplin, on one of his botanical rambles he met Caroline Stewart, related to the Oliphants of Gask, and, helping her with the load she carried, began an acquaintance with the active, energetic woman to whom he is said to have been married in 1789.<sup>2</sup>

for the Botany class. Probably this was about the time when the College Botanic Garden, which had an area of almost three roods, was discontinued. The allowance of £20 for plants was continued to Jeffray till 1815. In 1816 the Faculty agreed to Jeffray appointing Robert Graham (M.D. Edin. 1808) to teach the Botany class, the allowance for plants being voted to Jeffray. In 1817 the Faculty renewed their consent to Jeffray's employing Graham to teach Botany, and this time the allowance of £20 was made to Graham. In 1817 the Faculty agreed to subscribe £2000 for the Royal Botanic Garden, and next year Graham was made regius Professor of Botany.

"The lectureship on Botany as held by Brown and Graham was not on the same footing as the lectureships on Chemistry, Materia Medica, and Midwifery. The lecturers on these three subjects were appointed directly by the University authorities, and each had a salary from the University. The lecturer on Botany was the nominee of the Professor of Anatomy and Botany, and though his appointment was sanctioned by the academic authorities, he had no salary from them."—*J. B. B.*

<sup>1</sup> Don. Herb. Brit., No. 145. See p. 168 of these "Notes."

<sup>2</sup> "Genealogy of the Don Family." By Surgeon-General Don. London, 1897. It is also there stated that the eldest child was born in 1794.

On leaving Dupplin he went southwards, living some time in Worcestershire, probably as gardener to Lord Plymouth at his seat of Hewell Hall, as under *Geranium columbinum*, in his "Herbarium Britannicum," he says he observed it "in cornfields near the seat of Lord Plymouth." From this neighbourhood he also records several other plants for the first time for that county, including the hart's tongue fern, *Phyllitis Scolopendrium*, the gipsy-wort, *Lycopus europæus*; the water chick-weed, *Stellaria aquatica*; and the procumbent cinquefoil, *Potentilla procumbens*; and in cornfields near Redditch in 1784, for the first time as a British plant, *Galium spurium*, but this only as a casual, not a native, species. Don also noticed two or three plants such as *Stellaria aquatica*, and records them for the first time for Warwickshire.

Probably on his return Don passed Oxford, as he says he saw the Oxford ragwort, *Senecio squalidus*, in the neighbourhood of that classic city.

He spent also about six months at Broadworth, five miles from Doncaster<sup>1</sup>, and records several species, including *Teesdalia nudicaulis* and *Cerastium arvense*, from that neighbourhood, but all these had been previously published when he issued his "Herbarium Britannicum," 1804-12.

In the early part of 1789 he was in London,<sup>2</sup> probably employed in one of the nurseries, for he remarks of *Matricaria Chamomilla* (Herb. Brit., No. 118), "I observed this plant as a common weed in nurseries and gardens near London, particularly on the Surry side," and he refers to having seen *Lythrum Salicaria* (Herb. Brit., No. 164) near London, and under *Potentilla opaca* (Herb. Brit., No. 165), he says the *P. opaca* of English authors appears to be the *P. verna*; at least such was the case with the plant cultivated in Mr. Curtis' garden at Lambeth Marsh. He also says he has seen *Campanula Rapunculus* by the sides of hedges near Millbank, but it appeared hardly indigenous, and in his herbarium there is a specimen of *Brisa maxima* from Newington Butts, but of course only as an escape from cultivation.

<sup>1</sup> "I lived in Yorkshire half a year at Broadworth, near Doncaster."—*Winch Corresp. Linn. Soc.*; *G. Don to Mr. N. J. Winch, May 11th, 1802.*—*I. B. B.*

<sup>2</sup> Don says "When I was in London, about the year 1786." See p. 199 of these "Notes."—*I. B. B.*

He afterwards settled at Forfar, and with the small sum of money he and his wife had saved leased in 1797 for a term of 99 years at a low rent, from Mr. Charles Gray of Carse, two acres of land on the condition that he should build a cottage of certain dimensions within a limited period.<sup>1</sup> This piece of ground, which

<sup>1</sup> By the courtesy of Mr. A. P. Stevenson of Dundee I am permitted to quote the following from a letter to him, dated 5th May, 1904, of Mr. A. M'Hardy, Town Clerk of Forfar:—

"On making a search in the Town's Repositories I have been fortunate in finding the titles of Don's Gardens, called the Dovehillcock. These consist of:

"1. A Tack or Lease granted by Charles Gray, Esq. of Carse, to George Don, Merchant and Botanist in Forfar, of one acre of land lying on the east end of the Dovehillcock, part of the Farm of Turfbeg on the entailed Estate of Carse Gray in the Parish of Forfar, dated and subscribed by both parties at Carse the 5th October 1797. The Lease is for a period of ninety-nine years from Whitsunday 1797 at the yearly rent of 5/- and on the condition in terms of the Act of Parliament that the tenant should build two dwelling-houses thereon.

"2. Assignment and Conveyance by George Don, residing at the Botanic Garden, near Forfar, oldest son and heir of the deceased George Don, Botanist at said Botanic Garden, with consent of William Roberts, Writer in Forfar, Curator nominated and appointed to him by the Sheriff in favour of James Webster, Bank Accountant, and Charles Rodger, Writer in Forfar, as Trustees for behoof of the Grantor's father's Creditors, of the Lease of ground dated 15th June 1815. This Deed was granted in respect that the said George Don (the Botanist), who died 15th January 1814, left his affairs in an embarrassed state and was unable to pay his debts and on condition of the heir and his brother, David Don, and his mother, Carolina Stewart, Relict of George Don the Botanist, being freed and relieved of all claims connected with the Deceased's affairs. It also conveys the acre of ground and dwelling-houses built thereon for the remainder of the Lease.

"3. Articles of Roup of the said Lease and Minute of Purchase thereof in 1818. This minute bears that George Webster, Merchant in Forfar, purchased the Lease at £100 sterling and passed it over to the said William Roberts—which seems a questionable transaction.

"4. Translation by Charles Rodger, only surviving Trustee for the Creditors of George Don, Botanist, in favour of William Roberts, Writer, Forfar, dated 2nd November 1819.

"5. Assignment (following on a Roup) by the Trustees of the said William Roberts in favour of Alexander Whyte, Blackburn, near Downie Park, of the said acre of ground with the houses built thereon at £182 dated 21st September 1827. (*Note.*—I may mention that I personally remember of this Alexander Whyte, who resided latterly and died at Careston, but who never occupied Dovehillcock.)

was called Dovehillock (vulg. Doo Hillock), sloped to the west into what at one time had been Forfar Loch. He lived here in a very penurious and frugal manner, selling vegetables to such of the Forfar people as chose to send for them. He made a large artificial pond, which he stocked with aquatic plants and fish, leaving room for a broad border, in which the native plants were arranged according to the Linnean system and grown in their appropriate soils. In addition, he rented several acres of land as a nursery for young trees.

About this time he was particularly eager in exploring the Highlands, and not the least interesting of his discoveries is that of the beautiful district of Clova, which he first made known to the botanist. He occasionally absented himself for a week at a time, his plaid, and a bag of oatmeal or some bread and cheese, sufficing him for shelter and sustenance; and he lost count of the days in these toilsome expeditions, so that, it is said, he once presented himself at the manse of St. Vigeans laden with specimens on a Sabbath morning as the occupants were going to

"6. Assignment and Renunciation by the said Alexander Whyte in favour of the Magistrates and Town Council of the Burgh of Forfar dated 25th May 1858.

"I may add that a few years prior to the date of the last Deed the Town Council had acquired the *property* of Dovehillock and some adjoining ground by excambion from Carse Gray, so that in 1858 the Town became absolute proprietors of the property and lease.

"I think the above is the whole information that it is possible for me to obtain, and I trust it will be of some service. At least it is absolutely reliable."

Dr. Neill, in his Memoir of John Mackay, says (see page 23 of these "Notes") that Don was a clock and watch maker in Glasgow in the summer of 1793, and in the summer of 1794 Forfar had "become the place of his residence and where he cultivated an immense variety of the rarest hardy plants." This, on the face of it, seems unlikely unless perhaps the plants had previously been under the care of his father, who is said to have been a great cultivator of flowers; and I am inclined to the view that Don was at Forfar earlier than Dr. Neill suggests. Don himself says, "I have cultivated [*Poa glauca*] at Forfar since the year 1793." (See p. 196 of these "Notes.") It is clear that Don had a garden at Forfar before he went to Dovehillock. When writing in 1805 Don says, "I afterwards had occasion to remove my collection of living plants to a piece of ground near the town of Forfar." (See p. 195 of these "Notes.") He refers in this to the move to Dovehillock in 1797, but we have no indication of the whereabouts of the garden at Forfar in which he was growing plants from the year 1793 onward.—*I. B. B.*



kirk. There he met his friend the minister, and asked him, "What day is't—Fast or Sabbath?" He got his answer, and replied, "Man, I have lost count, but if I had my hands and face washed I would gang to the kirk too." He was shown to a bedroom for this purpose, but when Mr. Muir, the minister, went to call him he found him fast asleep.

Dr. Patrick Neill of Canonmills Lodge, Edinburgh, who in after life proved a kind friend to Don, and a generous and timely helper to his widow and children when they sorely needed it, gives the following account<sup>1</sup> of how he made Don's acquaintance:—

"When on a pedestrian excursion along the east coast of Scotland I happened to spend a night at Montrose, and it occurred to me that both Brechin and Forfar deserved to be visited—the former for its well-known Den Noran and its round tower of remote antiquity; and the latter for its remarkable botanic garden, and its owner, whose fame was familiar to me, owing to my intimacy with his regular correspondent, Mr. John Mackay of the Leith Walk Nurseries.<sup>2</sup> In passing along the margin of the sea basin above Montrose, the tide being at ebb,

<sup>1</sup> Biographical notice of the late Mr. George Don of Forfar. By Pat. Neill, LL.D. "Transactions of the Botanical Society of Edinburgh," Vol. IV. (1850-53), p. 117. Published also in the "North British Agriculturist" for the year 1851, and in Henfrey's "Botanical Gazette," Vol. III. (1851). It is remarkable that Dr. Neill, possessing as he did an intimate first hand knowledge of George Don and his life-work and endowed with a prolific pen, should not before the date of this notice, thirty-seven years after Don's death, have written a memoir of him as he had done in the case of John Mackay. Its belated appearance gives to the notice more the character of a recollection than of a record. Previous to Dr. Neill's notice Gardiner had given in 1848 a short account of George Don in his "Flora of Forfarshire," and this was apparently the first published account of Don. It appeared in the end of 1847, although the date on the title page is 1848—so Mr. A. P. Stevenson informs me.—*I. B. B.*

<sup>2</sup> Mackay held a responsible post in these nurseries from 1792-1800. According to Dr. Neill in his memoir of Mackay, Don and Mackay became personally acquainted in 1793 at Glasgow; Don, however, puts the date as 1791 (see Appendix G, Letter to Mr. Winch, January 1804). If Don's garden referred to by Dr. Neill is Dovehillcock then this visit of Neill to Don cannot have been earlier than 1797. This date is also pointed to by the number of Don's family mentioned by Dr. Neill, the eldest of whom was born in 1794, according to Surgeon-General Don.—*I. B. B.*



I picked up some fine plants of *Salicornia herbacea*, then in flower, and also a somewhat shrubby variety. On reaching Forfar towards evening I soon found Don's garden, and entering inquired of a very rough-looking person with a spade in his hand, whom I took for a workman, whether Mr. Don was at home. The answer was, 'Why, sir, I am all that you will get for him.' Having apologised in the best way I could, I stated that when I left home I did not anticipate a visit to Forfar, else I could have brought a note of introduction from Mr. John Mackay. Mr. Don, pointing to my botanical box, immediately said, 'That is introduction enough to me'; and, having inspected the contents, remarked that he was in want of an example of *Monandria Monogynia*, an *Equisetum* not having succeeded, forthwith conducted me to the Linnean arrangement. I was then introduced to Caroline, his wife, who had brought him two sons and a daughter. I persuaded him to accompany me to the inn at Forfar, where he spent the evening with me. Next morning at six he met me there by appointment, and conducted me to Restennet Moss, where I had the great satisfaction of procuring a living patch of *Eriophorum alpinum* and a number of fine specimens for drying. The Moss was at this time partially drained for the sake of a rich deposit of marl, but at one end there was still sufficient marsh for the growth of *Sclænus* (*Cladium*) *Mariscus* and *Eriophorum angustifolium*, and, of course, for the rare *E. alpinum*, which grew on the drier or firmer parts of the Moss. Mr. Don remarked that in a few years the plant would disappear, which I understand has accordingly happened."

Mr. John Mackay, Principal Gardener of the Royal Botanic Garden, Edinburgh, having died on the 14th April, 1802, Sir J. E. Smith and Brodie of Brodie strongly recommended Don for the post to Professor Rutherford, the Regius Keeper of the Garden; he was appointed,<sup>1</sup> and removed to Edinburgh, on or about the 12th December 1802,<sup>2</sup> leaving his Forfar garden in

<sup>1</sup> "I have got your correspondent, Don, the Botanic Gardens, at Edinburgh. There he will do well and be of great service to Dr. Rutherford and the public."—*Smith Corresp. Linn. Soc.*; *Brodie of Brodie to Sir J. E. Smith, 24th October 1802.*—*I. B. B.*

<sup>2</sup> "It is but 2 week since I come to the Edinburgh Botanic Garden."—*Winch Corresp. Linn. Soc.*; *George Don to N. J. Winch, 26th December 1802.*—*I. B. B.*

the care of his father, who was himself a great cultivator of flowers for amusement.<sup>1</sup>

While living in Edinburgh on terms of friendship with Dr. Patrick Neill—whose firm, Neill & Co., were the printers of his "Herbarium Britannicum"—he explored the district round "Scotia's darling seat" with untiring assiduity, discovering many species that were new to the district, including *Vicia lutea*, which he gathered in company with Patrick Neill at North Queensferry in 1804, and *Valeriana pyrenaica* in Colinton Woods. The Pentland Hills were a favourite resort, and there he got *Galium uliginosum* as a new Scottish species; Roslin Glen and North Berwick Law were also made to yield their treasures.<sup>2</sup>

He was elected an Associate of the Linnean Society in 1803 in recognition of his services to Botany, and he was also a Member of the Natural History Society of Edinburgh.

In 1804 he began the publication of a "Herbarium Britannicum," which was dedicated by permission to that well-known patron of science, Sir Joseph Banks, in July of that year,

<sup>1</sup> As Gardener of the Royal Botanic Garden, Don received forty pounds a year as wage. *Pipe Roll.—The declaration of the Account of Dr. Daniel Rutherford, Regius Professor of Botany in the University of Edinburgh, for the monies impressed into his hands for the support of the Botanic Garden at Edinburgh from 5 January 1803 to 5 January 1809.—I. B. B.*

<sup>2</sup> The following extract from a notice of a meeting of Wernerian Nat. Hist. Socy., 13th May, 1809, records Don's botanical activity when resident in Edinburgh:—The Secretary "produced a list of about 100 herbaceous plants and 200 cryptogamia, found in the King's Park, Edinburgh, and not enumerated in Mr. Yalden's catalogue of plants growing there (published in the appendix to Lightfoot's "Flora Scotica"); communicated by Mr. G. Don of Forfar, late Superintendent of the Royal Botanic Garden at Edinburgh."—*Scots Magazine*, 1809 (vol. 71), p. 327.

In the memoirs of the Wernerian Natural History Society, Vol. I., p. 215, is a paper, "A List of the Rarer Plants observed in the Neighbourhood of Edinburgh," by Robert Maughan, Esq., F.L.S. (read 9th December 1809), which says:—

"Since the publication of Lightfoot's 'Flora Scotica,' in 1777, a very considerable addition has been made to the catalogue of indigenous and naturalized plants of Scotland, particularly by the researches of the indefatigable Mr. George Don of Forfar, and of the late Mr. John Mackay of the Botanic Garden at Edinburgh.

"The following list contains an enumeration of such of the rarer species and varieties as have been observed within a day's excursion of the metropolis."—*I. B. B.*

although the preface is dated May 1st, 1804. Four fasciculi each of twenty-five plants, were to be issued yearly, and these were to contain a due proportion of alpine plants. "Since he first began his botanical excursions into the Highlands of Scotland, in the year 1779, he is confident (and he hopes he may mention it without the imputation of vanity) that he has traversed more of the Caledonian alps than any other botanist has ever done. He has repeatedly ranged over the great mountains of Angushshire which surround the great district of Clova, where no one on a similar pursuit has ever preceded him. He has also searched the vast range of mountains which stretch about sixty miles through the district of Knoydart, in Inverness-shire, a region which had never before, nor has since, been examined by a botanical eye. He is the only botanist, too, who has explored the lofty mountains of Cairngorm and the great hills of the neighbourhood." So he wrote in his preface.

Two of these fasciculi appeared in 1804, Nos. III and IV in 1805, Nos. V and VI in 1806, VII and VIII, although dated 1806, did not appear until 1810, as is shown by a letter from Don to Mr. Winch,<sup>1</sup> and No. IX, although also dated 1806, from its including *Astragalus campestris*, gathered in 1812, was probably issued in the latter part of that year or early in 1813.

Don did not long remain at Edinburgh. Dr. Neill writes<sup>2</sup> :—"Mr. Don had not had experience in the cultivation of stove plants, and, it must be confessed, did not shine in that depart-

<sup>1</sup> I am much obliged to you for your kindness in saving specimens for my herbarium as I am now employed in finishing my 7 and 8 numbers after a stand of nearly 4 years, for if I had not got Subscribers to enable me to have carried it on I could a predicted my Discoverys would a have been very limited in future, but although my subscribers are not numerous yet I flatter myself they are respectable and likely to continue—and on my part shall exert every endeavour to make them interesting—if I remember right I have sent you the new plants which I have given in my 7 and 8 numbers, which are *Campanula persicifolia*, *Sagina maritima*, nova species, *Potentilla opaca* of Linn., *Rottboellia filiformis*. I am to send you a package for Mr. Harriman, which I beg you will take the trouble of forwarding along with yours if you would have the goodness to send the specimens you have collected for me, and I will get some of them to help my 9 and 10 numbers. —Winch Corresp. Linn. Soc.; George Don to N. J. Winch, 18th Feb. 1810. —I. B. B.

<sup>2</sup> Biographical Notice of the late Mr. George Don of Forfar.

ment. At the same time there can be no doubt that, as a botanist, he greatly excelled the Professor, who was an accomplished chemist, but had little turn for Botany. It thus happened that there soon arose a want of cordiality between the parties; and Mr. Don contemplated a return to his favourite spot of ground at Forfar.<sup>1</sup> During his residence in Edinburgh he attended nearly all the medical classes with the view of ultimately following that profession."<sup>2</sup> I imagine, moreover, the love for a more untrammelled life was a not unimportant factor in the reasons which led to Don's return to Dovehillock.<sup>3</sup> The exact date I do not

<sup>1</sup> Dr. Neill gives another reason in the "Scots Magazine," July 1809, where he deplores the want of financial support given to the garden, and then, speaking of the salary of the Principal Gardener, he refers to Don in these terms:—"The most eminent practical botanist in this country, left his situation in disgust, it is said, on account of the insufficiency of the stipend." This was written within about a couple of years of Don's leaving the garden; the biographical notice quoted in the text appeared about forty-five years after this event. Don himself refers to his post as not being lucrative. (See p. 191 of these "Notes.")—*I. B. B.*

<sup>2</sup> Don became neither a graduate of the University of Edinburgh, nor a licentiate of the Royal College of Physicians nor of the Royal College of Surgeons of Edinburgh, although, according to Dr. Neill, he subsequently practised medicine at Forfar. What classes Don attended can hardly now be ascertained. The matriculation album of the University of Edinburgh does not contain the name George Don in any of the years from 1802 to 1807, but in the Index of Matriculated Students for the year 1804 the name George Don occurs with the word "chem." added, indicating, apparently, that the said George Don attended the class of Dr. Thomas Charles Hope, then Professor of Chemistry. Class-records are not preserved in the University, and the earliest class-record in the possession of Professor Crum Brown, the present holder of the Chair of Chemistry, is that of the year 1806. We have therefore no evidence by which we could identify this George Don with the Forfar botanist.—*I. B. B.*

<sup>3</sup> Mr. Knox, after quoting in his notice of George Don the letter, transcribed on page 82 of this memoir, from Mr. Booth to Sir J. E. Smith, asks:—"To what does Mr. Booth refer when he speaks of Don's incapability of 'sprawling at the footstool of power, and licking the holy dust'?" Has it any connection with his short tenure of the office of Superintendent of the Royal Botanic Garden at Edinburgh? Did his political opinions make the place too hot for him? It may be so. There is no direct evidence as to what his politics were, but those of his Forfar associates are known to have been radical enough. Or is it wrong to attribute his resignation to this cause? Was it not rather due to the fact that he was too far away from his beloved Highland hills, and would not be cooped up in Edinburgh?"

We may, I think, regard Mr. Booth's outburst as the declamation of an

know, but in the Winch Correspondence there is a letter from Don dated from the Royal Botanic Garden, Edinburgh, on December 3, 1805, and another one dated from Forfar on December 6, 1807. The removal took place, therefore, somewhere between these dates,<sup>1</sup> when he devoted himself to the practice of medicine as well as continuing his business as a florist, as is evidenced by a letter he sent to Mr. Booth,<sup>2</sup> brewer, afterwards schoolmaster, of Newburgh—who wrote the article on "Brewing" in the "Penny Cyclopaedia" and compiled the "Interest Tables" which are to be found in almost every bank office—in which he says he sends him a powder for scrofula,<sup>3</sup>

intimate friend of the author of "Political Justice," of a man who, as Professor Dowden says, "was in principles a republican." To every impartial reader of what is set forth regarding Don in these pages the reason for Don's resignation will be apparent, and it is that suggested by Mr. Knox and Mr. Druce. By nature and by habit of life Don was not suited to the environment in which he found himself in Edinburgh, and one need suggest neither jealousy on the part of the Professor nor resentment on the part of Don as determining factors in the case.—*I. B. B.*

<sup>1</sup> Probably at the end of 1806 or beginning of 1807. He was at the Botanic Garden in the early part of 1806, when he received a premium from the Highland and Agricultural Society for an essay on Grasses. (See p. 191 of these "Notes.") In the letter of December 6, 1807, he says, "Since my return to Forfar I have made several excursions and found a good many new plants," from which we may infer he had been at Forfar during the plant season of 1807. The Pipe Roll unfortunately does not mention the name of the Gardener in any of the years during which Don was at the Royal Botanic Garden. The wage of the Gardener in each of the years 1803, 1804, 1805, 1806 is passed at forty pounds. In the year 180~~6~~ it is stated at fifty pounds, and there is a grant of sixteen guineas to the Gardener "for Extra Expense." Could this have to do with Don's leaving the Garden? In the year 180~~7~~ the wage is again forty pounds.—*I. B. B.*

<sup>2</sup> Mr. Booth was a friend of Wm. Godwin. His wife, Isabel Baxter, the daughter of a Dundee manufacturer, was the girlhood friend of Mary Godwin, afterwards wife of the poet Shelley. Mary Godwin was a frequent visitor to the Baxters in Dundee, and Mr. David Booth is well described in Professor Dowden's "Life of Shelley."—*A. P. Stevenson, Dundee.*

<sup>3</sup> Botanic Garden, Forfar, November 19, 1812.

DEAR SIR,—I have procured two volumes of botanical plates with some difficulty. I have given my line to David Mudie, and Mr. Roberts has become bound for me that they shall be returned at the end of two months, and then I shall endeavour to procure the other when you return the two just now sent. I have sent the powder for scrofula with directions.

I will thank you to send the *Jasmine fruticans* and *Serapis latifolia*, and

7/

8/

and it is said that he might have done well at this calling had not his frequent absences from home on his botanical wanderings been inimical to his success.

One may allude to the great tract of country he, at one time or other, explored. Not only Clova was repeatedly worked, but he visited the distant Ben Nevis, where he gathered *Sagina alpina*, and a grass which he thought was Smith's *Poa flexuosa*. Ben Lawers was again and again explored. He gathered *Arenaria sulcata*, and saw the long-legged plover on it in 1793, and in the following year gathered the rare rush *Juncus castaneus*. In 1798 he found *Carex saxatilis*, and in 1804 *Juncus supinus*, and he was the first to report the beautiful *Myosotis alpestris* from that rich hunting ground. On Ben Lomond he discovered *Carex saxatilis*, and saw *Cerastium alpinum*; on Ben Voirlich he gathered the pretty *Saxifraga oppositifolia*; the bold peak of Scheshallion yielded *Thalictrum alpinum* and *Carex vesicaria*, and Ben Chonzie, which he spells "Ben-a-conich," gave him a form of *Cerastium alpinum* which he mistook for *C. latifolium*. He also explored the remote and wild recesses of Inverness-shire, finding *Rhynchospora alba* plentifully by Loch Nevis, and *Carex filiformis* and a form of *Stellaria graminea*, which Smith thought was a new British species, namely *S. scapigera*, from the neighbourhood of Loch Erich. The picturesque region of Blair Athol was explored as well as a great part of southern Perthshire, and his northern expeditions extended to the Isle of Skye, where he gathered *Arabis petræa*, *Brassica campestris*, *Sagina*

seed of *Reseda lutea*, and a plant of the *Scirpus* or Bull Rush that grows by the side of the river at Newburgh [probably *S. Tabernæmontani*], when the frost goes off. With best wishes for the welfare of Mrs. Booth and family.

I remain, dear Sir, Yours truly,

Mr. David Booth.

G. DON.

N.B.—I have had a long botanical excursion since I was in Newburgh, and have been successful, having discovered the following new plants to Britain, viz., *Salix lanata* of Linn., and a nondescript species, *Ranunculus nivalis* of Linn. [*R. acris*, var.], *Astragalus campestris* of Linn., *Carex rariflora* of Wahlenberg, and also *Carex salina* of Swortz [*C. vaginata*], and a nondescript species of *Juncus* [*Luzula arcuata*] with many other rare plants, and some new and rare cryptogameous plants.—Yours, as above,

G. D.

P.S.—The parcel is sent agreeable to your directions.

*maritima*, *Eriocaulon septangulare*, *Schœnus nigricans*, *Scirpus rufus*, *Rhynchospora alba*, *Carex pauciflora*, and other plants. Loch-na-gar was repeatedly climbed, and he added a new species to science, namely *Alopecurus alpinus*, from it, with many other rarities. The distant Cairngorm range was visited, and in 1802 he discovered *Carex vaginata* on it, with several rare mosses; Cairntoul was climbed, and he reports the occurrence on it of *Lichen nivalis*; Benn-na-Bourd and Benachie, as well as the huge Ben McDhu were also ascended; on the latter he gathered *Luzula arcuata* in 1812, and on his homeward march found *Hypnum Schreberi* and the lovely *Hypnum Cristacastrense* in fruit, in woods opposite Mar Lodge. The sea shore of the Moray Firth, the woods of Cullen, where he found *Campanula persicifolia* naturalised; the neighbourhood of Gordon Castle, where he saw *Pilularia*; the fir woods of Grantown, where he got *Goodyera repens*; the sea coast of Aberdeenshire, where he found the elegant *Pneumaria maritima*; and the coast of Kincardineshire, were searched, as well as the shores of Loch Leven, Loch Laggan, Loch Katrine, where he noticed the Cranberry, *Oxycoccus quadripetala*, and the Gareloch, were explored. For these long rambles he was especially fitted, being stalwart and blessed with great powers of endurance, often journeying thirty or more miles without breaking fast for a period of twelve hours. He would bring home a heavy burden of plants for his herbarium, or roots to be planted in his garden, or, as was frequently the case, for sale to correspondents scattered over Britain.

Among these correspondents was the Countess of Aylesford, a well-known botanist,<sup>1</sup> who had set herself the task of making water-colour drawings of the British plants. The drawings are now in the possession of a descendant, the Dowager Countess of Dartmouth, and the plants, instead of being thrown away, were kept, and are now in the collection of another descendant of Lady Aylesford's, my friend, Miss C. E. Palmer of Odiham, and amount to no less than 120 species. It was the examination of this collection and the inspection of Don's own herbarium which first convinced me that unmerited injustice had certainly been done to Don by a few botanists.

<sup>1</sup> See Turner & Dillwyn, "The Botanist's Guide through England and Wales." London, 2 vols., 1805.



He sent many specimens to Sir James E. Smith, some of which are figured by Sowerby in the pages of "English Botany," and many of the original specimens are preserved in the Smithian Herbarium of the Linnean Society, or in the Natural History Museum at Cromwell Road.

Don's specimens are often accompanied with excellent critical observations which show his botanical knowledge and acumen. Eight letters to N. Winch,<sup>1</sup> that excellent north-country botanist, are also preserved in the Linnean Society's Library, and a small number of critical grasses still await naming in the general collection at Burlington House.

Dr. Goodenough, Bishop of Carlisle, was another correspondent. It is said that the Bishop once being at Forfar, and inquiring for Mr. Don, was at first directed to Colonel, afterwards General Sir George Don, who chanced to be passing up the street; the Bishop, noting the military bearing of the Colonel, said "No, that cannot be the man I want," upon which the native said, "You'll want Doo Hillock," and at once conducted him to the nursery, where he found the botanist hard at work at his plants, and with whom he was soon in cordial conversation, to the wonder of his guide.

Among the common people Don was, of course, either little understood or perhaps misunderstood, such pursuits as his would be looked upon as scarcely canny, but Mr. Knox relates he once extorted their admiration from having been asked by a number of weavers the name of a small seedling at the side of a wall; he, having examined it by means of a lens, told them it was a gooseberry bush. They were sceptical, but the plant was removed by one of them to a garden, and eventually proved that Don's naming was correct. But the more educated people in Forfar recognised Don's merit, and he had the friendship of Mr. Dempster of Dunichen, and Dr. John Jamieson,<sup>2</sup> author of the "Dictionary of the Scottish Language."

George Don's principal contribution to botanical literature is "An Account of the Native Plants in the County of Forfar and

<sup>1</sup> These by the favour of the President and Council of the Linnean Society are published as an Appendix to this memoir.—*J. B. B.*

<sup>2</sup> Dr. Jamieson was in Forfar from 1780-1797.—*Alex. P. Stevenson, Dundee.*



the Animals to be found there," which forms Appendix B to "General View of the Agriculture of the County of Angus or Forfarshire," compiled by the Rev. James Headrick, minister of Dunichen, and published in 1813.<sup>1</sup> In it he mentions ninety species of flowering-plants, a hundred mosses, and a hundred and twenty lichens from Clova. The sub-alpine plants lying between the alpine district and the lowest part of the valley of Strathmore are noticed; there he discovered *Caltha radicans* and *Crepis pulchra*, the latter a casual plant, since extinct (Smith, Eng. Bot. t. 2325, and Syme, Eng. Bot. v. p. 217). Then he discusses the flora of the lochs and marshes in the neighbourhood of Forfar, where he planted *Stratiotes*, and he noted nine species of pond-weeds from Rescobie Loch. He next describes the plants growing between the valley of Strathmore and the sea. Lastly, the sea-coast, from North Water Bridge, Montrose, Arbroath, Sands of Barrie, Dundee, and the banks of the Tay to the western boundary of the county, are pleasantly described. Altogether about three hundred "larger and rarer plants" are enumerated, and he says that most of these could be seen growing in his garden at Forfar. Don makes a rather scathing criticism upon the views of a Dr. Richardson of Ireland, on the qualities of the fiorin or bent-grass as a food for cattle, for, as the book was specially written in the interest of agriculture, special attention was given to the nutritive qualities of the native grasses. Don also gives lists of fuci, confervæ, zoophyta, infusoria, mammalia, birds, fishes, insects, worms, molluscs, and testacea; for he had a very considerable knowledge of zoology as well as botany, being a naturalist in the true sense of the word.

That Don succeeded for a time with his garden is evidenced by the following "Account of Forfar Garden," from the pen of Dr. Neill, which appeared in "The Scots Magazine" for June, 1809:—

"The existence of a flower garden and flower nurseries at Forfar, which for number, diversity, and rarity of the hardy plants cultivated in it are perhaps scarcely to be surpassed in Britain, is a fact not generally known. We think it right to give it what publicity is in our power, both as a piece of interesting information to botanical amateurs, and of justice to the indefatigable exertions of Mr. George

<sup>1</sup> A reprint of this is given as Appendix F to this Memoir.—I. B. B.

Don, who, we understand, has surmounted many difficulties in following out his favourite pursuit, and in forming so extensive and curious a collection of living plants. The whole of the plants are of a hardy sort, Mr. Don not possessing either green-house or stove for the protection of such as are tender. It is in *alpine plants* and in *hardy perennials*, and *annuals*, that the Forfar garden excels. The garden is situated on a bank which slopes down to the lake of Forfar, not far from the town; and it fortunately includes a great variety of soils, from dry to peat bog. No place could be found more favourable for alpine and aquatic plants, which are in general found to be of rather difficult cultivation, but which flourish here as in their native habitats. . . . To give some idea of the extent of the collection, I shall mention the number of species of several genera which are at present growing in the garden. Of the genus *Veronica*, there are 55 species, of *Salvia* 50 species, *Campanula* 44, *Allium* 40, *Saxifraga* 46—some of the rarest ones, as *S. caesia*, *S. petraea*, *S. rivularis*, etc.; *Dianthus* about 20 species, *Cucubalus* 13—being the whole ever cultivated in Britain; *Silene* nearly 50, *Fumaria* 14, the genera *Ononis*, *Lathyrus*, *Vicia* almost complete, *Astragalus* 40 species, *Trifolium*, no fewer than 69, *Hieracium* 44. It were needless to enumerate more. The botanist will form a due estimate of this collection on being told that he may see here upwards of 60 species of *Carex*, flourishing in great perfection. The agriculturist may here find the whole of the hardy Gramina, carefully distinguished and arranged, amounting to over 100 kinds. This season Mr. Don has introduced several hundred species of hardy plants, most of which we are told have never before been cultivated in Scotland. Among the rare British plants at present in flower in this garden may be mentioned the elegant little grass called *Knappia agrostidea* (*Agrostis minima* of Smith) and the *Holosteum umbellatum*. Among the hardy exotics now in flower, the *Panax quinquefolia* (the root of which constitutes the famous panacea of China called ginseng) is most remarkable. There are certainly very few living specimens of the plant in Scotland; and we have not before heard of its flowering in this country. The *Dalebarda fragarioides*, brought from North America to France by Michaux and only lately imported into Britain, has already found its way into Mr. Don's collection. It is entirely a new plant, belonging to the Icosandria Polygynia, and naturally allied to the Geums.

"The Forfar garden, it must, however, in conclusion, be confessed, makes very little external show, being in a great measure destitute of the ornament which arises from neat alleys with hedges or

edgings, or well laid-out or well-kept gravel walks. It is, in fact, merely an uncommonly excellent collection of hardy plants; and while it would doubtless fail to please the lover of tasteful gardening, it would as certainly prove highly interesting to the botanist and to the curious cultivator. Mr. Don, we have been told, has an ample nursery of rare hardy plants, for which he receives orders from the curious in different parts of Britain; and, when the proceeds of these shall enable him, we understand it to be his intention to improve the exterior appearance of his garden."<sup>1</sup>

Again, in the "Scots Magazine" for June, 1810, Dr. Neill, under the heading of *Scottish Alpine Plants*, thus refers to Don's work and garden:—

"That indefatigable and acute botanist, Mr. George Don, of Forfar, has lately explored Ben Lawers, and some of the neighbouring mountains in Breadalbane, for the fourth or fifth time. His success has been greater than on any former occasion. He found the *Carex ustulata* or Angebrannte Segge of Willdenow, figured by Schkuhrus, in his monograph on this difficult genus, under the title of *C. atro-fusca*. It has hitherto been considered as a native only of the mountains of Lapland and of Iceland. It was growing at no great elevation, but sparingly. He found likewise two rare species of *Eriophorum*, now for the first time ascertained to be natives of Great Britain—viz., *E. gracile* of 'Annals of Botany,' and *E. Scheuchzeri*, neither of them described in Willdenow's new edition of the 'Species Plantarum'; the last-mentioned curious and interesting species seemed to have been washed down from some inaccessible cliffs and crevices of the mountain, the plants being apparently newly rooted in the alluvion from the summit. Mr. Don having previously observed *E. alpinum* in the Moss of Restennet, near Forfar, has thus had the merit of adding three species of one genus to the British Flora. Some non-descripts are likewise among his recent discoveries, particularly a *Cerastium* and an *Arenaria*; and he brought with him several little known species of grasses belonging to the genera *Poa*, *Triticum*, and *Festuca*, some of which indeed may also prove non-descript. All of these novelties Mr. Don is to endeavour to cultivate in his garden at Dove Hillock, close by Forfar, a spot where a greater variety of curious hardy and alpine plants is collected than is perhaps to be met with in the finest gardens in Great Britain."

<sup>1</sup> Here we have a picture of the conditions which led to the confounding of plants referred to on page 142.—*I. B. B.*

Don had a practical knowledge of forestry and agriculture and was frequently consulted by landowners as to the planting of their estates.<sup>1</sup> In illustration of this may be quoted the following communication<sup>2</sup> which appears in the "Memoirs of the Caledonian Horticultural Society," Vol. i., 1814:—

"ON THE VARIETIES OF THE PINUS SILVESTRIS, OR SCOTS FIR.

"BY MR. GEORGE DON, FORFAR.

"Communicated in a Letter to Mr. P. Neill.

"(Read 5th March, 1811.)

"I am not acquainted with the latitude of subjects your Horticultural Society means to embrace; but I trust the following observations on the *Pinus silvestris* of Linnæus, the well-known Scots Fir, may not be unworthy of its notice.

"One would be apt to think that little new were to be expected concerning the history or qualities of a tree that is not only indigenous to our country, but has been cultivated among us from time immemorial; especially after an excellent monograph on the genus *Pinus*, by a first-rate botanist and observer, Aylmer Brook Lambert, Esq.; F.R.S. and a Vice-President of the Linnean Society, published not longer ago than the year 1803.

"During the winter of 1810, when walking in some woods in the neighbourhood of Forfar, composed of Scotch Fir, for the purpose of collecting mosses and lichens, my attention was withdrawn from these humble tribes, by observing the very dissimilar appearances of different trees, of what botanists consider as one species of *Pinus*, the *Pinus silvestris*.

"After examining a great number of trees, I became satisfied that it is possible to distinguish in our plantations, at least *four*

<sup>1</sup> Mr. Don of Forfar, to whom this work is under such high obligations, has been employed by several gentlemen, not only of this but of neighbouring counties, in stocking parks which are intended for permanent pasture with the most valuable of those grasses which are natives of the county; and also in extirpating such plants as are hurtful to cattle.—*Headrick, General View of the Agriculture of the County of Angus or Forfarshire, Edinburgh, 1813, p. 349.*

<sup>2</sup> See also his essay on "Indigenous Grasses," reprinted as Appendix E to this Memoir, for which he was awarded in 1806 a premium by the Highland Society of Scotland.—*I. B. B.*

varieties; and one of these indeed is of so fixed and marked a character, that it may probably be entitled to rank as a species.

"It seems somewhat curious, that in Dr. Smith's *Flora Britannica*, in Hull's *British Flora*, and in Withering's *Arrangement*,—while perhaps not fewer than six or seven varieties of some species of plants, not of the least known economical use or importance, are enumerated,—not one variety of the *Pinus silvestris* should be noticed.

"It may here be proper to state, that lately, while observing the cutting down of a fir plantation, near Forfar, I was not a little surprised at the great difference in the size, and consequently the value, of some of the trees in comparison with others of the same species, the difference in value being not less than four times that of others, and in some individual trees exceeding six times. I was at a loss to account for this fact, as the trees were growing promiscuously in the same soil and situation, and had been equally thinned. On more minutely examining those trees that far exceeded the others in size, I perceived that they were all of that variety which I have suggested as probably entitled to rank as a species.

"About a month ago, I re-examined the varieties of the *Pinus silvestris*, in order to collect some cones of each variety for seed; and I was then led to examine them with considerable care.

"I think the following remarks may tend to distinguish and characterize the different varieties.

*Var. 1.*

"The Common Variety, which I shall rank as the first, is well known by its branches forming a pyramidal head; the leaves being marginated, of a dark or full green colour, and but little glaucous underneath; the cones being considerably elongated, and tapering to the point; and the bark of the trunk being very rugged. This variety seems to be but short-lived, becoming soon stunted in its appearance, and it is altogether a very inferior tree to either var. 2 or 3.

*Var. 2.*

"This strongly marked and permanent variety, is distinguished from the former, by the disposition of its branches, which are remarkable for their horizontal direction, and for a tendency to bend downward close by the trunk. The leaves are broader than in var. 1., and serrulated, not marginated as in var. 1. From that circumstance alone, I should at once pronounce them distinct. The

leaves are distinguishable at a distance by their much lighter and beautiful glaucous colour. The bark of the trunk is not so rugged as in var. 1. Its cones are generally thicker, not so much pointed, and they are smoother than those of var. 1. The tree seems to be a more hardy plant, being easily reconciled to very various soils and situations. It grows very freely, and quickly arrives at a considerable size.

"This is the sort which I conceive might constitute a distinct species; and from the disposition of its branches, I would be inclined to call it *Pinus horizontalis*.

"May I here be allowed to conjecture, that the fir woods which formerly abounded in every part of Scotland, and the trees of which arrived at a large size, had been of this variety or species? I have certainly observed, that the greater part of the fir woods of the present day, and which are so much complained of, are of the common variety, or var. 1.; at least not more than one tree out of ten or twelve, is of var. 2., or the more desirable kind. I think this the most natural way of accounting for the supposed decline of the Scots Fir in this country; for two reasons; 1. Because var. 2. still retains all the good qualities ever ascribed to the Scots Fir; and 2., Because, as var. 1. produces its cones much more freely than the other, the seed-gatherers, who were only to be paid by the quantity and not by the quality, would seize upon the former, and neglect the latter.

"The evident remedy for this defect in our plantations of Scots Fir, is therefore the cultivating exclusively this second and well marked variety.

"Even granting it to be only a *variety*, it seems indisputable, that any fixed variety in a timber tree, rendering it more valuable, is as well worthy of being attended to, as are fixed varieties in cultivated grains, or culinary vegetables; and the great improvements that have resulted to agriculture and horticulture from attending to such varieties, are too well known to need to be insisted on.

*Var. 3.*

"This is likewise a remarkable variety, and seems quite distinct both from var. 1. and 2. Its leaves are of a still lighter colour than those of the last; insomuch, that they appear of a truly light glaucous hue, approaching to a silvery tint. Its branches form, like var. 1., a pyramidal head; but it differs remarkably in its cones, from both the former varieties; the cones in this variety having the

appearance of being beset with blunt prickles, bent backward. The leaves are serrulated,—a character which at once distinguishes it from var. 1., with which the tree agrees in having a pyramidal head. This variety is more common than var. 2., and it is also a good tree.

*Var. 4.*

"I have observed a fourth variety, the leaves of which are somewhat curled or rather twisted, and much shorter. This seems to be a scarce variety, as I have not hitherto seen more than three or four trees of it. It very nearly approaches *Pinus Banksiana* of Mr. Lambert's Monograph.

"Before concluding, I may remark, that Mr. Lambert, in his Monograph, mentions a variety found by Thunberg in Japan, having the branches horizontal. Can this be my var. 2.? Mr. Lambert thinks it may be a distinct species.—And I beg leave to add, that as I have collected seeds of all the above varieties, and have sown them in my grounds at Forfar, I hope to be able, in the course of the autumn, to show the young plants to any gentleman desirous of distinguishing the varieties in the seedling state. I have collected all the cones I could possibly find of vars. 2. and 3., being the most valuable, and mean to raise them extensively, as the most effectual means of promoting a reform in this department of the nursery business.

"Forfar Garden,  
10th February, 1811."

Despite all his exertions Don's pecuniary affairs did not prosper.<sup>1</sup> His long absences on botanical expeditions in later years interfered with his business. On some of these he took with him one of his apprentices or workmen, who had little

<sup>1</sup>Mr. Knox has in his possession a "Day Book" of Don's business covering the period from 1811 to 1815—that in which took place the crash in Don's affairs, his death, and the attempt by his sons George and David to carry on the nursery. He has kindly granted me the privilege of perusing it. The transactions are few and the sum obtained by them but a pittance. The plants recorded as sold form a noteworthy list, and Don's nursery must have contained a stock of plants remarkable both in quantity and in botanical quality. Two accounts in the book are of special interest:—Messrs. Dickson & Sons, nurserymen, Edinburgh, buy over 500 species of herbaceous plants, and from them the Edinburgh Botanic Garden obtained many of its plants; Mr. Hopkirk of Dalbeath is also a purchaser of out-of-the-way herbaceous plants, and his collection was the foundation in 1819 of the Botanic Garden of Glasgow.—*I. B. B.*

relish for the hardships such expeditions involved, the camping-out at night being especially distasteful, so that some left his employ. Again the sale of the specimens gathered, the occasional preparation of a *hortus siccus* to order, gave no adequate remuneration, so that his affairs became more and more embarrassed, until in 1812 some sort of arrangement had to be made with his creditors. From this blow the independent and rather choleric temperament of Don never recovered. And I rather fancy that the publication of the ninth volume of the *Herbarium Britannicum*, in which he used the printed title page of the preceding issue, was made in order to add a little to his store. It was probably his last publication, for we find that he came home from one of his expeditions in the autumn of 1813 labouring under a severe cold, and this neglected grew gradually worse. A suppurating sore throat ensued, and under conditions of poverty so extreme that he and his family had to depend for their daily bread upon the charity of neighbours, he lingered in excruciating agony for six weeks. He died on the 15th of January, 1814.<sup>1</sup> His funeral, Mr. Knox writes, according to the testimony

<sup>1</sup> By the courtesy of the Keeper of the Botanical Department, British Museum, Cromwell Road, the following letter is published in which Dr. Neill announces the event to Dr. Robert Brown:—

Canonmills, 28th Jan., 1814.

MY DEAR SIR,—I regret to say that our extraordinary botanical friend, G. Don, is no more. He died at Forfar on the 15th in consequence of an inflammatory sore throat to which he paid no regard till it was too late.

You knew the man, and will not be surprised when I tell you that his family is left in the most deplorable state of misery and want. Botanists must contrive something for their benefit. I shall let you know what is projected here, and doubt not that your influence with members of the Linnean Society will not be wanting.

We have subscribed a few guineas here, and sent to the Rev. Mr. Adie, Forfar, and to Mr. Thompson, nurseryman there, to be disbursed for their behoof to relieve the pressing wants. I believe there are four boys and a girl. The latter is an object, incapable of doing anything for herself. . .

—Dear Sir, yours truly, P. NEILL.—*Brown Corresp. Brit. Mus., Cromwell Road.*

The following are contemporary notices of the event:—

"Died, at his house, Botanic Garden, Forfar, on the 15th ultimo, Mr. George Don, F.L.S. and honorary member of the Dundee Rational Institution, in the prime of life and vigour of his pursuit of his profession. As a botanist, he undoubtedly stood high among his countrymen, and was no



of some still living that were present, was one of the largest which, up to that time, had been seen in Forfar. The whole town turned out to witness it, and followed the coffin to the grave in the churchyard.

This is the more extraordinary as during his lifetime he was as one apart from the crowd, one whose pursuits the crowd had no sympathy for, and he would have been described by many as the Kirkcaldy man described Adam Smith—"A pair cratur, gangs stotting about on the sands there for hours, and naebody kens what's in his head." He never mixed much with them or with burgh politics, not because he had no strong political beliefs, but rather because his means did not allow himself to touch municipal matters, soiled as they were so often in these times with petty meannesses or definite jobbery. We learn, however, that he joined a section of Forfarians, the followers of William Godwin, the founder of philosophic radicalism, and who adopted as their creed the principles—so far as they were practicable—laid down in his "Inquiry concerning Political Justice." This section of thinkers were mainly instrumental in forming the Forfar Library, which in addition to books also contained a microscope, telescope, and other philosophical instruments. Don became a member of the library in 1799 in consideration of his having presented three volumes of botanical drawings, being admitted without payment of dues. Don's poverty may be assumed from this, as being too poor to pay the usual subscription he is admitted on his gift of these volumes, one of which, containing figures of Fungi by Sowerby, is still in existence in the library.

mean disciple in the Linnæan school. In his premature death the science of botany (especially the cryptogamia department) has lost a most successful student, as in this branch of the science his researches were likely to be highly advantageous. He has left a family to lament the loss of an affectionate husband and tender parent; and in the circle of his acquaintance he was a social and communicative companion."—Dundee, Perth, and Cupar Advertiser, February 4th, 1814.—*Alex. P. Stevenson, Dundee.*

"Obituary, January 15th.—At Forfar, after a short illness, Mr. George Don, formerly Superintendent of the Royal Botanic Garden at Edinburgh. The extraordinary merits of Mr. Don as a practical botanist are very generally known, from the frequent and well deserved eulogies bestowed on him in Dr. Smith's "Flora Britannica" and Sowerby's "English Botany."—*Scots Magazine, 1814.—I B. B.*

His companions were readers, and met regularly to discuss books, politics, and general news in "Nanny Dagetty's," a small public-house in the East High Street, and there he sometimes surprised his comrades by coming in from some long expedition hungry and tired, and speedily clearing the table of all provisions. His comrades, drawn together by a similarity of opinions, were sympathisers with the French Revolution and were losing heart at the form of religion as then taught in many Scottish pulpits. They were clear-headed and intelligent, and their testimony to Don's qualities is complete and emphatic. Two letters from his friends which Mr. Knox has published bear this out, and the testimony is the more to be valued owing to the suggestions of moral turpitude by inaccurately recording plants which one or two botanists in later years have made against him, but which I trust the evidence produced in this article may do much to qualify. The first letter is from his friend William Roberts of Forfar to David Booth of Newburgh, and is dated Forfar, January 18, 1814.

DEAR SIR,—Mr. Rodger [a well-known Forfar lawyer] says he wrote you yesterday communicating the unpleasant news of the death of our friend George Don, but had omitted to request you to write a short sketch of this singular and celebrated botanical genius, and to cause a sketch to be published in one of the English diurnal newspapers. To stimulate you to this is my chief object in writing at present. A man of eminence in an art or science is entitled to notice, and when he leaves the world it argues a degree of inexcusable insensibility to devote no attention whatever to his memory. George was not only a self-taught man of science, but he was our particular friend. I therefore expect that you who knew every trait of his character will not delay a moment in taking up your able pen to celebrate his memory. Your description will aid a benevolent plan which a number of your acquaintances here have formed in behalf of the unhappy orphans left by our friend. Judge, then, how anxiously we will look for the effusion of your pen to departed genius and modest worth.

George's family consists of five sons and one daughter. The two elder sons, George and David, have studied botany under their father, and have made considerable proficiency. They know the greater part of the immense variety of plants in the botanical garden. The second son, David, is a fine boy of about sixteen years of age,

modest, communicative, and sensible, and the knowledge he has already acquired of plants would astonish you. Were his genius to be properly cultivated, I have not a doubt that he would soon be little inferior to what his father was in the science of botany. A number of individuals here have it in contemplation to support these two young men, to enable them to reside with, and provide for, the three infant sons. With a view to this benevolent plan, letters are to be sent to those gentlemen who corresponded with George on the subject of botany, soliciting their aid. Perhaps a small sum may be raised in this way to preserve the family from starving, and to enable the two elder sons to follow their pursuit in the knowledge of botany; and if they meet with any encouragement, they may possibly become an acquisition to the world. They are young and vigorous, and able to traverse alpine regions in the pursuit of rare plants. The eminent Dr. (Sir James E.) Smith patronised and justly appreciated the talents of the father. Perhaps you could apply to him for some aid to this friendless family. When Don died he was completely in want, and I believe your good friend Mr. James Webster was the first to throw in a temporary supply.

Ever your sincere friend, WILL. ROBERTS.

Mr. Booth carried out the proposal suggested, and applied to Sir James E. Smith, as will be seen from the following letter written by Mr. Booth from London, January 24th, 1814:—

SIR,—Mr. George Don, of the Botanic Garden, Forfar, was for many years my intimate Friend. I also understand that he was your constant correspondent. He is now no more. He died on the 14th inst., of a putrid sore throat, after six weeks excruciating pain. My residence is at Newburgh, Fife. I have been in London these two weeks past, and the above intelligence was communicated to me in a letter from Forfar. My correspondent states further that Mr. Don died in extreme poverty, having been obliged during his illness to accept of the private donations of Friendship, which must have ill accorded with his independence of mind. He has left a Widow and six Children, four of whom are incapable of labour. Two Sons (who, I suppose, are from fifteen to sixteen years of age) have been accustomed to work in the Garden, but they are quite unfit either to continue or to sell off the valuable collection of Plants which it contains. Indeed, there is no one in that quarter that can appreciate their value; and what has been

collected by the labour of years, will most probably be thrown out as useless cumberers of the ground.

I address you, without ceremony, as the Guardian of British Botany, to the advancement of which Mr. Don dedicated his life. In that department *you* knew his value; *I* knew him not only as a Botanist but as a Man, and I knew that, had he been capable of sprawling at the footstool of Power and licking the holy dust, it would not now have fallen to my lot to call upon his Friends to save his Family from Ruin.

I leave London in a few days; but should you be able to suggest any means to assist this unfortunate Family, and should you require any further information on the subject, you will oblige me by writing and poste to Newburgh if you have no Correspondent nearer Forfar. I am with much respect, sir, your obedient servant,  
DAVID BOOTH.

To the letter Sir James E. Smith sent the following reply :—

Norwich, February 4, 1814.

DEAR SIR,—The intelligence of your obliging letter of January 24 is truly grievous. Your name has been mentioned to me in the most respectful manner, and therefore I rely on your goodness to perform what I wish for the benefit of our lamented friend's family. I wrote immediately to Mr. Dawson Turner, Mr. Lambert, Sir J. Banks, and the Bishop of Carlisle. I have as yet an answer from Mr. Turner only, who, being in debt to Mr. Don 4 guineas, has generously sent me £20 to pay it. To this I am happy to add £5, which is all that my circumstances justify, as I have, like our friend, sacrificed all to science, except what I derive from a slender patrimony.

I hope something will come from the above sources, and many others to which I shall apply, but meanwhile £25 may be important to the widow.

I have also consulted some friends about the plants, but to no purpose. I have begged Mr. Sowerby to consult some common friends in London.

Mr. P. Neill of Edinburgh has written to me on the same subject as yourself. If you have any communication with him, as I presume, please to inform him that I am giving attention to the subject—but, above all things, I am unable to write many letters. When I go to London in April I do not doubt picking up many a pound for the good cause. Only, please appoint a place for it to

be paid into in London as it comes. I must mention that, as President of the Linnean Society, I have never allowed any subscription whatever to come before the Society as a *body*, for many reasons, but I will do all I can with individuals. Is not Mr. Brodie of Brodie likely to assist? I remain, Sir, your obliged and obedient servant, J. E. SMITH.

The subscription list thus commenced was kept up till the following August, under the treasurership of Dr. Neill, and a sum of about £80 was obtained. Mrs. Don removed to Newburgh, and to Mr. Booth, her husband's friend, was remitted from time to time, as required, the sum mentioned above. And it must have been well spent. Of the six children of her large family of fifteen who survived their father and reached adult age, all were brought up respectably, and the five sons followed their father's calling as gardeners.

The eldest son surviving to manhood, George, who died unmarried, eventually became a botanist of no mean repute, being a Fellow of the Linnean Society and the author of "A General History of the Dichlamydeous Plants," founded upon "Miller's Gardener's Dictionary," and commonly known as "Don's Gardener's Dictionary." The following is the obituary notice of him from the Proceedings of the Linnean Society for May 24th, 1856, p. xxxix :—

GEORGE DON, Esq., was born at Forfar on the 17th of May, 1798. He was the eldest son of the zealous British botanist of the same name, well known as the discoverer of many of the most interesting plants of the Scottish Highlands, and a constant correspondent of the late Sir James Edward Smith, who in his "English Flora" (under "*Rosa Doniana*") speaks of him as "one of the most indefatigable as well as accurate of botanists; who loved the science for its own sake, and braved every difficulty in its service." On the death of his father, in 1814, Mr. Don, in conjunction with his younger brother, David, made an attempt to carry on the nursery which their father had established at Forfar; but the business was shortly after given up, the elder brother removing in 1815 to Edinburgh, where he was for a time employed in the establishment of Messrs. Dickson and Co. In the following year he came to London, and after a short engagement at the Portman Nursery succeeded in obtaining employment at the Chelsea Botanic Garden, then under the charge of Mr. Anderson, with whom he remained as foreman till

1821, when he entered the service of the Horticultural Society, and was shortly after despatched as their collector to tropical Africa, South America, &c. During this voyage, which occupied something more than a year (from December, 1821, till February, 1823), he visited Madeira, Sierra Leone, St. Thomas's, Bahia, St. Salvador, Maranhã, Trinidad, Jamaica, Havana, &c., and his activity in collecting and sending home living plants, seeds, and dried specimens obtained for him the highest encomiums of the then Secretary of the Horticultural Society, Mr. Sabine. Many of these plants afterwards flowered at Chiswick, and were described by Professor Lindley in the "Horticultural Transactions," &c. Mr. Don's attention having been particularly directed to the introduction of tropical fruits and the procuring of accurate information respecting them, and his visit to Sierra Leone occurring at a time when many of its fruits (then chiefly known from Dr. Afzelius's Report to the African Society) were in perfection, he was enabled to collect materials for a very interesting account of them, which appeared in the 5th volume of the Horticultural Society's "Transactions," under the title "Some Accounts of the Edible Fruits of Sierra Leone, drawn up by Joseph Sabine, Esq., Secretary, from the Journal and personal communication of Mr. George Don, A.L.S." At the recent sale of the Herbarium of the Horticultural Society, specimens of the plants obtained by Mr. Don during this expedition, and which are valuable not merely in connection with his own botanical labours, but likewise as being, in part, typical of the species described by Messrs. Bentham, Hooker, &c., in the "Flora Nigritiana," were purchased for the Herbarium of the British Museum. His brother David having succeeded Mr. Brown on his resignation in 1822, as Librarian to the Linnean Society, George was for some years domiciled with him. During the earlier part of that period he appears to have been occupied upon a revision of the genus *Combretum*, which was read before the Linnean Society in March, 1826, and published in the 15th volume of its "Transactions." About the same time Mr. Don also communicated to the Wernerian Society a Monograph of the genus *Allium*, which is published in the sixth volume of the Memoirs of that Society. From 1828 to 1837 his time was principally occupied upon the "General System of Gardening and Botany," or, as it was afterwards called, the "History of Dichlamydeous Plants," consisting of four quarto volumes, averaging about 880 pages each. The original intention was that the work should include all the known species of plants, and that the whole should be comprised in four volumes; but this

being found impracticable, and the publishers receiving little encouragement to proceed, it was abruptly closed at the fourth volume without its having extended beyond the Dichlamydeae. He shortly afterwards entered into an engagement to supply the botanical articles of the "Encyclopædia Metropolitana," which he continued to do till the close of the work, a great part of the introductory treatise having been furnished by him, as well as the articles in the alphabetical series, from the middle of the eleventh volume to the end of the twelfth. In 1842-3 he was employed by the Board of Woods and Forests in naming the trees and shrubs in Kensington Gardens and the Parks, by means of which the names of a very considerable number of species and varieties of woody plants have become familiar to the visitors. He likewise rendered much assistance to the late Mr. Loudon in the preparation of the various botanical works in which that gentleman was engaged during the last ten or twelve years of his life; and the last of his botanical labours was the preparation of a supplement to Loudon's "Encyclopædia of Plants," which made its appearance only a few months before his death. He had been suffering at intervals during the last two years from disease of the heart, which had latterly prevented him from being present at any of our meetings, at which he had for many years previously been a constant attendant, having been elected an Associate in 1822, and a Fellow in 1831. He died at Campden Hill, Kensington, on the 25th of February last [1856], in the 58th year of his age.

The second son surviving to manhood, David, whose acuteness was alluded to by Mr. Booth, having been employed at the establishment of Messrs. Dickson in Edinburgh, also drifted from horticulture, and going to London became an assistant to Mr. Lambert, the well-known monographer of the genus *Pinus*. He afterwards became Librarian to the Linnean Society, and wrote many papers which appeared in the publications of that Society and elsewhere. At the time of his death in 1841 he was Professor of Botany at King's College, London. The following is the obituary notice of him from the Proceedings of the Linnean Society for May 24th, 1842:—

DAVID DON, Esq., Professor of Botany in King's College, London, and Librarian of this Society, was born in the year 1800, at Forfar, where his father, an acute practical botanist, had established a nursery and botanic garden. On his father's being afterwards



appointed to the charge of the Botanic Garden at Edinburgh, he attracted the notice of Mr. Patrick Neill, and was enabled to attend some of the classes in that city. His father, however, after a while quitting Edinburgh, he returned with him to Forfar, and received his early training in the garden there. Subsequently he again visited Edinburgh, and had charge of the stoves and greenhouses in the establishment of the Messrs. Dickson, of Broughton, near that city, then among the finest in Scotland. Late in 1819 he removed to London, and soon after became librarian to Mr. Lambert, in whose house he was domiciled, and of whose extensive herbarium he had charge. About this period he published "Descriptions of several new or rare Native Plants, found in Scotland, chiefly by the late Mr. George Don, of Forfar," and wrote "A Monograph of the Genus *Saxifraga*," which appeared in the thirteenth volume of our "Transactions." These publications brought him into favourable notice, and in the year 1822 he became Librarian of the Linnean Society, an office which he continued to hold till his death, and in which he acquired the universal respect and esteem of the members by the wide extent of his information and the liberality with which he was at all times ready to impart it.

On the death of Professor Burnet in 1836 he succeeded to the Botanical Chair at King's College, which he also retained till his decease. His constitution was apparently robust, but towards the end of 1840 a tumour appeared in his lower lip, which it was found necessary to remove. The disease, however, after a short respite, reappeared in the neck, and assuming by degrees a decidedly malignant character, left no hope of his long surviving. He died on the 8th of December last [1841], worn out by severe suffering, which he bore with the most exemplary fortitude, and was buried on the 15th of the same month in the cemetery at Kensal Green. He was married, but left no children.

As a systematic botanist his character stands deservedly high. His knowledge of plants was most extensive, and his appreciation of species ready and exact. The most important of his publications are his "*Prodromus Floræ Nepalensis*," his monographs of *Saxifraga* and other genera, and of the family *Melastomaceæ*; his memoirs on *Compositæ*, in our "Transactions"; and his papers, especially those on the plants of Peru and Chile, in the "*Edinburgh Philosophical Journal*."

The third son, Patrick Neill Don, died in Kent, having been gardener to the Right Hon. A. Beresford Hope at Bedgebury



Park. Another son, James Edward Smith Don, also went to England, being gardener to Earl Amherst, and Charles Lyell. Linnaeus Don was also gardener at Bedgebury Park, where he was killed in trying to stop a runaway horse.

Don's grandson, the son of Patrick Neill Don, writing from Bedgebury, Kent, in a letter quoted by Mr. Knox, says—"After George Don's death in 1814, my grandmother sold all the nursery stock and went to live at Newburgh, Fife. As my grandfather left no provision for his wife and family, she had a hard struggle to bring up and educate the children decently. Out of the large family of fifteen she bore to my grandfather, only six reached adult age, and one of them, the eldest, and the only girl, I think, died soon after their father, and before they left Forfar. All the five sons were bred to gardening, and they all came to England and settled in different parts of the country. The two eldest sons, George and David, did not long follow gardening, but having ability, and a great love for botanical science, struck out a higher and more congenial path for themselves. The others were not so fortunate, although they all held good appointments in their calling."

The Forfar garden<sup>1</sup> was let to Thomas Drummond, who afterwards became a botanical explorer, especially in Texas and the Rocky Mountains, and he was a tenant for ten or twelve years. On his leaving, the ground was divided. A part was given as a garden to the occupant of the house. The rest was parcelled out in gardens. Soon after this the house became a public-house, and the last traces of Don's garden ceased to exist. The hillock, and all to the west of it, Mr. Knox says is now enclosed

<sup>1</sup> The following is a contemporary record in the "Dundee, Perth, and Cupar Advertiser," April 28th, 1815, of the fate of George Don's collection of plants :—

ADVERTISEMENT.

TO BOTANISTS, &c.

To be disposed of forthwith.

The whole of the PLANTS in the late Mr. George Don's Botanic Garden at Forfar.

Orders addressed to Mr. Don's sons, George and David, will be executed with the utmost care, and on the most moderate terms.—*A. P. Stevenson, Dundee.*

within the grounds belonging to the Canmore Linen Works—the manager of which resides in the house, altered and enlarged, which Don built and lived in.<sup>1</sup> The lake in which he grew his aquatics is filled up and levelled, and covered with grass.<sup>2</sup>

He lies in Forfar Churchyard in a nameless grave,<sup>3</sup> but a street in Forfar bears the name of Don.

The genus *Donia* was dedicated by George and David Don “to the memory of the late Mr. George Don of Forfar, whose numerous discoveries have so eminently enriched the flora of his native land.” It is one of the *Leguminosæ* now sunk in *Clanthus*.

Mr. Knox says—“During his short life he did more than any other individual has ever done in stimulating the study of the botany of his native country, especially of the Highlands. His first excursion into the Highlands was made when he was fifteen years of age, and from that time on, during the remaining thirty-four years of his life, his enthusiasm never flagged. He has been the pioneer of all who have since studied the botany of our Scottish Highlands. If the incidents of his life could have been collected when full of life and colour, they would have formed a biography as interesting as that of Dick or Edwards. But at that time literature busied herself but little with such men as George Don. The broadening, humanising influence of Burns had not yet broken down the middle-wall of partition which separated rich and poor in literature and science.”

<sup>1</sup> See Footnote on page 61.—*I. B. B.*

<sup>2</sup> Dr. Neill, writing in the “*Scots Magazine*” in 1815, says (page 727):—“Lightfoot in his *Flora Scotica* mentions that truffles are found in the woods near Miggerney in Glenlyon, Perthshire, in the greatest perfection in the autumn and winter months. The late distinguished Mr. George Don, in trenching a part of his botanic garden at Forfar—it is much to be regretted that this admirable collection of hardy plants, particularly rich in alpine rarities, has, since Mr. Don’s death, been entirely dissipated and destroyed—fell in with several clusters. Three years ago several detached specimens were observed on a bank at Bellevue, in the immediate neighbourhood of this city. It appears, therefore, that truffles, though perhaps not plentiful, are pretty widely distributed through Scotland.—*I. B. B.*”

<sup>3</sup> “It seems to be remarkable that there is no monument to mark Don’s grave, and we understand that steps are now being taken to do so, and that Mr. M’Nab, at the Botanic Garden is willing to receive subscriptions for the purpose.”—*Mr. Neill, Biographical Notice of the late Mr. George Don of Forfar.* Apparently nothing was done in the matter.—*I. B. B.*

### Postscript by Mr. A. P. Stevenson of Dundee.

Mr. Knox, in his sketch of Don, which in the first instance was communicated to the Perthshire Society of Natural Science on January 6th, 1881, pleaded strongly for some memorial to George Don, even "a simple stone to mark the spot where his ashes rest." Nothing practically was done, however, till 1902, when Mr. Knox was fortunate enough to enlist the sympathy and enthusiasm of G. Claridge Druce, Esq., the President of the Pharmaceutical Conference held at Dundee in August, 1902. Mr. Druce, in his Presidential address, dealt with Scottish Botany, and devoted a large part to George Don and his work. A movement was then inaugurated for the erection of a memorial, and the following extract from the *Dundee Advertiser* of October 17th, 1903, tells of its success:—

### FORFAR.

#### DON MEMORIAL FUND.

A joint meeting of the members of the Field Club and subscribers to the Don Memorial was held in the Town Hall last night to consider and resolve as to the form and site of the proposed memorial. Mr. John Knox, President of the Club, who occupied the chair, gave an interesting account of the history of the movement to erect a monument to the memory of George Don, Forfar's self-taught botanist. Recently two gentlemen from Dundee—Mr. Kerr and Mr. Cumming—had called upon him (Mr. Knox), and stated that the Committee of the Dundee Pharmaceutical Conference had managed things so well that they had a surplus of £5, which they had to devote to some object, and they proposed to allocate it to the Don Memorial. He had also received £5 from the Forfar Field Club, a similar sum from the late Sir Thomas Thornton, and with other subscriptions he had now a total of £105 in his possession. The unanimous recommendation of the Field Club was that the memorial should be erected in the Reid Park, Forfar, in accordance with the practice that prevailed in other places, although, in his own view, there ought also to be some small memento placed over Don's grave in the parish churchyard. Mr. R. F. Myles moved that a Committee be appointed to wait on the Town Council in order to ascertain if they approved of the action

to erect a monument in the Reid Park. Mr. Malcolm M'Farlane seconded, and Mr. J. Watson Craik supported the proposal, which was unanimously adopted. A Committee, with Mr. Knox as Convener, was accordingly appointed to deal with the matter.

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18. NEILL, PATRICK. *Scottish Alpine Plants*. "Scots Magazine," June, 1810.
19. NEILL, PATRICK. *Biographical Notice of the late Mr. George Don of Forfar*. Trans. Bot. Soc. Edin., vol. iv, 1850-53, p. 117. Communicated to the Botanical Society of Edinburgh, May 15th, 1851, and published in the "North British Agriculturist" for that year, and in Henfrey's "Botanical Gazette," vol. iii. (1851).
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## APPENDIX A.

## GEORGE DON'S REPUTED DISCOVERIES.

Having given the opinion of some of Don's contemporaries and that of his private friends, all of whom testify to his moral and truthful character, I have now to undertake a less pleasant task, owing chiefly to the remarks which in later times Dr. Walker Arnott, in the pages of "The British Flora," made upon his recorded discoveries. In the case of *Lychnis alpina* he suggests that someone, presumably Don, purposely sowed it on Little Culrannoch; but this suggestion is not borne out by the facts, while the subsequent discovery of it on another hill in Cumberland appears to leave no reasonable doubt that the plant, although very local, is indigenous to these islands. Arnott's remarks, and the list of "Reputed discoveries" at the end of Hooker's "Student's Flora," which at the time of its publication still remained unverified, would lead the imperfectly informed reader to consider Don to be an extremely careless, if not untrustworthy recorder. It must be remembered that there was little information available to give a more favourable impression, since naturally it was outside the scope of the "Student's Flora" to furnish particulars of the original discovery of the various species described, so that Don's undoubtedly good work received there no attention, and the average reader probably made an adverse judgment based upon the fact that so many plants recorded by Don still awaited confirmatory evidence of their occurrence in Britain; and I am afraid I am one of those who must plead guilty to having come to this hasty, and as I now believe, incorrect opinion.<sup>1</sup>

<sup>1</sup> The following letter bearing upon Don's discoveries appeared in the "Dundee Advertiser" of August 14, 1902:—

WILLIAM GARDINER AND GEORGE DON.

To the Editor of the Dundee Advertiser.

SIR,—Local botanists are greatly indebted to you for the excellent and lengthy report of President Druce's address on Scottish botany, especially with regard to George Don and his work. Too little is known about this Forfar "worthy." The "Dictionary of National Biography" contains the lives of his two sons, but their greater father is not inserted either in book or supplement. The papers on

It will be well to quote the opinion given by Mr. H. C. Watson in his "Cybele Britannica," since he was our best phyto-geographer, who had exceptional opportunity to form a matured judgment, and

Don's life and work by Mr. John Knox, of Forfar, and Mr. Druce are buried in the somewhat inaccessible pages of the "Scottish Naturalist," and it is a great convenience to have the report in your pages. Don's connection with Dundee is not sufficiently brought out, however. The parish of Muirhead [presumably a mistake for Menmuir], I presume, is Muirhead of Liff; but the general impression here is that Don was born in this city, where, as Professor George Lawson wrote in "Hogg's Instructor" in 1852, his father followed the trade of a currier, afterwards removing to Forfar. Don himself had many friends in Dundee; William Gardiner's father and uncle botanised with him occasionally, and the "Dundee Advertiser," in its notice of Don's death in 1814, says he was "an honorary member of the Dundee Rational Institution," a society which did much towards cultivating a taste for literature and natural science in the first decades of last century ("Scots Magazine," 1816, page 169). Don has certainly suffered in the estimation of botanists from the fact that so many of his "finds" have not been verified. Dr. Walker Arnott, of Glasgow, was probably the strongest objector. Hewett C. Watson, while inclined to put a fair amount of credence in Don's statements, points out that so careful a botanist as William Gardiner has been unable to find the stations of plants indicated by Don. Mr. Druce's examination of Don's actual specimens must add to the weight of his testimony in Don's favour. But the feeling of suspicion has long been abroad, although now and then we are gratified to see some of Don's "reputed finds" actually found in the places where he said he discovered them. The following quotation from a MS. by William Gardiner, the Dundee botanist, may well see the light now, and may throw some light on the question. In June 1831, Gardiner spent a week in botanising on the eastern coast of Forfarshire, and part of his "Journal" appeared in "London's Magazine of Natural History,"—the whole paper will be found in the "Botanical Repository," a manuscript magazine, now in the Lamb Collection in our Free Library. The extract I quote refers to Auchmithie:—"Mine hostess of the great room" informed me that Mr. Drummond, of Forfar (Don's successor at Dove Hillock), used to lodge sometimes whole weeks in her house for the purpose of botanising the adjacent rocks and braes, and would rise and walk out every morning by three or four o'clock in pursuit of plants. On my mentioning Mr. Don, 'out spoke mine host,' and pronounced a warm invective against that gentleman, who, he observed, had ruined these braes, for since he had been prowling about there, not a plant worthy of notice was to be seen. I had no reason to doubt the veracity of mine host's assertion, for I have frequently searched Mr. Don's habitats in vain. I verily believe his plan respecting rare plants, was, first to dig up all the specimens he could see, and then note the locality. I highly revere the memory of my distinguished countryman, and gratefully remember how richly he contributed to my favourite science; but the above-mentioned practice is, I should think, justly deserving of censure."

In a pencil note written many years after, Mr. Gardiner says—"If true—but I now remove the censure as premature." But the paragraph stands, and is worth something towards the elucidation of some of Don's "finds."—I am, &c.,

ALEX. P. STEVENSON.

whose knowledge not only of plants, but of mankind, was very thorough. He had the critical element very largely in his composition, and he was extremely keen in detecting "errors" and "impositions," and was merciless in exposing and punishing mistakes; neither wealth nor position for a moment deterred him, and all our leading botanists at one time or another felt the smart of his lash, so that we may be sure that any opinion on Don which he may give will not be influenced unduly by mercy. This is what he says—"It appears that Don was in the habit of bringing the plants found on his excursions, into his garden for cultivation, and there can be scarcely a doubt that he occasionally gave or sold plants from his garden without explaining that they were not sent direct from native localities, but indirectly through his garden. When we add to this obvious source of error, on the part of both sender and receiver, the fact that botanists were far less particular about the nativity of specimens some half a century ago, and also that George Don, not having a scientific education, was loose even among the loose in his indications and reports of localities, the presumption of frequent errors becomes very strong. Hence I come to the conclusion that everything reported by or from Don, and remaining unverified after modern search, ought to be excluded from our list of native plants and their stations; it being safer in science to take the chance of losing a few truths of small detail, than to run the great risk of mingling many errors with our presumed facts. Still, I do not see that anything at present known of his conduct or any necessary inferences from known facts would sufficiently warrant us in charging him with intentional deception or wilful falsehood. My individual impression is that Don's reports of species and stations, though many of them were doubtless correct, cannot be safely relied upon in strict science unless confirmed afresh, but that a fair degree of moral confidence should still be given to his statement."<sup>1</sup>

<sup>1</sup> The following extracts from two letters to Sir J. E. Smith from Dr. Patrick Neill (*Smith Corresp. Linn. Soc.*), who was so good a friend to Don, have an important bearing on this subject:—

EDINBURGH, 5th November, 1804.

"On my return, some time ago, from Orkney and Shetland, where I had spent the autumn in seeing some relatives, and in pursuing natural history, I received from Mr. Don your obliging letter. I have been much occupied with business since my return, and hope you will excuse the lateness of this reply.

"The matter you refer to (respecting Mr. D[on]'s complaints on the late Mr. M[ackay] for plagiarism, &c.) is of some delicacy. I myself never heard a



After quoting this important and impartial statement by one so well qualified to judge, and remembering that it was written years ago, when few had a good word to say for Don, and before the confirmation of several of his records had been made, I shall do well to give the list of plants said to be recorded by Don, and given as unverified by Sir J. D. Hooker in the "Student's Flora," and by other writers.

surmise of such complaints till poor J[ohn] M[ackay] had been a year in his grave, altho' several of the disputed articles had been published long before his death. In excuse for this, Mr. D. I know alleges, that he had little opportunity, in the country, of learning what was published—which is very credible, tho' not quite satisfactory. With the greatest respect for Mr. D. I must say, that he seems to me to have become rather too eager in appropriating his discoveries, and to have unfortunately fallen into a habitual inclination to detract from the merit of M., sometimes, too, in rather a rough manner. Being entirely familiar with Mr. D. I have, more than once, told him of this fault. In answer to your queries, I would say: When Mr. D. asserts a simple fact relative to himself, or that fell under his own eye (such as, that he himself found a certain plant, on a particular mountain, and on a certain date), I am convinced that you may rely implicitly on his word. But, if he speaks of things that did not fall under his own observation (such as denying that another man ever found a particular plant or visited a particular spot), I am convinced you would do well to hesitate. In short, Mr. D. is certainly a man of great integrity and veracity; but as certainly he is very liable to blunder, and I might add, to be positive.

"As far as I can recollect, the cases that seem principally dubious and on which Mr. D. most strenuously insists, are two: *Stellaria cerastoides* and *Thlaspi hirtum*. You mention, I think, that Mr. M. found *St. cerastoides* on mountains to the north of Invercauld; whereas, Mr. D. says Mr. M. was never so far north as Invercauld. May it not have happened, that Mr. M. wrote merely, that the plant was found there, without specifying by whom<sup>1</sup>; and may not you (as naturally you would) have taken it for granted that M. himself was the finder? You can best determine the correctness of this supposition, if you happen to have preserved his letters. You also, I believe, give Mr. M. as the discoverer of *Th. hirtum* near Perth; whereas Mr. D. alleges, Mr. M. has got his specimens out of Kinnoul garden, it having originally been found wild by the Earl's gardener in the neighbourhood somewhere. Now, who can say that Mr. M. himself did not find *Th. hirtum* in the country around Perth? From my knowledge of Mr. M. I cannot easily believe him capable of being so far led astray by a silly vanity, as directly to violate the truth. But I condemn Mr. M.'s *silence* at anyrate, in any case. Except I knew the particular cases you refer to, it is impossible for me to aid in clearing Mr. M.'s memory. I consider the plan you point out, and are following (mentioning the claims of Mr. D. and others, and saying nothing of the deceased), as by far the best one, till you have completely satisfactory evidence."

EDINBURGH, 9th May, 1806.

"I write you at present chiefly to inclose a little chapter on the natural history objects around Edinb., which I put together to oblige an acquaintance, Mr.

<sup>1</sup>He wrote so to Sowerby, H.S. (Note by Sir J. E. Smith).

Under each species will be quoted the opinions expressed by Dr. Walker Arnott in "The British Flora" (Ed. vi., 1850, and Ed. vii., 1855), by Dr. Boswell Syme in the third edition of "English Botany," and by Mr. H. C. Watson in the "Cybele Britannica" and its "Compendium." Reference will also be made to Sir James E. Smith's "Flora Britannica" (1800-04), "English Botany" (1795 *et seq.*), and "The English Flora" (1824-28), Hooker's "Flora Scotica" (1821), Gardiner's "Flora of Forfarshire" (1848), Babington's "Manual of British Botany" (Ed. vii., 1874), Don's

Stark. It is carelessly done, being intended merely as a sketch, and meant to be anonymous. Mr. Stark, however, wished to put in my name, which he did in his own way, without my interference, as you will readily believe from the style of flattery in it. I mention this, because, to my surprise, Mr. Don has found some fault with the mention of 5 plants in the sketch, the Edinr. habitats of which he claims as of his discovery. Altho' it is highly improbable that you should otherwise ever have heard of such a publication as the Picture of Edinb., I think it right to outrun Mr. Don's over-jealous fears, by cautioning you (and, with your permission, any botanical friend who might be writing Scottish Botany), that by mentioning *Erioph[orum] polyst[achyum]*, *Gal[ium] pusill[um]*, *Valer[iana] pyc[naica]*, *Poa distans*, and *Hier[acium] umbellatum*, I had not intention of negating Mr. Don's claims of discovery, and certainly none of assuming them to myself. In a second edition I can easily remove all dubiety, and will take care to do so. Indeed, *Hier[acium] umbellatum* and *Val[eriana] pyc[naica]* are already published in his Herbarium, and had I quoted any authorities I would have quoted it also. And as to *Poa distans*, Mr. D. must be in a mistake, as I find I have already mentioned it (in a review of Dr. Rotheram's nomenclature of Sir R. Sibbald's plants, published in "Scots Magazine" for April, 1802) as growing on Leith shores.

"As to *Erioph[orum] polyst[achyum]* and *Gal[ium] pusill[um]*, I really would not readily have considered them as so rare plants in Scotland as to be accounted discoveries by a botanist like Mr. D., and it was mere accident that I did not rather mention such plants as *Vicia sylvatica* and *Strat[iotes] Aloides*, which would have equally answered my purpose, and certainly have procured me the same credit with the public.

"Tho' Mr. D. is a most acute botanist, I need not tell you how very confused and inaccurate a writer he is, nor how much labour it has given me to extract the habitats and observations which appear in his 5 published fasciculi. They are not yet correct; but they would certainly have been infinitely worse had I not transcribed the greater part. I cannot help considering his conduct to me, therefore, as partaking not a little of ingratitude. But much delicacy of feeling ought not, perhaps, to be expected from one who has had few opportunities of improvement—(you must understand that he accused me to one or two of my acquaintances, and without speaking to myself, of "robbing" him of his discoveries). His conduct to myself on this trifling and unexpected occasion, convinces me more and more of the justness of my estimate of his violent complaints against the late Mr. Mackay."—J. B. B.

"Herbarium Britannicum" (1804-12), and his herbarium, and to Don's plants in the possession of Miss C. E. Palmer of Odiham, sent by him to her grandmother, the fourth Countess of Aylesford, circa 1804-10.

**Ranunculus alpestris, L.**

"By the sides of little rills, and in other moist places, about two or three rocks on the mountains of Clova, Angusshire, very rare, and but seldom flowering." Mr. Don suggests that "its herbage bearing a great resemblance to several of its kindred, may easily have been overlooked, but when in blossom it is truly a splendid plant." Smith in Trans. Linn. Soc., x., p. 343 (1811). Smith's paper was read in 1809. "Mr. Don informs us it rarely produces flowers where he observed it, and that the plant itself is not plentiful . . ." Sm. in Eng. Bot., t. 2390 (1812).

"Appears to have been from Don's garden." Hooker and Arnott, Brit. Fl., Ed. vi., p. 9. "A specimen from Don . . . marked . . . 'near the head of Clova,' has the aspect of a wild one." *Id.* Brit. Fl., Ed. vii., p. 9.

"Clova Mountains, G. Don, in Herb. Smith, now generally excluded from our flora." Watson, Comp. Cyb. Brit., p. 477.

"Incognita. It is difficult to decide under what category of citizenship . . . this alpine *Ranunculus* ought to be placed. The existence of a specimen in the Smithian herbarium, with a memorandum that it was collected in Forfarshire by Mr. George Don, seems very good evidence in favour of its nativity; and yet no other botanist among the many who have searched the mountains of that county has ever detected an example of this species there. Moreover its geographic distribution otherwise would not much incline us to expect the species in Scotland; since it is not found in Scandinavia, nor any of the arctic lands. At the time when Mr. Don was a collector, it was not the custom with botanists to be very particular in recording the locality and distribution of plants; and they might not always be sufficiently careful in keeping British and foreign, wild and garden examples of the same species, apart from each other." Watson, Cyb. Brit., i., p. 82.

"No doubt Mr. Don made some mistake in thinking he found it there." Syme, Eng. Bot., i., p. 70.

After Don's precise statement, it appears very difficult to believe he was in error. It must be remembered that hardly any competent botanist has visited the Clova mountains at so early a date as the plant flowers to make a systematic

search.<sup>1</sup> The only alternative to me seems that Don might have gathered a specimen of the Batrachian group, and planted it in his garden, where he afterwards confused it with *R. alpestris*, but from Smith's specimen being in flower it does not appear probable unless Don sent to Smith on April 3rd a specimen from his garden. The date is early for a plant to flower in high altitudes, the chief Continental floras giving June and July as the date of flowering.<sup>2</sup> The Continental distribution as given by Nyman in his "Conspectus," is the Pyrenees, Jura, Alps, and Carpathians.

***Caltha radicans*, Forster.**

"Forfarshire, Don (known now in cultivation only)." Hooker, Student's Fl. (1870), p. 9.

"Mr. T. F. Forster, who first defined this species of *Caltha*, . . . favoured us with this specimen from his garden, which agrees with wild ones sent by Mr. G. Don from Scotland, except that in the latter the stems are more erect. Mr. Forster's plant was found in Scotland by Mr. Dickson." Smith, Eng. Bot., xxxi., t. 2175 (1810).

"*C. radicans* may be retained as a book species, 'in compliment to its author'; but it is no species in nature, apart from *C. palustris*. Hooker correctly places the one as a variety of the other." Watson, Cyb. Brit., i., p. 93.

"Province 15, in a ditch, Carse, Forfar, 1790, G. Don." Watson, Comp. Cyb. Brit., i., p. 477.

See also Babington, Man., Ed. vii., p. 12 (1874).

"*Var. β. radicans*, Hook. 'In a ditch that runs from the farm-house, called Haltoun, on the estate of C. Gray, Esq., of Carse, Forfarshire, 1790, Mr. Geo. Don.' No other botanist has, I believe, found this plant, but if the station is not destroyed, future research may determine whether it is not identical with *C. palustre*, *β. minor*, the alpine state of the common plant." Gardiner, Fl. Forfar., p. 5.

"Is only known, and in our opinion has never been known, except as a garden variety." Hooker and Arnott, Brit. Fl., Ed. vi., p. 11.

<sup>1</sup> This requires ualification, as Scottish botanists know. The following excerpt bears witness to search at a time when the plant might have been in flower:—"Dr. Graham starts about the end of April for the mountains of Clova with a small party in quest of some of the spring flowering plants said to have been found by the late G. Don, such as *Tussilago alpina*, *Hierochloa borealis*, and *Eriophorum alpinum*, &c." *Winch Corresp. Linn. Soc.*; *James Macnab to N. J. Winch, 23rd April, 1834.*—*I. B. B.*

<sup>2</sup> In the Royal Botanic Garden plants grown in frames do not flower earlier than May.—*I. B. B.*

"*C. radicans* sub-species." Syme, Eng. Bot., t. 41. The "radical" leaf added by J. E. Sowerby from Eng. Bot., t. 2175.

Arnott's statement, positive though it be, is wrong. There were wild examples existing in the Smithian and British Museum Herbaria, and it appears that Don suggested the name *C. denticulata* for it to Smith. The plant has been rediscovered near Rescobie by Mr. W. Graham, and I have also seen it in Inverness-shire near Loch Morlich, in south Aberdeenshire near Invercauld, in Ross-shire at Dundonnell, and in Caernarvonshire at Llanberis. It is probably widely spread. The plate of it in the Linnean Transactions is perhaps the reason why it is not more generally recognised, from the fact that the leaf which is figured, is assumed to be one of the radical leaves of the main stem. I think it is a lower leaf from one of the rooting nodes of the stem, as these usually present the triangular outline, whereas the real radical leaf is only rarely of that shape. The chief characters appear to me to be the uniformly rooting stem, and the narrower sepals. It is always found in shady places, growing in rich mud, and usually at the base of high mountains, or in sub-alpine localities.

#### **Rapistrum orientale, DC.**

"Prov. 15, Forfarshire; G. Don, the sole authority. Error?" Watson, Cyb. Brit., i., p. 136. "'The *Myagrum orientale*' of Don's [Forfarshire] list." Watson, Comp. Cyb. Brit., p. 482.

A plant of casual occurrence only, which has been found in other parts of Britain introduced with corn or ballast from southern and eastern Europe.

#### **Arabis ciliata, R. Br.**

"Incognit. in Scotland. The late George Don found an *Arabis*, which he calls '*Turritis nov. sp.*,' near Loch Lee, in Glen Esk, growing on rocks; and he states that Mr. J. T. Mackay recognised it as the same which he had found in Ireland . . . In '*Flora Scotica*' the Glen Esk plant is referred to *A. ciliata*, but it does not appear that the author had seen specimens from Don. The probability seems strong that *A. hirsuta*, which occurs on the mountains of Forfarshire, was mistaken for *alpina* or *ciliata*." Watson, Cyb. Brit., i., pp. 142-143.

"On rocks in Glen Esk, Loch Lee, 1801, Mr. G. Don. This rare rock cress Mr. Don considered to be a new species at the time of its discovery, but Mr. J. T. Mackay, on a visit to him in 1811, identified it as the same he had gathered in Ireland, and Sir James E. Smith pointed out its synonym." Gardiner, Fl. Forfar., p. 14.

The specimen in Miss Palmer's collection labelled in the Countess of Aylesford's handwriting *Turritis alpina* is from

the Glen Esk locality, being sent in the fresh state by Don. It is neither *A. ciliata* nor *A. alpina*, but a form of *A. hirsuta*, though more glabrous than usual. The error in identifying it with the Irish *ciliata* appears to be due to Mackay and Smith and not to Don.

### ***Silene alpestris*, Jacq.**

"A specimen of this plant gathered by Mr. G. Don 'on a rock on a mountain to the east of Clova, Angusshire,' is in Mr. Borrer's Herbarium," (Babington, Man., Ed. vii., p. 51). Watson, Cyb. Brit., i., p. 203. Gardiner, Fl. Forfar., p. 27. See also Syme, Eng. Bot., ii., p. 134.

"They appear certainly . . . obtained from a garden." Hooker and Arnott, Brit. Fl., Ed. vi., p. 59.

"One of Don's reputed discoveries." Hooker, Student's Fl. (1870), p. 475.

"Prov. 15. Forfar; 'G. Don in Borrer Herb.' Error?" Watson, Cyb. Brit., i., p. 203. "Specimens from Don are now distrusted." Watson, Comp. Cyb. Brit., p. 490.

A very unlikely plant to be found in Forfarshire. Don never published a record of it himself, nor have I seen a specimen labelled so by him.

### ***Arenaria fastigiata*, Sm.**

"Mr. George Don had the good fortune to discover this new British plant on rocks in the mountain of Clova, Angusshire, and also in Fifeshire. He rightly referred it to Jacquin's *A. fasciculata*." Smith, Eng. Bot., xxv., t. 1744 (1807).

It was previously distributed by Don in "Herbarium Britannicum" No. 136, where Don says, "It is several years since I first observed this plant . . . [in] Clova, but very rare, . . . I have likewise found it on some rocks in Fifeshire, but rare. My specimens are from Clova."

*Alsine fastigiata*, Bab. "Prov. 15. Forfar; Fife; G. Don. Error?" Watson, Cyb. Brit., i., 220. "Dr. Arnott intimated in the 'British Flora' that he was in possession of Clova specimens 'from Drummond,'" . . . Watson, Comp. Cyb. Brit., p. 491.

Drummond was . . . Don's successor at Forfar, and he may have possibly sent them from Don's garden.

"Though it has been found by no botanist at present living, it would scarcely be proper to omit it from the list of British plants. I have one of Don's specimens; this has no particles of mica adhering to the roots, as most frequently happens with plants gathered on the Clova mountains, where it purports to have been gathered." Syme, Eng. Bot., ii., pp. 114 and 115.

Neither the specimen in Miss Palmer's collection nor that in the "Herbarium Britannicum" has any mica adhering to the roots. Arnott, in the "British Flora," says that he has specimens from Drummond as well as Don; so that some corroboration exists, although not of an entirely satisfactory character, since Drummond may have sent them from the Forfar garden.

The plant named *Arenaria fastigiata* by Smith is the *Alsine Jacquini*, Koch.

**Sagina alpina**, Druce, in the "Scottish Naturalist," p. 177 (1884).

"Top of Ben Nevis, Don." Hooker, Student's Fl. (1870), p. 61 [as a var. of sub-sp. *S. maritima*].

"Prov. 16. Summit of Ben Nevis; G. Don. Apparently not found by any living botanist, and the summit of Ben Nevis is almost destitute of phænogamous plants." Watson, Comp. Cyb. Brit., p. 490.

"Don seems to have found it on Ben Nevis." Bab. Man., Ed. vii., p. 53.

See also *S. maritima* Don, var. *alpina*, Syme, Eng. Bot., ii., p. 117.

Doubtless Don found this plant on Ben Nevis in 1794, for, as Mr. Watson elsewhere asserts that with Don the "summit of mountains" means "declivities many feet below," the fact that the summit of Ben Nevis is almost destitute of phænogamous plants does not disprove Don's assertion. It was my good luck in company with Mr. E. Robertson of Burnside, Forfar, to find a *Sagina* in the upper part of Corrie Sneachda, and on the high rocks between the head of Loch Aan and Ben Mac Dhu, which Mr. Arth. Bennett says he cannot keep apart from Don's plant. See Annals Scott. Nat. Hist., p. 273 (1892).

**Stellaria scapigera**, Willd.

"Sides of rivulets on the mountains of Badenoch, between Loch Ereachd (Ericht) and Loch Laggan; and by the side of a rivulet on a mountain to the eastwards of Loch Nevis, Inverness-shire." Don, Herbarium Britannicum, No. 10 (1804).

"Wild specimens of this new and curious *Stellaria* have been obligingly communicated to us by Mr. G. Don, who gathered them at different times of the year 1794 to 1803 . . . The plant was received by the younger Linnaeus from the Kew garden . . . but its native country was altogether unknown till Mr. Don's fortunate discovery." Smith, Eng. Bot., xviii., t. 1269 (1804).

"*S. scapigera* . . . is apparently a monstrosity of *S. graminea*, and probably from Don's garden; some plant he met with being mistaken by him for the same as the one he had in cultivation." Syme, Eng. Bot., ii., 99.

"We now believe [the] plant to exist nowhere in a wild state, but to be a mere cultivated form of *S. graminea*. Don cultivated it extensively in his garden at Forfar. . . . It was originally described by Willdenow from a plant in the Berlin gardens, who does not say from whom it was received; but it is not even conjectured to have been from Scotland, and has not been found anywhere else. It . . . increased by division, but not by seed, although seed is produced sometimes freely. In the Glasgow Botanic Garden, . . . *S. graminea* [springs] up in the vicinity of pots in which *S. scapigera* [has been] cultivated." Hooker and Arnott, Brit. Fl., Ed. vii., p. 70.

"According to Boswell Syme this is 'apparently a monstrosity of *S. graminea*'; whereas Prof. Babington 'can scarcely believe this is a state of *S. graminea*.' Prof. Arnott says its seeds produce *S. graminea*." Watson, Comp. Cyb. Brit., p. 492, and Cyb. Brit., i., p. 225.

There need be little doubt that Don found it in the wild state and brought it to his garden. I can find no evidence to support Arnott's statement that it was extensively cultivated there. It should be noted that Arnott does not state positively that its seeds produce *S. graminea*, but merely that *S. graminea* comes up in the vicinity of *S. scapigera*, which does not produce itself from seeds. Surely Arnott with his opportunities ought to have been able to say positively whether or no seeds of *S. scapigera* did or did not produce *S. graminea*. If they did, it does not negative Don's statement that he found it wild. *S. scapigera* is, I believe, a monstrous condition of *S. graminea*, but it must have originated somewhere, and quite as likely on a highland moorland as in a lowland garden, and it was Willdenow, not Don, who gave it specific rank.

### ***Lychnis alpina*, L.**

"Mr. G. Don . . . first made this interesting discovery, on rocks near the summit of Clova mountains . . . in August, 1795. The plant is there very scarce, being only found . . . on the most elevated spots . . . We have preferred drawing Mr. Don's original specimen, though dry, to any garden one." Smith, Eng. Bot., t. 2254.

"This interesting plant was first discovered on [Little Culrannoch] by the indefatigable G. Don." Gardiner, Fl. Forfar., p. 28.

"We have strong reasons for thinking that the plant was sown there [on Culrannoch] about sixty years ago." Hooker and Arnott, Brit. Fl., Ed. vi., p. 61. Although the name of Don is not mentioned, from the date being put to Don's time, it evidently is meant to suggest him.

"Discovered by the late G. Don . . . and found by Dr. Graham and others on the summit of a hill called Little



Kilrannoch, between Glen Prosen and Glen Callater. Dr. Graham estimated the hill at 3200 feet. It was pointed out to me by a shepherd from the head of Canlochen Glen, and at that distance I thought it scarcely above 3000 feet." Watson, *Cyb. Brit.*, i., p. 204.

The plant still grows there—but the elevation is only about 2700 feet—and is native, as it is on Hobcarten fell, Cumberland. It is one of Don's indisputable discoveries.

### ***Hypericum barbatum*, Jacq.**

"By the side of a hedge, near the wood of Aberdalgy, in Strathearn, Perthshire, Mr. G. Don." Smith, *Eng. Bot.*, t. 1886; *Id.*, *Eng. Fl.*, iii., p. 329.

The specimens sent by him were in a sufficiently fresh state to be drawn for *Eng. Bot.*

"We do not believe that this species was found wild in Scotland." Hooker and Arnott, *Brit. Fl.*, Ed. vi., p. 81.

"In English Flora, Smith accepts this as a true native, and without a word of doubt; attributing it to 'bushy places in Scotland' as though there were any number of localities for it in addition to the one specially mentioned 'by the side of a hedge' in Strath Earn. Smith was too exclusively a botanist of the study, not of living nature in the wild, to warrant any reliance on his decisions about the genuine nativity, or otherwise, of plants in Britain." Watson, *Comp. Cyb. Brit.*, p. 494. *See also Cyb. Brit.*, i., p. 254.

"Perthshire, Don; never confirmed." Hooker, *Student's Fl.* (1870), p. 476.

"No one has found it since; and if it ever occurred there it was doubtless an escape from cultivation, as it is most unlikely that an Austrian plant, not occurring in Scandinavia, France, or North Germany, could be wild in Scotland." Syme, *Eng. Bot.*, ii., p. 160. *See* Babington, *Man.*, Ed. vii., p. 67.

A specimen is in Herb. Palmer. Don doubtless found it as described by him, but only as an escape from cultivation. It belongs to the same grade of citizenship as *H. hircinum*.

### ***Potentilla tridentata*, Ait.**

"Justly reckoned by Mr. Don among the most beautiful of its genus, was gathered [by him] on a mountain called Werron in Angusshire." Smith, *Eng. Bot.*, t. 2389. *Id.* in *Trans. Linn. Soc.*, x., p. 343 (1811).

"On a mountain called Werron, and some other hill in Angusshire to the westward, Mr. G. Don." Smith, *Eng. Fl.*, ii., p. 424.

"This hill has since been searched by Mr. Kerr and a party from Montrose, but without success. It may, however, have occurred only in one spot; and such a spot may elude again and again the keenest researches of the mountain rambler. An authentic specimen gathered by Don, is in Mr. Kerr's herbarium; and there is a specimen among the remains of an herbarium formed by Mr. Douglas Gardiner in 1813, which had likely been given to him by Don, as they were intimate friends." Gardiner, Fl. Forfar., p. 61.

"Clova Mountains, Don; never confirmed." Hooker, Student's Fl. (1870), p. 476.

"Werron Hill, Clova, G. Don; but found by no one else." Hooker and Arnott, Brit. Fl., Ed. vi., p. 124.

"Incognit. The late Mr. G. Don appeared quite confident that he had seen or collected this species in Forfarshire; and there is even a specimen preserved in Smith's herbarium, which is labelled as though actually collected on the mountain of Werron in that county, by Mr. Don, with the date of April 3, 1809. Is it possible that Mr. Don could have mistaken plants of *Sibbaldia procumbens* or *Potentilla Fragariastrum* for this species, and have sent or pointed out to Smith an example of *P. tridentata* as being the same species as that which he had seen on Werron and other hills? I do very much suspect that this is the true solution of some of the mystery or uncertainty which attaches to several of Don's habitats; namely, that, intending to send or show the same species, he or Smith inadvertently confused it with some other species." Watson, Cyb. Brit., i., p. 348, and iii., p. 418; also Watson, Comp. Cyb. Brit., p. 501.

"Said to have been found by Mr. G. Don on Werron Hill and East Rocks, Loch Brandy, Clova; but no doubt *Sibbaldia procumbens* has been mistaken for this American plant." Syme, Eng. Bot., iii., p. 260, and Babington, Man., Ed. vii., p. 103.

At a meeting of the Edinburgh Botanical Society, March 14, 1850, Mr. M'Nab exhibited a dried specimen of *P. tridentata* sent by Mr. Westwood, of the Botanical Garden, Dollar, as a part of a plant picked by him and Mr. Stewart on Ben Wyvis, about ten years before.

The only way in which Don could have possibly mistaken this species for *Sibbaldia* was in gathering some young or abnormal form of *Sibbaldia* out of flower (as it would be so early in the year) and planting it in the *Potentilla* bed in his garden, subsequently confusing it with *P. tridentata*; but this explanation requires one to assume such an amount of ignorance on the part of Don, that I feel the greatest difficulty in adopting it. In his original record Don speaks with no uncertainty respecting it and points out that its beautiful white flowers at once distinguish it; and one must also bear in mind

that to Don *Sibbaldia* must have been one of the commonest plants, and must have been known to him in its varied forms. Surely one who could differentiate the forms of the cut-leaved Saxifrages, and of the alpine Poas and Airas, could never have confounded those two plants. It is a curious coincidence that both *P. tridentata* and *Ranunculus alpestris* are said by Don to have been gathered on the same day, namely April 3, 1809, a date on which I venture to think no other capable botanist has ever visited the higher hills of the Clova district;<sup>1</sup> but I must confess the occurrence, as a native plant, of either of the two species, appears, with our present knowledge of phyto-geography, as most improbable. Could the date quoted above be the date on which Don gathered the two species in his garden and sent them to Smith?

**Potentilla opaca, Sm.**

"I discovered this plant some years ago on the mountains of Angushshire to the west of Clova. I likewise observed what I take to be the same plant on rocks opposite Dundee, in April, 1786. I was at a loss as to this species, till I happened to notice the figure in Jacquin's Pl. rar. ic. cent. i., t. 91, which exactly agrees with my plant." Don, Herb. Brit., No. 165.

"Mr. Donn of Cambridge . . . has received from Scotland the true *opaca*." Smith, Eng. Bot., t. 2449.

Presumably it came from Don.

"*P. opaca*, Clova mts., Don; never confirmed; but the specimens are *P. intermedia* [Nestl]." Hooker, Student's Fl., (1870), p. 476.

"*P. opaca*, Linn. Incognit. Hills of Clova and Braes of Balquhider, G. Don. Repeatedly as the hills of Scotland have been searched by the best collecting botanists of Scotland and England since the time of Don, this species had not again been found." Watson, Cyb. Brit., i., p. 345. Watson, Comp. Cyb. Brit., p. 501.

"Received from Scotland by the late Mr. Donn of Cambridge. Said to have been found on the hills of Clova, Angushshire, as well as in Perthshire, by Mr. G. Don." Smith, Eng. Fl., ii., p. 423. See also Hooker, Fl. Scot., p. 163. D. Don in Mem. Wern. Soc., iii., (1821), p. 305.

"*P. intermedia*, Nestl. Said to have been found by Mr. G. Don . . . but not found by any other botanist, and his authority alone is not sufficient to establish its occurrence." Syme, Eng. Bot., iii., p. 260. See Babington, Man., Ed. vii., p. 102.

Mr. David Don, son of Mr. George Don, says that the *Potentilla* was first discovered by his father, and that he himself saw specimens when they were freshly brought from

<sup>1</sup> See footnote on page 98.—*J. B. B.*

their native habitats, and his description is drawn up from specimens in his father's herbarium. David Don was only 15 or 16 years old at his father's death, and he appears to be the authority for his father finding it on the Braes of Balquhider. The specimens in Don's Herbarium Britannicum are certainly not the true *P. opaca*, and are, as Sir Joseph Hooker points out, *P. intermedia*, Nestl., not of Linn., the *P. Nestlerana*, Tratt., which Nyman puts under *P. heptaphylla*, Miller. The figure in Jacquin's "Icones" referred to by Don is poorly drawn and badly coloured, and as Don says he saw the plant on the Clova hills "some years ago," I think in this case there has been a confusion with his garden specimens, since the plant distributed by Don and that figured by Smith from the Cambridge gardens, doubtless supplied by Don, are the same thing.

Under *P. opaca* Nyman in his *Conspectus* gives Scotia, Scandinavia, Dania, Germania, &c., but the true *P. opaca* (which is not an unlikely plant to occur) has not been recorded except in error. *P. intermedia*, Nestl., is quite unlikely to occur in Britain except as an alien.

#### **Sanguisorba media, L.**

"*Sanguisorba media*. In pastures, in the West of Scotland. Mr. G. Don. Taller and larger than the foregoing, with a much longer and truly cylindric spike of 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 quoted [Linnæus, Willdenow, Aiton], and is found wild in Siberia as well as in Canada." Smith, Eng. Fl., i., p. 219.

"*S. (officinalis) media*, Don (not Linn.). Prov. 13 or 16. West of Scotland; G. Don. Syn. 354." Cyb. Brit., i., 360. "A variety of *S. officinalis*, Mr. Borrer." Watson, Comp. Cyb. Brit., p. 509.

"Incognit. Stated to have been found by Mr. George Don in the West of Scotland; but some variety of the British species, *S. officinalis*, would seem to have been mistaken for the American plant." Watson, Cyb. Brit., i., p. 360.

"One of Don's reputed discoveries; not confirmed." Hooker, Student's Fl. (1870), p. 476.

Mr. Borrer says he has Don's specimens.

"Said to have been found by Mr. George Don in the West of Scotland, but doubtless erroneously, as it is an American plant not occurring at all in Europe." Syme, Eng. Bot., iii., p. 260.

Syme repeats a misstatement when he says that Don said he found *S. media*. He did nothing of the kind. He "had scarcely an idea of its being more than a variety" of [*S.*

*officinalis*], as will be seen from the last paragraph in Smith's description, which enables us to absolve Don either from falsely recording a plant which does not occur in Scotland, or misnaming *S. officinalis* as *S. media*, which Hooker in the Student's Flora says is one of Don's "reputed discoveries, not confirmed." The old adage, "give a dog a bad name," is well exemplified in the case of Don, for Smith's numerous errors as well as Drummond's slips are fathered on Don. Mr. Watson is himself guilty of making a man say what he has not said when he writes "*S. media* Don, not of Linn." The true reading should be "*S. media* Sm., not of Linn." A form of *S. officinalis* sent from the West of Scotland by Don was mistaken by Sir J. E. Smith for the North American species. Don himself identified it as being a variety of *S. officinalis*.

***Alchemilla conjuncta*, Bab. (*A. argentea*, *G. Don*).**

"Clova mts. Mr. G. Don. A specimen is in Mr. Borrer's herbarium, but I have never been able to recognise it among the hundreds of specimens of *A. alpina* examined for that purpose." Gardiner, Fl. Forfar., p. 64.

(Area. 12<sup>88</sup>15) Incognit.? Said to have been collected . . . on the Clova mountains. Mr. Don's specimens are still in herbaria; but I suspect some mistake, the specimens appear so like those from gardens." Watson, Cyb. Brit., i., p. 363, iii., p. 423.

"George Don distributed examples from the Forfarshire hills ostensibly; but Don habitually sent garden examples of supposed wild plants, so that his testimony alone goes for nothing. Mr. A. O. Black also reported the plant from Forfarshire, and showed examples; but Mr. Black was convicted of reporting a planted American shrub, as if also a true native of that county; so that in relying on his testimony we ought to include the *Diervilla canadensis* among truly British plants now and for ever." Watson, Comp. Cyb. Brit., p. 470 (1870).

Professor Babington informs me that he has specimens of the true plant from Mr. A. O. Black in Glen Dole, and that most of the garden plants originally came from Don. The exact station given by Black is "about 300 feet from the base of Glen Dole, on the left hand side of the first large ravine which comes down from Craig Rennet on entering Glen Dole."

The plant still awaits discovery, and Mr. Watson is a little unfair in his judgment of Mr. Black, who of course was not an authority on the indigenuity of plants, and described the Canadian shrub as *native*, when he meant *wild*, but this unfortunate expression does not necessarily throw a doubt on his *bona fides* regarding the record of *Alchemilla*, which may be held to support Don's statement. A point has been raised by

my lamented friend Henry Boswell, namely, that plants of *A. alpina* which he brought from Ben Lawers changed under cultivation into *A. argentea*, and the specimens which he showed me were certainly the latter; but Mr. Arthur Bennett controverts the statement, and I should not think it probable. Syme points out that *argentea* grows much more readily in gardens about London, but that *alpina* exists only under special treatment. It is easy for one garden plant to take the place of another so that the usurper is thought to be the original occupier, and Don himself may have been the victim of the same misconception as Mr. Boswell.

*A. argentea* is known from the Faroe Islands, and Nyman also gives Scotia and Isle of Arran, and it has been reported from Cumberland, but only on faith of a record by Mr. Bowman and of garden plants said by the distributor, the Rev. R. Wood, to have been originally brought from Borrowdale, but no one has confirmed the discovery. Dr. Tyacke also says he found it in Glen Sannox, Isle of Arran. See Syme, Eng. Bot., iii., p. 139, t. 424. Syme says a portion of one of Black's specimens is only *A. alpina*, and the other portion approaches *A. alpina*.

#### ***Saxifraga muscoides*, Wulf.**

"*S. moschata*, Sm. Mr. Don [Donn] of Cambridge [has] given us specimens from his garden, the parent roots of which he received from the Highlands of Scotland." Smith, Eng. Bot., t. 2314.

"Prov. 12? . . . 'Highlands' . . . Error. Cyb. Brit., i., p. 415." Watson, Comp. Cyb. Brit., p. 517.

"One of Don's reputed discoveries; and reported from Westmoreland by Hudson." Hooker, Student's Fl. (1870), p. 477.

The only record made by Don is in Headrick's View of the Agriculture of Forfarshire, in which he records "*Saxifraga, nova species*, which I believe to be the *S. muscoides* of Willdenow." This is evidently a mistake on Don's part, as this saxifrage is not likely to be found in Scotland, its European range being according to Nyman, "Pyren., Arvern., Juras, Alpes, Appen." Don's record, it will be observed, is by no means positive. A more correct statement would be "A form of *S. hypnoides* from the mountains of Forfar was erroneously thought by Don to be the *S. muscoides* of Willdenow."

#### ***Saxifraga pedatifida*, Ehrh.**

"Mr. G. Don and the late Mr. J. Mackay both gathered this plant in the Highlands, the former on the mountains of Clova, Angusshire. Our figure is unavoidably taken from a garden

specimen." Smith, Eng. Bot., t. 2278. See also Trans. Linn. Soc., x., p. 340 (1811).

"Rocks near the head of Clova, Mr. G. Don." Gardiner, Fl. Forfar., p. 77.

"Native? Rupestral. Said to have been found by Mr. Don on rocks near the head of Clova. In his account of the botany of Forfarshire [Headrick, Agric. Forfar.] Don says, in his usual vague or careless language, 'summits of the Clova mountains,' but with him the 'summits' sometimes mean declivities very far below, and usually intend the rocks at 700 to 800 yards. The actual summits are 1000 yards or upwards, though there are peaks and ridges of only 800 or 900 yards." Watson, Cyb. Brit., i., p. 417.

"Don does not pretend to have found it, but sends a garden specimen, saying he has heard it has been found in Scotland." Dr. Boswell Syme, letter, 1864." Watson, Comp. Cyb. Brit., p. 518.

"Said to have been found by Mr. Don on rocks by the head of Clova; also reported to have been gathered in the Isle of Achill, . . . but there seems no satisfactory evidence of the latter being the true plant." Syme, Eng. Bot., iv., p. 87.

Syme apparently thought that Don's was the true plant, and he does not here refer to Don having sent a garden specimen to Smith as Mr. Watson quotes in the Compendium of the Cybele, p. 518.

"One of Don's reputed discoveries; his specimens are the common garden *S. trifurcata*." Hooker, Student's Fl. (1870), p. 477.

This species is given by Nyman only from Spain.

One fact will be observed in all these notices except the first, namely, that in each the name of that brilliant and accurate explorer Mr. J. Mackay is omitted, but the merit or the odium as much attaches itself to him, as to Don, since he also sent Smith a record of having found it in the Highlands.

### *Chærophylllum aromaticum*, L.

"I discovered this in 1810, by the side of the river called Lunan and Vennie, not far from Guthrie, in a truly wild state, Mr. G. Don." Gardiner, Fl. Forfar., p. 85.

"Discovered by the late Mr. George Don near Guthrie, about seven miles east from Forfar, near the margin of the road leading from Forfar to Arbroath. See Trans. Wern. Soc., iii., p. 300 (1821)." Eng. Bot. Suppl., t. 2636 (1830). Smith, Eng. Fl., ii., p. 53.

"Prov. 15, Forfar; G. Don, sole authority? Error. Cyb. Brit., i., p. 463." Watson, Comp. Cyb. Brit., p. 520.

"Scotland, Don; not confirmed." Hooker, Student's Fl. (1870), p. 477.

Mr. David Don says he saw the specimen when brought home by his father, as in the case of the supposed *Potentilla opaca*. I have no doubt that Don found this plant as a casual, since, although it has a wide European distribution, it is not likely to be native in Britain. There is a specimen in Herb. Palmer.

### *Chærophyllum aureum*, L.

"I discovered this rare plant several years ago, by the sides of cornfields between Montrose and Arbroath. I afterwards found a few plants near Corstorphine, within four miles of Edinburgh. I observed what I believe to be an intermediate plant between this and the *C. sylvestre*, near the village of Kirkliston, about ten miles west from Edinburgh." Don, Herb. Brit., No. 207. See also Smith, Eng. Bot., t. 2103 (1810), and Trans. Linn. Soc., x., p. 339 (1811). Don, in Headrick's Agric. Forfar.; Herb. Palmer; Gardiner, Fl. Forfar., p. 85.

"Provinces 14-15, Edinburgh and Forfar; G. Don only Error or casual. Cyb. Brit., i., p. 463." Watson, Comp. Cyb. Brit., p. 520.

"Mr. G. Don; not found since." Syme, Eng. Bot., iv., p. 180.

"Scotland, Don; not confirmed." Hooker, Student's Fl. (1870), p. 477.

A plant of casual occurrence for which Nyman gives a wide distribution through central and eastern Europe, but says has also been found adventitiously in Norway, as doubtless were Don's plants in Scotland. I have found a solitary specimen of a yellow-flowered Umbellifer, which I think is a *Chærophyllum* but not *aureum*, near a mill in Berkshire, but at present I have not been able to identify it.

### *Galium cinereum*, Sm (*G. diffusum*, *D. Don*).

*G. diffusum*, D. Don, ined. Near Kinnaird, Angusshire. G. Don." Hooker, Fl. Scot., p. 52.

"On the banks of the river Leith, near Slateford, three miles E. from Edinburgh. Mr. G. Don." Smith, Eng. Fl., i., p. 203. See also Eng. Bot. Suppl., t. 2783 (1834).

*G. diffusum*, Hook. *G. cinereum*, Sm. . . . Of this I have only seen the solitary specimen from Don contained in Smith's herbarium . . . It must be considered as a very doubtful native, as no one but Don has found it." Syme, Eng. Bot., iv., p. 215, t. 648 bis.

"Edinburgh and Forfar; G. Don. Ambiguity. See Eng. Bot., iv., p. 216. Eng. Fl., i., p. 203." Watson, Comp. Cyb. Brit., p. 521.



"One of Don's reputed discoveries." Hooker, Student's Fl. (1870), p. 477.

A better definition would be a casual plant formerly found by G. Don in Edinburgh and Forfar.

**G. aristatum, Sm.**

"In Angusshire, but not common. Mr. G. Don." Smith, Eng. Fl., i., p. 203.

"This new addition to our Flora, sent by the late Mr. Don as *G. erectum*, is undoubtedly the original *G. aristatum* described by Linnæus." Smith, Eng. Fl., i., p. 203. See also Eng. Bot. Suppl., t. 2784 (1834).

"Probably a state of *G. erectum*." Babington, Man., Ed. vii., p. 170.

Given as a synonym of *G. erectum* in Hooker's Student's Fl. (1870), p. 178.

"*G. erectum* var. *aristatum*, Bab. Evidently one of the intermediate forms which connect the two sub-species." Syme, Eng. Bot., iv., p. 217, t. 649 bis. See Watson, Comp. Cyb. Brit., p. 522.

This is another instance where Smith has fallen into an error, as the plant is not the *aristatum* of Linnæus. Don was correct in referring it to *G. erectum*, to which it is closely allied. There is great probability of the plant being again found.

**Galium spurium, L.**

"I first observed this plant in 1784, in cornfields near the village of Redditch in Worcestershire . . . I next observed it in 1801, in cornfields near the village called Loch-head, about two miles from Forfar, but not common. Dr. Smith, who had the goodness to compare specimens of this *Galium* with the Linnean Herbarium, found that my plants agreed in every respect with the Linnean specimen." . . . Don, Herb. Brit., No. 104.

See also Smith, Eng. Bot., t. 1871 (1808), and under *G. tricornis*, t. 1641 (1806); Gardiner, Fl. Forfar., p. 93; Herb. Palmer; Hooker, Fl. Scot., p. 50.

"Mr. G. Don is said to have discovered [it] in Forfar, and a specimen is preserved in Smith's herbarium; but Mr. Gardiner appears not to have found the same species in that county." Watson, Cyb. Brit., ii., p. 20.

"Casual." Watson, Comp. Cyb. Brit., p. 522.

"Scot. (*r*), Angl., Scand., med. mer., Germ., Belg., Gall., etc." Nyman, Consp., p. 330.

A casual plant which I have found on waste ground near Oxford.

***Galium saccharatum*, All.**

"*G. tricorné*. In cornfields, but rare. I have observed it in the Carse of Gowrie. It has likewise been observed in cornfields near Malton, in Yorkshire, by . . . Mr. R. Miller." Don, *Herb. Brit.*, No. 103.

"*G. verrucosum*. Whether this species of *Galium*, confounded by almost all our botanists with our *tricorné*, has ever been gathered in Britain before Mr. Don observed it in cornfields near the Carse of Gowrie, we have no means of knowing." Smith, *Eng. Bot.*, sub. t. 2173 (1810).

"Mr. Borrer writes that his 'specimen from G. Don is like that figured in *Eng. Bot.* as *G. verrucosum*.' And as that figure appears to have been taken from a true example of *G. saccharatum*, it would seem that the species had been really found in Britain; though, if so, it was doubtless as a casual introduction only." Watson, *Cyb. Brit.*, iii., p. 449. Watson, *Comp. Cyb. Brit.*, p. 522.

"Probably introduced with seed corn." Hooker and Arnott, *Brit. Fl.*, Ed. vii., p. 198.

"*G. saccharatum*, All. Said to have been found . . . in the Carse of Gowrie, Forfarshire, by Mr. G. Don, and near Malton, Yorkshire, by Mr. R. Miller; but it does not appear to have been permanently naturalised in these localities." Syme, *Eng. Bot.*, iv., p. 232.

Doubtless found by Don in the Carse of Gowrie, but as a casual plant only, and I think it probable that the Malton plant was true *tricorné*, for which Don mistook this species.

***Tussilago alpina*, L. (*Homogyne alpina*, Cass.).**

"There is a specimen in *Herb. Brodie* from G. Don. . . . 'On rocks by the side of rivulets on the high mountains of Clova, as on a rock called Garrybarns,' . . . but we are not on that account prepared to admit the plant as indigenous." Hooker and Arnott, *Brit. Fl.*, Ed. vii., p. 244.

"Mr. G. Don mentions *T. alpina*, an Austrian plant, found on the Clova mountains. May his plant not be the *Erigeron alpinus*, which he has not enumerated?" Gardiner, *Fl. Forfar*, pp. 110 and 111.

"Incognita. Included, like so many other dubious plants, among G. Don's discoveries in Forfarshire; but no other botanist appears to have found it in Britain. Mr. Gardiner suggests that Don intended *Erigeron alpinus*, but it is difficult to

conceive a mistake between plants so very dissimilar." Watson, *Cyb. Brit.*, ii., p. 110. *See also* *Comp. Cyb. Brit.*, p. 533.

"Mr. Borrer says of this, 'My specimen from G. Don is the true plant.' Such being the case I do not understand why the *Homogyne alpina* should be totally excluded from British Floras (*ex. gr.* Bab., Man.), while plants less likely to occur in Britain which rest on no safer authority are admitted even as genuine natives (*ex. gr.* *Potentilla tridentata*). I do not, however, believe this to be a British species." Watson, *Cyb. Brit.*, iii., p. 459.

"Said by Mr. G. Don to have been found in Forfarshire; but it has been found by no one else." Syme, *Eng. Bot.*, v., p. 217.

"One of Don's reputed discoveries." Hooker, *Student's Fl.* (1870), p. 477.

There is a specimen in Miss Palmer's collection labelled "Moist rocks on the Clova mountains, G. Don."

Mr. Gardiner's suggestion that Don mistook it for *Erigeron alpinus* will not do, since in correspondence he mentions finding the plant in Clova. I am more inclined to think that some young leafy specimens of *Tussilago Farfara*, which becomes very dwarfed in the alpine districts of Scotland—and I have seen such at nearly 3000 feet—and which is rare in such situations, may have been thought by Don to have been different from the lowland Coltsfoot, and planted in his garden may have afterwards been confused with *Homogyne alpina*, Cass. I suspect labelling in his garden was not a strong point, memory being probably in most cases relied on, and this eventually was sure to lead to error.

### **Erigeron uniflorus, L.**

"Gathered on Ben Lawers, as well as on rocks by the river Almond, near Lindoch [Lynedoch], seven miles from Perth, by Mr. G. Don, who justly distinguished this species from *E. alpinum*." Smith, *Eng. Bot.*, t. 2416 (1812). *See also* Smith, *Trans. Linn. Soc.*, x., p. 346 (1811).

"Province 15. Perthshire; G. Don in *Eng. Fl.* Error. A misnomer of *E. alpinus* single-headed." Watson, *Comp. Cyb. Brit.*, p. 533.

Don sent it to Smith as a form or new species, and it was Smith, not Don, who identified it with the *E. uniflorus*. In the "English Flora" Smith says, "Some have very unadvisedly confounded *E. alpinus*, in a luxuriant state, with our common *E. acris* . . . The near approach of these two, and of many foreign species to each other, though certainly distinct, may teach us caution with regard to *E. uniflorus*," but as it is seen it did not.

***Centaurea intybacea*, L.**

"In the fields by the shore in several places in Forfarshire," and said by Don to have been "confounded with *C. Scabiosa*, which it much resembles." Don, in Headrick's Agric. Forfar.

"*C. Scabiosa*. A variety was gathered on dry banks, near the sea coast of Angusshire, by the late Mr. G. Don, which he thought distinct, and took for the *C. intybacea* of Lamarck . . . but has no specific mark." Smith, Eng. Fl., iii., p. 468.

"It seems likely that Don may have given the above name to the pale-flowered variety of *C. Scabiosa* . . . the resemblance between the two species not being such as to render their confusion very probable." Watson, Cyb. Brit., ii., p. 91. See also Comp. Cyb. Brit., p. 532.

"Said to occur in Forfarshire by Mr. G. Don—no doubt a pale-flowered variety of *C. Scabiosa* . . . as suggested by Mr. Watson." Syme, Eng. Bot., v., p. 216.

In this instance there is no doubt Don mistook a form of *C. Scabiosa* for south-western *C. intybacea*, which is not likely to occur in a wild state in Britain.

***Crepis pulchra*, L.**

"Not at present known in our gardens, though said to have been cultivated at Chelsea in Rand's time. Mr. Don rightly determined it to be a *Crepis*, and the Linnæan specimen decides its species." Smith, Trans. Linn. Soc., x., p. 345 (1811).

"Amongst crumbling rocks on the hill of Turin, near Forfar." Smith, Eng. Bot., t. 2325.

The plate is drawn from a plant raised from seed sent by Don, who found it wild in 1796.

"Incognit. G. Don stated that he had found this plant . . . [on] the hills of Turin and Pitscandy in Forfarshire, but very rare. In one of these places—the hill of Turin—it was sought unsuccessfully by Mr. Gardiner in 1845, who says (Fl. Forfar, p. 99) that a turnip field now occupies the spot." Watson, Cyb. Brit., ii., p. 49. See also Watson, Comp. Cyb. Brit., p. 525, and Babington, Man., Ed. vii., p. 209. Hooker, Fl. Scot., p. 233.

"Mr. G. Don said that he found this plant among the *débris* of the rocks of the hills of Turin and Pitsandy [Pitscandy] in Forfarshire. Dr. Walker Arnott remarks in the "British Flora," "The very few specimens from Don, which we have seen, are more luxuriant than Smith's acknowledged cultivated one, from which the figure in 'English Botany' was made." Syme, Eng. Bot., v., p. 217.

"One of Don's reputed discoveries." Hooker, Student's Fl. (1870), p. 478.

There is a specimen in Herb. Palmer.

Either a plant of casual occurrence, or possibly a form of *Crepis virens* gathered by Don and brought into his garden, was afterwards confused with the true *pulchra*. This is somewhat unlikely, because, when Don gathered it, *C. pulchra*, according to Smith, was not grown in British gardens, and as it was before Don went to the Edinburgh Botanic Garden he was not likely to be in a position to obtain seeds from abroad. The plant is not conspicuous, and so may be overlooked in North Britain, where it might occur as a native plant, since it is indigenous to Denmark, Norway and Sweden, etc.

**Hieracium divaricatum, G. Don.**

"Incognit. On rocks among the Clova mountains, according to G. Don." Watson, Cyb. Brit., ii., p. 61.

"Province 15. Clova mountains: G. Don. Ambiguity." Cyb., ii., p. 61. "*H. lingulatum*?" Backh. Mon., p. 30. Watson, Comp. Cyb. Brit., p. 526.

Miss Palmer's specimen from Don labelled *H. Lawsoni* is probably a weak form of *H. lingulatum*, which rather negatives the identity of Don's *divaricatum* with Backhouse's *lingulatum*.

At present the question remains unsolved as to what is the correct name of Don's *divaricatum*; that he discovered and named such a plant is beyond dispute.

**Hieracium cerinthoides, L.**

"Sent from the Highlands of Scotland by its discoverer, Mr. G. Don, who informs us this species is by no means uncommon there upon rocks." Smith, Eng. Bot., t. 2378. See also Smith in Trans. Linn. Soc., ix., p. 242 (1808).

"'Rocks near the head of Clova,' Mr. G. Don." Gardiner, Fl. Forfar., p. 102.

"It is, however, doubtful if Don knew the species well." Hooker and Arnott, Brit. Fl., Ed. vi., p. 214.

"Mr. Borrer's garden plant, mentioned on p. 59 of the second volume, was not of British origin; but it is believed by him to be the same species with the specimens from G. Don. Might not the latter be of garden and foreign origin only?" Watson, Cyb. Brit., iii., p. 453.

"Said by Smith to have been sent from the Highlands of Scotland by Mr. G. Don. The figure is from a cultivated specimen, and no doubt the plant which Don saw wild and believed to be the same was *H. anglicum* var.  $\beta$ ." Syme, Eng. Bot., v., p. 218.

"One of Don's reputed discoveries." Hooker, Student's Fl. (1870), p. 478.

The specimen in Miss Palmer's collection shows that Don's plant is not the *cerinthoides* of Linnaeus but the *H. cerinthiforme* of Backhouse, of which Don was the first discoverer in Britain. Smith was again in error in identifying it with the Linnean species.

### **Hieracium amplexicaule, L.**

"Mr. Borrer possesses specimens from G. Don, gathered on the Clova mountains." Hooker, Fl. Scot., p. 232. *See also* Gardiner, Fl. Forfar., p. 102. Watson, Cyb. Brit., ii., p. 61.

"Found in the Clova mountains by the late Mr. G. Don." Eng. Bot., Suppl., t. 2690 (1831).

"Said to have been found on a rock called the Garrie Barns, Clova, Forfarshire, by G. Don, but no one else has been able to detect its presence there." Syme, Eng. Bot., v., p. 178. *See also* Watson, Comp. Cyb. Brit., p. 527.

There is no probability of the true *amplexicaule* being found native in Britain, although now naturalised in a few localities. Don probably saw *H. anglicum*, var. *amplexicaule*, Bab., and confused it with the Linnean species.

### **Salix Doniana, Sm.**

"Sent from Scotland, as British, by the late Mr. G. Don to the late Mr. G. Anderson. *Mr. Borrer*." Smith, Eng. Fl., iv., p. 213, and Eng. Bot., Suppl., t. 2599 (1829).

"Baldovan Woods, rare." Gardiner, Fl. Forfar., p. 165.

"Prov. ? Scotland ; . . . Ambiguity. Resembling *S. purpurea*." Watson, Comp. Cyb. Brit., p. 573.

"A native of dry places in mid and south Germany, described by Andersson as exactly intermediate between *repens* and *purpurea*, was stated by the late Mr. G. Don to be a native of Forfarshire, no doubt erroneously." Hooker, Student's Fl. (1870), p. 343.

"I do not see that this hybrid willow is 'no doubt erroneously recorded,' or why a hybrid willow (both parents of which grow in the vicinity) should not as likely be found in Baldovan Woods as elsewhere." Druce, in Scott. Nat., p. 263 (1884).

This willow has been re-found by Dr. Buchanan White on the bank of the Tummel below Pitlochry, see White, Fl. Perth., p. 281, and there is no doubt that Don was the first observer of this hybrid willow in Forfarshire.

### **Salix hastata, L.**

"*S. malifolia*, Sm. Sands of Barrie, Mr. G. Don." Gardiner, Fl. Forfar., p. 169.

"It is most improbable that this plant, which is truly alpine on the Continent, growing in Switzerland only at great elevations, should be even naturalised upon the sands of Barrie, where Drummond met with it." Hooker and Arnott, *Brit. Fl.*, Ed. vi., p. 399.

"Not native, even if . . . found in the locality." Syme, *Eng. Bot.*, viii., p. 263.

***Juncus tenuis*, Willd. (*Juncus gracilis*, Sm.).**

"Found by Mr. G. Don in 1795 or 1796, by the side of a rivulet in marshy ground among the mountains of Angusshire, but very rarely. It appears to us to be a nondescript, but we received from Mr. Dickson, some few years before the above date, a specimen not so far advanced towards maturity, of what seems to us the same species." Smith, *Eng. Bot.*, t. 2174 (1810). See Bicheno in *Trans. Linn. Soc.*, xii., p. 313 (1818).

"*J. tenuis*; D. Don, mss. ined. Moist mountains of Clova, D. Don. This plant precisely accords with specimens I have received from America . . . of the *J. tenuis*, Pursh." Hooker, *Fl. Scot.*, p. 108.

"*J. Gesneri*, Sm. In dry elevated pastures in Scotland. Mr. Dickson. . . . Clova . . . Mr. G. Don." Smith, *Eng. Fl.*, ii., p. 167.

"*J. tenuis*, Willd. 'By a rivulet in marshy ground, among the mountains of Clova, near their summits,' Mr. G. Don. Mr. D. Don." Gardiner, *Fl. Forfar.*, p. 183.

"Such a record [as Don's] is worthless in science, until confirmed by some more accurate botanist of the present time." Watson, *Cyb. Brit.*, iii., pp. 47 and 48.

"Prov. 15. Scotland; Dickson. Clova mountains; G. Don. Ambiguity. Neither authority is reliable; but the figure of *gracilis* in *Eng. Bot.*, t. 2174, may pass well enough for one of true *tenuis*." Watson, *Comp. Cyb. Brit.*, p. 586.

"We have specimens from Don's garden at Forfar, but we doubt much if the roots were found in Clova." Hooker and Arnott, *Brit. Fl.*, Ed. vi., p. 451.

"One of Don's reputed discoveries." Hooker, *Student's Fl.* (1870), p. 480.

"A mistake." Babington, *Man.*, Ed. vii., p. 364. See also Syme, *Eng. Bot.*, x., p. 39.

There is a specimen in Herb. Palmer and in Don's own herbarium, the latter localised—"the only place we are acquainted with where this rush (*Juncus gracilis*) grows in Britain is on the Clova mountains, rare."

*Juncus tenuis*, which is probably an adventitious plant in Britain, and of North American origin, has been found during

the last fifteen years in several localities in England, Wales, Ireland, and Scotland; but we owe its discovery to Don and Dickson. Mr. Watson deliberately ignored Mr. David Don's confirmation of his father's record, which was also overlooked by the other critics of Don's record.

**Eriophorum capitatum, Host.**

"Discovered by Mr. Geo. Don, Aug. 12, 1810, by the side of a rivulet on Ben Lawers, near the limits of perpetual snow. The plants were rooted in a sandbank, and appeared to have been brought by alpine torrents from some still more inaccessible part of the mountain. His specimen agrees exactly with those sent by Prol. Schrader, and from Switzerland." Smith, Eng. Bot., t. 2387.

See Hooker, Fl. Scot., p. 20. Smith, Eng. Fl., i., p. 67.

"We fear Mr. Don had mixed, by mistake, some foreign specimens in his possession with the *E. vaginatum*, which is very common on Ben Lawers, and which alone we have found there: most specimens distributed by him belong to *E. vaginatum*." Hooker and Arnott, Brit. Fl., Ed. vii., p. 498.

"There is no 'perpetual' snow on Ben Lawers. . . . It must be remembered, however, that George Don was very inexact in describing localities, and that a bad description of a station will not necessarily imply intentional falsehood. There is said to be a specimen from Don in the herbarium of Sir W. J. Hooker which 'resembles *E. capitatum*, but the upper part of its stem is triangular.' (Babington, Man., Ed. iii., p. 352.) This is unsatisfactory. Is the specimen one of *capitatum*, or not? By the triangular stem it should rather be *vaginatum*. And yet, by the 'British Flora,' it would seem that Don's specimens were those of *E. capitatum*, suggested to be of foreign origin." Watson, Cyb. Brit., iii., p. 82.

"Error. Misnomer?" Watson, Comp. Cyb. Brit., p. 587.

"The figure in Eng. Bot., t. 2387, is certainly nothing more than *E. vaginatum*, and the only specimen of Don's supposed *E. capitatum* which I ever saw—viz., that which was in the herbarium of the Botanical Society of London—belonged without doubt to the same species." Syme, Eng. Bot., x., p. 174.

"*E. polystachion* (L.)  $\beta$  minus. An alpine form, has but one nearly sessile spike. *E. capitatum*, Don?" Babington, Man., Ed. vii., p. 385.

There is in Don's own herbarium a specimen labelled "*E. capitatum*, on Ben Lawers and Clova mountains. I discovered this in 1810." It is a small alpine form of *E. vaginatum*, L., not the *E. capitatum*, Host, which is synonymous with *E. Scheuchzeri*, Hoppe, as the stems are decidedly trigonous, and the



bracts are greyish green, not black. In this case again there is little doubt that Don sent Smith the specimens and Smith wrongly identified them with *E. Scheuchzeri*, as is proved by his own figure in "English Botany." The correct reading would be—An alpine form of *E. vaginatum* gathered by Don on Ben Lawers and Clova, mistaken for *E. capitatum*, Host, by Smith.

***Carex ustulata*, Wahl. (*C. atrofusca*, Schkuhr).**

"Gathered in watery places in a micaceous soil on Ben Lawers by Mr. George Don, the only person who to our knowledge has met with this species in Britain." Smith, Eng. Bot., t. 2404.

"Mountains of Clova and Ben Lawers, G. Don." Hooker, Fl. Scot., p. 266.

"Stated to have been found 'on Ben Lawers, very rare' by George Don; so rare indeed that not one of the many botanists who have since been on that often examined hill has again found it." Watson, Cyb. Brit., iii., pp. 129 and 130.

"Prov. 15. Perth and Forfar; G. Don, sole authority. Error?" Watson, Comp. Cyb. Brit., p. 588.

"Specimens of *C. ustulata* were distributed by Mr. George Don and said by him to have been found on Ben Lawers. I possess one of these specimens labelled 1810, but since then the plant has not been found. The specimen alluded to has micaceous soil adhering to the roots, and it may therefore be assumed that it is not of garden origin. Don has never been accused of distributing foreign specimens of plants as British, though he often labelled specimens from his garden as being from stations where he erroneously believed he had seen the same species growing." Syme, Eng. Bot., x., p. 137.

"One of Don's reputed discoveries." Hooker, Student's Fl. (1870), p. 480.

"There is little doubt that Don actually gathered the plant somewhere in the Lawers district. Mr. Sturrock shrewdly suggests that Don was not only a botanist but a florist; and we gather from his correspondence that there was a good deal of jealousy between Don and other workers, so that he may have purposely extirpated the plant in the locality where he found it, and this may be also the case with other plants. If so, his botanical reputation has paid dearly for this short-sighted policy." Druce, in Scott. Nat., p. 266 (1884).

Since I wrote the foregoing, *Carex atrofusca* has been found on a slope above Lochan a Chait on Ben Lawers in 1892 by the Rev. D. Paul; and in 1885 on Ben Heasgarnich, where I have seen it growing in such a spot as Don describes. Here we have an instance of one of Don's "reputed discoveries" remaining again undetected for over 80 years on that often

examined hill, therefore even now I have confidence that a few more of his "reputed discoveries" will in the not distant future also be verified.

**Carex hordeiformis, Wahl.**

"One of Don's reputed discoveries." Hooker, Student's Fl. (1870), p. 480.

"Prov. 15. Forfar. Thomas Drummond. Error. Watson, Cyb. Brit., iii., p. 143." Watson, Comp. Cyb. Brit., p. 591.

"Small valley about three miles west of Panmure; Mr. T. Drummond." Gardiner, Fl. Forfar., p. 217.

This appears to be "one of Don's reputed discoveries" which he never claims to have made. It should read, "One of Drummond's reputed discoveries."

**Carex laxa, Wahl.**

"Clova mountains, Forfar; Don. Error . . . Headrick's Agric. Survey of Forfar." Watson, Comp. Cyb. Brit., p. 591.

**Phleum Michelii, All.**

"Discovered by Mr. G. Don on rocky parts of the high mountains of Clova, Angusshire. This specimen agrees with authentic Austrian, Swiss, and Italian ones . . . except in being less luxuriant, owing probably to its more northern, or more barren, place of growth." Smith, Eng. Bot., t. 2265 (1811).

"Incognit. Don, in Headrick's 'Agricultural Survey of Forfarshire' [says], 'Lately I discovered three other grasses new to Britain, viz., the *Avena planiculmis* [*A. alpina*], . . . the *Aira levigata* [*A. alpina*], and the *Phleum Michelii*. . . . These grasses grow on the very summit of the highest mountains. . . . Can it [*Phleum Michelii*] be the *Alopecurus alpestris* . . . [*A. alpinus*, var. *Watsoni*] ? True, the figure in 'English Botany' does not represent an *Alopecurus* technically; but it bears that first-glance resemblance to my supposed *A. alpestris* which may suggest the possibility of Don having seen the one, and somehow substituted the other for it." Watson, Cyb. Brit., iii., pp. 157 and 158.

"Forfarshire. G. Don, sole authority. Error." Watson, Comp. Cyb. Brit., p. 592.

"No one has succeeded in verifying Don's discovery; the specimens given by him were cultivated ones." Hooker and Arnott, Brit. Fl., Ed. vii., p. 533.

"Said to have been found on the . . . highest mountains of Forfarshire by G. Don, but by no one else. Mr. H. C. Watson suggests that possibly the long-awned form of *Alopecurus*

*alpinus* to which I have given the name *Watsoni* may have been mistaken for it." Syme, Eng. Bot., xi., p. 199.

In Miss Palmer's collection there is a specimen from the Clova mountains labelled *Phleum Michellii* which is a form of *Alopecurus alpinus*, but as *Phleum Michellii* is labelled *A. alpinus* we may assume that Lady Aylesford accidentally transposed the labels. Don's own herbarium contains undoubted *Phleum Michellii* which he says he discovered in 1808 on the Clova mountains, but rare. The specimens are, I think, from his garden, for they are 24 inches high.

### *Hierochloa borealis*, R. and S.

"Discovered in 1812 by the late Mr. George Don in a narrow valley called Glen Kella, among the Grampians of Forfarshire. In the same excursion the late Mr. Don collected specimens and plants of what he took to be a new species of *Melica* allied to *M. carulea* which he called *M. alpina*. Mr. Lindley has also regarded it as a species, and named it *Molinia depauperata*." Eng. Bot., Suppl., t. 2641 (1830).

"Found only by Don, notwithstanding that Glen Kellar, or Cally, . . . has been minutely searched: the specimens we have seen from Don appeared to us to have been cultivated." Hooker and Arnott, Brit. Fl., Ed. vi., p. 531.

"Incognit. Glen Cally, Mr. G. Don. No other botanist, perhaps, has found this grass in the locality named, which is a long narrow valley descending from the high mountains near the head of Caness into Glen Isla. It does not grow about the head of the glen, which was carefully examined in July, 1843." Gardiner, Fl. Forfar., p. 199, and Watson, Cyb. Brit., iii., p. 153.

"Formerly in Forfarshire." Hooker, Student's Fl. (1870), p. 430.

"With respect to the 'minute search' referred to by Arnott (and the positive statement made by Mr. Gardiner that it does not grow about the head of the glen) it is only fair to say that one of the searchers afterwards stated that, although he had made a careful search, from what he had learned from Mr. Dick about the flowering of the plant, *i.e.* that it flowers in Caithness early in May, after which it withers and becomes impossible to find, and considering his search was made much later (July) in the year, he withdraws his former statement. Gardiner says the upper part of Glen Cally has been searched, but it is more likely to occur in the lower portion by the stream than among the rocks at the head." Druce, in Scott. Nat., p. 269, (1884).

I may add that in the very late season of 1902, which was fully a fortnight later than usual, I visited Dick's locality for

the Hierochloe at Thurso, and although I was taken by Mr. Lindsay, who knew the exact locality, we could not find a trace of the plant, which had been abundant there in May of the same year. The fact of the grass also being discovered in Kirkcudbrightshire makes it most probable that Don was correct, and it should inspire the local botanist to make a careful search on the alluvium bordering the stream at the lower portion of the glen in the middle of May, where there is great probability of his search being rewarded with success.

***Triticum cristatum*, Schreb.**

"Discovered [by Mr. Don] on steep banks and rocks by the seaside, between Arbroath and Montrose, flowering very sparingly." Smith, Eng. Bot., t. 2267.

"The spikelets, in one of the Linnean specimens, are extremely hairy; in another, like Mr. Don's, smooth." Sm., Engl. Fl., i., p. 185. See also Gardiner, Fl. Forfar., p. 206.

"A plant almost peculiar to the east of Europe and Asia, . . . and which could not have been indigenous." Hooker and Arnott, Brit. Fl., Ed. vi., p. 556.

"Prov. 15. Forfar; G. Don. Lunan Bay, Arbroath. Ambiguity." Cyb. Brit., iii., p. 237. "Specimens from Don are in herbaria." Watson, Comp. Cyb. Brit., p. 597.

"Said by George Don to have been found by himself . . . between Arbroath and Montrose, and in the 'Cybele Britannica' Mr. H. C. Watson states that in a letter from Sir W. C. Trevelyan, dated Aug. 19, 1839, he remarks that *T. cristatum* was then 'abundant in Lunan Bay, near Arbroath'; but in 1848 Mr. Gardner [Gardiner] asserted in his 'Flora of Forfarshire' that Don 'alone has found it.'" Syme, Eng. Bot., xi., p. 202.

"One of Don's reputed discoveries." Hooker, Student's Fl. (1870), p. 480.

In Don's own herbarium are specimens labelled "On dry banks between Arbroath and Montrose, but rare." One of them misnamed "var." but it appears to be a cultivated form of the other. I have no doubt that Don found it as he describes, but as an introduced plant. Its occurrence there is not so remarkable as that of the Kamschatchan Wormwood, *Artemisia Stelleriana*, which I found at Lunan Bay recently.

Because Gardiner says that "Don alone has found it," it proves neither that Don did not find it nor that no one else had. Although Trevelyan wrote to Watson (who adopts his locality in the Compendium), there is no evidence that he was a correspondent of Gardiner's, indeed we may assume that Gardiner knew neither the grass nor Trevelyan's statement about it.

***Triticum caninum*, var. *biflorum*, Mitten.**

"The present is one of those plants gathered by the late Mr. G. Don which appears to have been overlooked by other botanists. His label in Mr. Borrer's herbarium runs thus:— '*Triticum alpinum*, *nova spec.* It differs from the *caninum* by its short arista and upright spikes, and from the *repens* by not running at the roots.' No date is mentioned. It is thus clearly evident that he distinguished it as a new species. The only British *Triticum* with which it can be confounded is *T. caninum*, from which it may be distinguished by its leaves smooth on both sides, its usually two-flowered spikelets, and its want of the long awn; it also appears to be a more slender plant, with narrower leaves. Rocks on Ben Lawers. Mr. Mitten, in Hooker's Lond. Journ. Bot., vii. (1848), p. 533." Watson, Comp. Cyb. Brit., iii., p. 237.

"Province 15. Ben Lawers, Perth. 'Don in Borrer Herb.' Ambiguity. Cyb. Brit., iii., p. 237." Watson, Comp. Cyb. Brit., p. 597.

"Is only *T. repens*." Hooker, Student's Fl. (1870), p. 453.

There is a specimen in Miss Palmer's collection labelled "Rocks, Ben Lawers (summit of)."

It was rediscovered on Ben Lawers by Dr. Buchanan White and Mr. F. J. Hanbury, and has been named *Agropyrum caninum*, Beauv., var. *Donianum*, by Dr. F. B. White, so there is no longer any "ambiguity" respecting it.

The foregoing list of Don's Reputed Discoveries may be divided into several groups:—

1. The first consists of eight plants, four of which I suggested in the Scottish Naturalist, 1884, p. 269, were really discovered by Don and which might probably be refound; they were:—

***Sagina alpina*.**

***Carex ustulata*.**

***Juncus tenuis*.**

***Hierochloe borealis*.**

In the nineteen years which have since elapsed all of these have been found; *Sagina alpina* by myself on the Cairngorms, *Juncus tenuis* scattered through Great Britain, *Carex ustulata* on Ben Lawers in Don's own station, and *Hierochloe borealis* in Kirkcudbrightshire.

Besides these there are four others which have been refound, viz.:—

***Salix Doniana*.**

***Caltha radicans*.**

***Lychnis alpina*.**

***Alchemilla argentea*.**

*Salix Doniana* in Perthshire, *Lychnis alpina* and *Caltha radicans*

had been previously gathered, and possibly *Alchemilla argentea*, so that eight of the doubted plants have been verified.

2. The second group consists of nine plants of casual occurrence, which there is no valid reason to doubt Don having gathered, some of which have been found in other parts of Britain, but have no claims for insertion in the list of native, denizen, or colonist plants of Britain:—

<b>Rapistrum orientale</b> , DC.	<b>C. aromaticum</b> , L.
<b>Neslia paniculata</b> , Desv.	<b>Galium saccharatum</b> , All.
<b>Hypericum barbatum</b> , Jacq.	<b>G. spurium</b> , L.
<b>Chærophyllyum aureum</b> , L.	<b>G. cinereum</b> , Sm.
	<b>Triticum cristatum</b> , Schreb.

Three of these have been gathered by myself.

3. Thirdly, there are a few species—three—which were certainly found by Don but which drainage or cultivation have extirpated:—

<b>Crepis pulchra</b> , L.	<b>Deyeuxia neglecta</b> , Kunth.
<b>Eriophorum alpinum</b> , L.	<b>(Calamagrotis stricta)</b> , Nutt.).

The last of these I found in 1902 in Caithness.

4. Fourthly, another group consists of those plants—thirteen in number—which either by Don or Smith were recorded under incorrect names or confused with continental species. These are:—

**Arabis ciliata**, R. Br., a form of *A. hirsuta*, R. Br., misnamed by Mackay and Smith.

**Stellaria scapigera**, Willd., a monstrosity of *Stellaria graminea*, L.

**Sanguisorba media**, L., a form of *S. officinalis*, L., mis-named by Smith.

**Galium aristatum**, Sm., which is near *G. erectum*, Huds., and probably of casual occurrence, mistaken by Smith for the *aristatum* of Linnæus.

**Centaurea intybacea**, L., a form of *C. Scabiosa*, L.

**Erigeron uniflorus**, Sm. (not L.), which is *E. alpinus*, L., mis-named by Smith.

**Hieracium cerinthoides**, L., which is *H. cernthiforme*, Backh., misnamed by Smith.

**H. amplexicaule**, L., which is almost certainly *H. anglicum*, Fr., var. *amplexicaule*, Bab.

*H. villosum*, L., which is *H. eximium*, Backh., misnamed by Smith.

*Eriophorum Scheuchzeri*, Hoppe (*E. capitatum*, Sm.), which is a form of *E. vaginatum*, L., misnamed by Smith.

*E. gracile*, Sm., not of Koch, which is a form of *E. angustifolium*, Roth, misnamed by Smith.

*Carex stricta*, Good., is *C. aquatilis*, Wahl.

*C. salina*, Swartz, is *C. vaginata*, Tausch, and *C. tenella*, Schk., is a form of *C. remota*, L.

5. Fifthly, a group consisting of ten plants recorded by Don respecting which grave suspicion of error exists, and which will have to be re-found before they can be admitted to our list of British species.<sup>1</sup> Two or three of them may yet be rediscovered :—

*Ranunculus alpestris*, L.

*Silene alpestris*, Jacq.

*Arenaria fastigiata*, Sm.

(*Alsine Jacquini*, Koch).

*Potentilla tridentata*, Ait.

*P. Nestleriana*, Tratt.

(*P. intermedia*, Nestl., *P.*

*opaca*, Sm.).

*Saxifraga pedatifida*, Sm.

*S. muscoides*, Wulf.

(*S. moschata*, Sm.).

*Tussilago alpina*, L.

(*Homogyne alpina*, Cass.).

*Salix hastata*, L.

(*S. malifolia*, Sm.).

*Phleum Michellii*, All.

I would direct especial attention to the desirability of exploring in April the localities referred to for *Ranunculus alpestris* and *Potentilla tridentata*, and early in May the more complete examination of Glen Kella for the *Hierochloe*. The higher summits, especially near Glen Dole and Loch Esk, should be searched for *Phleum Michellii*, and the lower hills for *Alsine Jacquini*. Search should also be made on the Arbroath cliffs and Lunan Bay for *Triticum cristatum*.

<sup>1</sup> See Mr. H. C. Watson's opinion quoted on p. 94.—*I. B. B.*

## APPENDIX B.

## GEORGE DON'S DISCOVERIES.

We have now a pleasanter duty in enumerating the more important of Don's undisputed discoveries, which amply bear out the remarks of Sir James E. Smith<sup>1</sup> in regard to his "scientific merits and eminent zeal."

**Ranunculus nivalis, L.**

High mountains near Mar Lodge. An alpine form of *R. acris*; specimen in Herb. Palmer and letter to Mr. Booth, 1812.

**Caltha radicans, Forst.**

Discovered at Carse in Forfarshire in 1790. New to science. See Eng. Bot., t. 2175 (1810).

**Cochlearia alpina, Wats. (C. grænlandica, Sm.).**

Loch-na-gar, 1807. See Eng. Bot., t. 2403 (1812). New to science. Smith mistook it for Linnæus' *C. groenlandica*. See Trans. Linn. Soc., x. (1811), p. 344.

<sup>1</sup> "Notwithstanding the numerous additions to the British Flora, owing to the labour and acuteness of various observers, especially of Mr. Dickson, within the last 20 years, new discoveries of the most interesting nature are continually rewarding the zeal of the new votaries to botany. I need only advert to the *Buxbaumia aphylla*, the abundance of new Lichens, Fuci, and Conserveæ, and the numerous *Salices*, which are amongst our more recent acquisitions, in proof of my assertion.

The richest harvest we have for a long time had was communicated to me in the course of last summer by Mr. George Don of Forfar, whose scientific merits and eminent zeal are sufficiently known to the Linnean Society. I have chosen a part of these treasures for the materials of my earliest tribute to the Society, at its first meeting for this season, after the long vacation. The plants shall be enumerated in systematic order, with such remarks as I may think useful or amusing to British botanists, accompanied by characters and descriptions of such species as, from their novelty and obscurity, may require that sort of illustration."—Smith, in Trans. Linn. Soc., x. (1811), p. 333.



**Lepidium heterophyllum**, Benth., var. **canescens**, Gren. and Godr. (*Thlaspi hirtum*, Sm. not L.), *L. Smithii*, Hook.

"*Thlaspi hirtum*. In 1800 Mr. J. Mackay sent me the true plant from Perthshire found by Mr. J. Miller; and the following year I received a variety with smooth fruit, gathered in Perthshire and Angussshire by Mr. G. Don." Smith in Eng. Bot., t. 1803 (1807). In Herb. Sowerby, Don has written on a label attached to specimen, "*Thlaspi* I call this *incana*, but as most of the genus are named from the places where they grow, I believe it would be better to call this *pratense*, as it is found only in meadows by the sides of rivers. It differs from the *campestre* in the form of the silicula and the largeness of the corolla, and in the stalks inclining to the ground in manner of *hirtum*—it is a biennial. I sent you a specimen of this before, supposing it the *hirtum*, but since I have got the true *hirtum* of Linn. Mr. Miller, gardener to the Earl of Kinnoul, was the first to take notice of this plant above 20 years ago; he found it in meadows in Strathearn, and I found it between Bricken and Montrose in Angussshire growing by the river Esk's side, but never found it in any part else by the rivers Esk and Earn. I believe this to be a nondescript."

The above note will show how clear Don was in his recognition of new forms. It was Sir James E. Smith who confused two different plants in English Botany under the above name.

**Neslia paniculata**, Desv. (*Vogelia sagittata*, Medik., v. *paniculata*, Hornem., *Myagrum paniculatum*, L.).

First observed by Don in 1795 at . . . Craichie near Forfar. See Don, Herb. Brit., No. 91 (1805). A casual, also found at Aberdeen in 1883, by Professor Trail; and at Oxford. See Druce, Fl. Berks., p. 69.

**Lychnis alpina**, L.

Little Culrannoch, Forfar. Discovered in 1795. See Eng. Bot., t. 2254 (1811), and Trans. Linn. Soc., x. (1811), p. 342. New to Britain.

**Sagina Linnæi**, Presl.

First published as *Spergula saginoides*, L., found by Mackay in 1794 on Ben Lawers and gathered there by Robert Brown in the same year, but Don says he gathered it on Malghyrdy prior to that time. Eng. Bot., t. 2105 (1810).

**Sagina maritima**, Don, Herb. Brit., fasc. vii., No. 155 (1806).

Found on Ben Nevis [as the var. *alpina* in 1794] and in Skye, etc., and first described by Don as a new species to science.

***Arenaria sulcata*, Schlecht.**

Conjointly found with Mackay on Ben Lawers, *see* Eng. Bot., Suppl., t. 2638 (1830), under the name *Arenaria rubella*, Hook. New to Britain. Don, in Herb. Brit. Mus., on specimen, says, "I first found it on Ben Lawers in 1793 with Mr. J. Mackay."

***Oxytropis campestris*, DC.**

As *Astragalus campestris* at the head of Clova, 1812. Don, Herb. Brit., No. 213 (1812), and Eng. Bot., t. 2522 (1813). New to Britain.

***Lotus tenuis*, Waldst. and Kil.**

First recorded for Scotland by Don. *See* Eng. Bot., t. 2615 (1829).

***Rosa Doniana*, Woods.**

Differentiated by Don, who found it in Clova, from its allies, it has since been reduced to a variety of *R. involuta*, itself now considered not to be a true species but a hybrid of *Rosa spinosissima* and *R. mollissima*, Willd. = (*R. tomentosa*, Sm.). *See* Trans. Linn. Soc., xii. (1818), p. 185. Eng. Bot., Suppl., t. 2601 (1829).

***Spiræa salicifolia*, L.**

First recorded from Scotland by Don. *See* Eng. Bot., t. 1468 (1805).

***Alchemilla argentea*, G. Don (*A. conjuncta*, Bab.).**

Island of Skye. *See* Trevelyan "On the Vegetation and Temperature of the Farøe Islands," p. 10 (1837).

***Saxifraga hirta*, Haw.**

*S. sponhemica*, Gmel., described as *S. platypetala* by Smith in Trans. Linn. Soc., x. (1811), p. 341, from specimens found on the Clova mountains by Don. Figured in Eng. Bot., t. 2276 (1811).

***S. hypnoides*, L., var. *elongella* (Sm.).**

"Gathered on a rock by a river called Lintrathen, a mile and a half north of Airly Castle, Angusshire." Described by Smith as a species in Trans. Linn. Soc., x. (1811), p. 340, and figured in Eng. Bot., t. 2277 (1811).

***Epilobium alsinifolium*, Vill.**

An addition to the Scottish Flora made by Don and Mackay. Eng. Bot. t., 2000 (1809).

***Galium uliginosum*, L.**

First recorded for Scotland by Don, Herb. Brit., No. 102 (1806), from the Pentland Hills.

***G. erectum*, Huds., var. *aristatum* (Smith, Eng. Fl., i., p. 203 (1824).)**

A new variety to science found by Don in Forfar. See Eng. Bot., Suppl., t. 2784 (1834).

***Valeriana pyrenaica*, L.**

First found by Don in Britain in 1782 and recorded by him in Herb. Brit., No. 77 (1805), from Blair Adam, etc., but it is not a native.

***Kentranthus ruber*, Druce (*Centranthus ruber*, DC.).**

Recorded as *Valeriana rubra* for the first time as a Scottish plant by Don in Herb. Brit., No. 76 (1805), from Edinburgh, but it is not a native species.

***Anthemis tinctoria*, L.**

Forfar, Eng. Bot., t. 1472 (1805), and contained in Don's Herb. Brit., No. 42 (1804). The first Scottish record of this casual species.

***Lactuca alpina*, Benth. (*Mulgedium alpinum*, Cass.).**

Found by Don on Loch-na-gar in 1801, and sent by him to the Linnean Society in 1804. Described as *Sonchus cœruleus* in Eng. Bot., t. 2425 (1810).

***Hieracium calenduliflorum*, Backh.**

A specimen from Loch-na-gar and the Clova mountains labelled *H. crispum* by G. Don is in Herb. Brit. Mus. Don says, "This is a distinct plant from any of the *Hieraciums* that I have seen described." New to science.

***H. eximium*, Backh.**

Recorded under the name *H. villosum*, L., from the Clova mountains, see specimen in Herb. Palmer, but in Herb. Brit. Mus. a specimen is labelled by G. Don, "I collected this on Ben Nevis with *H. crispum*. I call it *H. laciniatum* and believe it to be distinct from *crispum* and *alpinum*." New to science.

***H. cerinthiforme*, Backh.**

Figured as *H. cerinthoides*, L., by Smith in Eng. Bot., t. 2378, but, as the specimen in Herb. Palmer shows, Don's plant was *H. cerinthiforme*, Backh., of which he was the first discoverer.

**H. globosum, Backh.**

"I call this *H. hyperboreum*. I found this upon Loch-na-gar . . . it never has more than one flower on the stem, not even when cultivated." G. Don, in Herb. Brit. Mus. The earliest specimen.

**H. Dewari, Boswell.**

This is the plant which Don collected by Loch Rannoch and which Smith in Eng. Bot., t. 2122 (1810), describes as *denticulatum*, and he says Don gathered it in 1794 and claims its first discovery. It has been confused with *H. strictum*, Fries, but the specimen labelled *denticulatum* by Don in Miss Palmer's collection is *H. Dewari*, and it is a question whether it should not bear Smith's name. The plant figured is from a cultivated specimen sent by Dickson from Harehead Wood, Selkirk.

**H. lingulatum, Backh.**

Under the name of *H. divaricatum*, Don reports this as new to Britain in Headrick's Agric. Forfar. (1813), p. 13, and there are specimens from "rocks among the Clova mountains" in Herb. Brit. Mus., although a probable specimen from G. Don of *lingulatum* from the Clova mountains is labelled, by Lady Aylesford, *H. Lawsoni*.

**H. sparsifolium, Lindeb.**

This is Don's *H. sylvaticum* "from fir woods near Forfar" in Herb. Palmer and the earliest Scottish specimen known.

**H. prenanthoides, Vill.**

Don first found it in Forfarshire, but see Smith, Fl. Brit., ii., p. 835 (1800).

**H. crocatum, Fries.**

Specimen collected by Don probably in 1812 from the river bed near Mar Lodge; and the earliest British specimen.

**H. aurantiacum, L.**

Woods in Banffshire. See Don's Herb. Brit., No. 41 (1804), figured in Eng. Bot., t. 1469 (1805). First as British, but not native

**Campanula persicifolia, L.**

From Cullen, found in 1802, but not native. Don, Herb. Brit., No. 180 (1806).

**Myosotis alpestris**, *Schmidt*.

Recorded as *M. alpinus* from Ben Lawers by Don in Herb. Brit., No. 205 (1805); figured under the name of *M. rupicola*, Smith, Eng. Bot., t. 2559 (1813). New to Britain.

**M. repens**, *D. Don*.

Found by G. Don on the Ochil Hills. See Hooker, Fl. Scot., p. 67 (1821). Figured in Eng. Bot., Suppl., t. 2703 (1831).

**Bartsia alpina**, *L.*

Said by Don in Herb. Brit., No. 63, to have been found by him on Mal-ghyrdy in 1789 for the first time in Scotland.

**Lamium intermedium**, *Fries*.

Cultivated fields, Angus, Don in Herb. Palmer. Is the earliest British specimen. Dr. Tyacke is given as the finder in Eng. Bot., Suppl., t. 2914 (1847). See Scott. Nat., p. 144 (1889).

**Salix nigricans**, *Sm.*, var. **rupestris** (*Sm.*).

Forfarshire.

**Salix lanata**, *L.*

First found by Don in 1812. See letter to Mr. D. Booth, dated Nov. 1812. It was not published as a British plant until 1824 in Smith's Eng. Fl., iv., p. 205, where Drummond is mentioned as the finder, as also in Eng. Bot., Suppl., t. 2624 (1830), but David Don (under Eng. Bot., Suppl., t. 2666, *Carex Vahlkii*), says his father first found it in Glen Callater.

**S. Doniana**, *Sm.*

In Eng. Fl., iv., p. 213 (1824), and figured in Eng. Bot., Suppl., t. 2599 (1829). A new hybrid discovered by Don in the Baldovan woods, Forfar, and subsequently found by Dr. Buchanan White in Perthshire.

**Polygonatum verticillatum**, *All.*

Don claims to have discovered this; see the Winch correspondence; although A. Bruce is given as the first finder by Smith in Eng. Bot., t. 128 (1793). Withering attributes its discovery to Don.

**Sparganium affine**, *Schnitzl*, *S. longifolium*, *Fleming*, *in lit.*

Don appears to have been the earliest observer of this species in Scotland; see Ann. Scott. Nat. Hist. (1899), pp. 186-187. He says he saw it in Skye, Ben Lawers, and the head of Mar Forest.

**Potamogeton zosteræfolius**, *Schum.*

Rescobie, *see* Eng. Bot., Suppl., t. 2685 (1831). Don, Herb. Brit., No. 204 (1806), the first Scottish record.

**Luzula arcuata**, *Sw.* (*Juncoides arcuatum*, O. Kuntze).

*See* Eng. Bot., 2688 (1831), where Don is said to have gathered it on the Grampians; although Sir W. J. Hooker is credited with its discovery in Smith, Eng. Fl., ii., p. 183. There is a specimen from Don in Herb. Palmer from the summit of Ben Mac Dowie [Mac Dhu], a high mountain near the head of the Dee. Don was on this mountain in 1812, and probably this is the earliest British specimen; he refers to it in his letter to Mr. Booth of 1812.

**Juncus tenuis**, *Willd.*

Found by Don in Forfar in 1795 or 1796, and recorded as *J. gracilis* by Smith in Eng. Bot., t. 2174 (1810); there are specimens in his herbarium, and in that of Miss Palmer, etc.

**Juncus balticus**, *Willd.*

In the "Flora Scotica" of 1821, p. 104, under *J. arcticus*, Hook., non Willd., Drummond is credited with the discovery, but there are specimens in Don's herbarium from the Sands of Barrie and near Montrose, labelled *J. filiformis*, which are the earliest known from Britain. Dickson also recorded *J. filiformis* from Ben Lawers, "but that much visited mountain" has never since been reported to yield the true *J. filiformis*, and although it has the credit of being the first Scottish record, I believe it to be so in name only. *See* Eng. Bot., Suppl., t. 2621 (1830).

**Juncus lampocarpus**, *Ehrh.*, var. **nigritellus** (*D. Don*).

Found in the Clova mountains, G. Don. *See* Eng. Bot., Suppl., t. 2643 (1830).

**Eriophorum alpinum**, *L.*

Found in 1791 by Don and Robert Brown in the moss of Restenet, near Forfar, since eradicated by dredging the marsh for marl. Recorded in Eng. Bot., t. 311 (1796), and Trans. Linn. Soc., ii. (1794), p. 290. *See* Don, Herb. Brit., No. 26 (1804).

**Carex aquatilis**, *Wahl.*

Distributed in Herb. Brit., No. 192 (1806), from the side of the Esk under the name of *C. stricta*, Good., and the first as British, preceding Hooker and Greville's record in Eng. Bot., Suppl., t. 2758 (1832).

**C. rariflora, Sm.**

This new species to science was discovered by Don on the Clova mountains in 1807 and named by him *C. nivalis*, but Smith chose the name *rariflora* in Eng. Bot., t. 2516 (1813). Don, Herb. Brit., No. 215 (1812).

**C. vaginata, Tausch, in Flora, iv. (1821), p. 587.**

Found in 1802 by Don on the Cairngorms. See *C. salina*, Herb. Brit., No. 216 (1812), also in Eng. Bot., Suppl., t. 2731 (1832), as *C. phaeostachya*. Don refers to it as *C. salina*, Swartz (from Ben Mac Dhu), in a letter to Mr. Booth dated 1812, but as a slightly different form from that which he first found on the Cairngorms. Don's discovery therefore was prior to Borrer, whom, under *C. Mielichhoferi*, in Eng. Bot., t. 2293 (1811), Smith gives as the discoverer. Smith's name is older than that of Tausch, although subsequently in the "English Flora" he named practically an identical plant as *C. phaeostachya*.

**C. saxatilis, L. (C. pulla, Good.).**

Found by Don on Ben Lomond in 1789 and by Mackay and Dickson subsequently, but in Eng. Bot., 2045 (1809), the credit is given to Mackay, although Don in Herb. Brit., No. 190, gives the history of its discovery, which has been claimed by Dickson.

**C. divisa, Huds.**

Found by Don for the first time in Scotland near Montrose, see Herb. Brit., No. 196 (1806), and for a long time was considered to be one of Don's "reputed discoveries" for Scotland until recently it has been re-found.

**C. xanthocarpa, Déség.**

Is contained in his herbarium under the name of *C. fulva* var. It is now considered to be a hybrid of *C. flava* and *C. Hornschuchiana*.

**C. atrofusca, Schkuhr.**

Ben Lawers, and first as British. Figured in Eng. Bot. as *C. ustulata*, Wahl., t. 2404 (1812), and re-found in 1892 by Rev. D. Paul.

**C. flacca, Schreb., var. stictocarpa, Druce.**

Described as a species by Smith in Eng. Fl., iv., p. 127 (1824), from Clova specimens sent by Don.

**Alopecurus alpinus, Sm.**

This interesting grass new to science was found by Don on Loch-na-gar. See Eng. Bot., t. 1126 (1803). Don, Herb. Brit., No. 4 (1804).

**Deyeuxia neglecta**, Kunth (*Calamagrostis stricta*, Nutt.).

Added to the British Flora by Don from the White Mire near Forfar in 1807, and figured under the name of *Arundo stricta* by Smith in Eng. Bot., t. 2160 (1810), and *A. neglecta*, Sm., in Trans. Linn. Soc., x. (1811), p. 337. It was shortly afterwards destroyed by drainage. In 1888 I had the good fortune to find it (under another modification) in a marsh by Loch Tay, Perthshire, namely as the *C. borealis*, Læstad., the *D. neglecta*, Kunth, var. *borealis*; but the marsh has since been filled up with sawdust, resulting from the sawing up of trees blown down by the great gale of 1893. It was a curious coincidence that, when in Caithness, just as I was completing the account of Don for my address to the Pharmaceutical Conference at Dundee, I found Don's *Arundo stricta*, i.e. type *Deyeuxia neglecta*, in a marsh near Thurso, thus again adding it to the Scottish flora, among which I trust it may for a long time be numbered.

**Hierochloe borealis**, R. and S.

Discovered by Don in Glen Kella. See Hooker, Fl. Scot., p. 28, and Eng. Bot., Suppl., t. 2641 (1830). Not found since in this locality, although elsewhere in Scotland.

**Deschampsia alpina**, Beauv.

Discovered by Don on Loch-na-gar, and described by Smith under the name of *Aira levigata* in the Trans. Linn. Soc., x. (1811), p. 334, and figured in Eng. Bot., t. 2102 (1810). Specimens are in Don's herbarium.

**Avena alpina**, Sm., in Trans. Linn. Soc., x. (1811), p. 335.

Found in Clova in 1807 by Don, and erroneously described as *Avena planiculmis* by Smith in Eng. Bot., t. 2141 (1810), but not of Schrader. Don did not think it was *planiculmis*, and it is now considered to be only a variety of *A. pratensis*. Specimens are in the Brit. Mus. Herb. and Don's herbarium.

**Poa alpina**, L., var. *acutifolia*, Druce.

Found by Don on Loch-na-gar and thought by him to be *P. flexuosa*, Sm. See Don, Herb. Brit., No. 6 (1804).

**Molinia varia**, Schrank, var. *depauperata* (Lindley), *Melica alpina*, G. Don, ms.

Found in 1812 by Don; see under Eng. Bot., Suppl., t. 2641.

**Agropyron repens**, Beauv., var. *Donianum*, F. B. White, *Triticum alpinum*, Don, ms., Ben Lawers.

Spec. in Herb. Palmer and Borrer, etc. See Mitten in Hooker's Lond. Journ. Bot., vii. (1848), p. 533.



**Woodsia hyperborea, R. Br.**

Sent by Don from Ben Lawers, but Dickson may have been the first to discover it in Scotland. See *Polypodium hyperboreum*, Eng. Bot., Suppl., t. 2023 (1809).

**Equisetum variegatum, Schleich.**

Discovered as a British plant on the Sands of Barrie, Forfar, by Don in 1807. See Eng. Bot., t. 1987 (1809).

Don was also among the earliest recorders of the following species as new to Scotland or as found in fresh localities:—

**Brassica oleracea, L.**

Inchkeith. Hooker, Fl. Scot., p. 203. First as Scottish if correctly named.

**Raphanus maritimus, Sm.**

Gairloch, 1793.

**Draba muralis, L.**

Edinburgh. Don, Herb. Brit., No. 188 (1806). Confirmatory of Lightfoot's record.

**Dianthus Armeria, L.**

Forfar. New to Scotland. Hooker, Fl. Scot., p. 134.

**Saponaria officinalis, L.**

Don, Herb. Brit., No. 183. New to Scotland.

**Silene noctiflora, L.**

From Forfar, only previously recorded from a field next to the Botanic Garden at Edinburgh. Don, Herb. Brit. No. 12 (1804).

**Silene nutans, L.**

Near Montrose, probably new to Scotland. Don, Herb. Brit., No. 110 (1806).

**Lychnis Viscaria, L., var. alba.**

Airly Castle. Hooker, Fl. Scot., p. 142.

**Cerastium trigynum, Vill.**

**Cerastium tetrandrum**, *Curt.*

Forfarshire, etc. Don, Herb. Brit., No. 60 (1805).

**Cerastium latifolium**, *L.*, and **C. alpinum**, *L.*

From Ben Lomond (one of these was probably *arcticum*), and new to Scotland.

**Sagina apetala**, *Ard.*

New to Scotland. Don, Herb. Brit., No. 156 (1806).

**Geranium phæum**, *L.*

New as an alien to Scotland. Don, Herb. Brit., No. 92 (1805).

**Ulex Gallii**, *Planch.*, as **U. nanus**, *Forst.*

From the Pentlands. Hooker, Fl. Scot., p. 212.

**Lathyrus montanus**, *Bernh.*, var. *linifolius*.

Near Kinnaird. (*Orobis tenuifolius*) D. Don, in Mem. Wern. Soc., iii. (1820), p. 302. Hooker, Fl. Scot., p. 213.

**Rosa Sabini**, *Woods.*

Clova mountains. Hooker, Fl. Scot., p. 155.

**Rosa involuta**, *Sm.*

Clova mountains. Isle of Arran. Hooker, Fl. Scot., p. 154.

**Rubus nessensis**, *Hall* (*R. suberectus*, *And.*).

Forfarshire. Hooker, Fl. Scot., p. 159. Eng. Bot., Suppl., t. 2572 (1813).

**Circæa intermedia**, *Ehrh.*

Forfar.

**Saxifraga rivularis**, *L.*

Loch-na-gar. See Eng. Bot., t. 2275 (1811).

**Ribes petræum**, *Sm.*

Woods near Airly Castle. Hooker, Fl. Scot., p. 81.

**Galium sylvestre**, *Vill.*, sub nom. *G. pusillum*.

Pentlands, Clova. New to Scotland if rightly identified. Hooker, Fl. Scot., p. 52.

**Galium Witheringii**, *Sm.*

Forfar, new to Scotland. Hooker, Fl. Scot., p. 51.

**Galium spurium, L.**

Casual, Forfar. Don, Herb. Brit., No. 104.

**Taraxacum palustre, DC.**

See Hooker, Fl. Scot., p. 227.

**Senecio sylvaticus, L., var. lividus, Sm.**

Forfarshire. See Hooker, Fl. Scot., p. 243.

**Crepis hieracioides, Waldst. and Kit. (*C. succisæfolia*, Tausch).**

Don, Herb. Brit., No. 65 (1805). See also Dickson in Trans. Linn. Soc., ii. (1794), p. 288 (*sub Hieracium molle*), and Eng. Bot., t. 2210 (1810).

**Hieracium umbellatum, L.**

Perthshire.

**Hieracium dubium.**

Eng. Bot., t. 2332 (1811).

New to Scotland. See Hooker, Fl. Scot., p. 229.

**Campanula rapunculoides, L.**

Blair Athol. Don, Herb. Brit., No. 55 (1805).

**Asperugo procumbens, L.**

Forfarshire.

**Symphytum tuberosum, L.**

See Don, Herb. Brit., No. 133.

**Pulmonaria officinalis, L.**

Alien at Arniston. Don, Herb. Brit., No. 157.

**Cynoglossum montanum, Lam.**

New to Scotland. See Hooker, Fl. Scot., p. 69.

**Teucrium Chamædrys, L.**

As an alien; new to Scotland, from Forfarshire. Don, Herb. Brit., No. 167 (1806).

**Lamium maculatum, L.**

An alien, first in Scotland. See Hooker, Fl. Scot., p. 182.

**Fagopyrum esculentum**, *Moench.*

Cornfields. Don, Herb. Brit., No. 210 (1812), first in Scotland.

**Chenopodium hybridum**, *L.*

A new casual to Scotland. Hooker, Fl. Scot., p. 84.

**Salix nigricans**, *Sm.*, var. **Andersoniana** (*Sm.*).

Clova. Hooker, Fl. Scot., p. 285.

**Salix Lapponum**, *L.*, vars. **glauca** and **arenaria**.

From Clova. See Hooker, Fl. Scot., p. 283.

**Tulipa sylvestris**, *L.*

Brechin. See Hooker, Fl. Scot., p. 102.

**Allium carinatum**, *L.*

Banks of the Isla. Hooker, Fl. Scot., p. 101.

**Juncus biglumis**, *L.*

Ben Lawers.

**Juncus supinus**, *Moench.*

Ben Lawers, 1794, probably new to Scotland. It was mis-called *J. capitatus* by Sir W. J. Hooker in Fl. Scot., p. 106. See Don, Herb. Brit., No. 85 (1805), also var. *uliginosus* and var. *subverticillatus*. See Hooker, Fl. Scot., pp. 108 and 109.

**Juncus castaneus**, *Sm.*

Ben Lawers, 1794. See Don, Herb. Brit., No. 85.

**Juncus Gerardi**, *Lois.*

*Sub nomine J. bulbosus* var. in Herb. Don.

**Juncus acutiflorus**, *Ehrh.*

Forfar.

**Juncus lampocarpus**, *Ehrh.*

Forfar.

**Luzula Forsteri**, *DC.* (*Juncoides Forsteri*, O. Kuntze).

Forfar. Hooker, Fl. Scot., p. 110, if rightly identified, new to Scotland.

**Luzula multiflora**, *Lej.* (*Juncoides multiflorum*, Druce).

Forfar, Herb. Don.

**Potamogeton heterophyllus**, Schreb. (*P. gramineus*, L.).

Rescobie, Herb. Palmer. Hooker, Fl. Scot., p. 57.

**Potamogeton alpinus**, Balb. (*P. rufescens*, Schrad.).

Forfar.

**Cladium jamaicense**, R. Br. (*C. Mariscus*, R. Br.).

Restenet, near Forfar. See Hooker, Fl. Scot., p. 11.

**Scirpus Tabernæmontani**, Gmel.

Montrose. Herb. Don.

**Scirpus rufus**, Schrad. (*Blysmus rufus*, Link.).

Sands of Barrie and Isle of Skye. See Eng. Bot., t. 1010 (1802), and Don, Herb. Brit., No. 52 (1805), as well as var. *bifolius* (Wahl.).

**Carex incurva**, Lightf.

Sands of Barrie.

**Carex filiformis**, L.

Loch Ericht and Forfar, 1788. Don, Herb. Brit., No. 43 (1804).

**Carex lævigata**, Sm.

Angus. Hooker, Fl. Scot., p. 269.

**Carex diandra**, Schrank (*C. teretiuscula*, Good.).

Forfar, etc., Don, Herb. Brit., No. 189 (1806).

**Deschampsia flexuosa**, Trin., var. **montana** (Huds.).

Herb. Don.

(**Deschampsia discolor**, R. and S.

No locality. Herb. Don).

**Deschampsia cæspitosa**, Beauv., var. **glomerata**.

Hooker, Fl. Scot., p. 29=(*D. Doniana*, S. F. Gray, Nat. Arr. Brit. Pl. ii., p. 137).

Clova mountains.

**Phleum arenarium**, L.

Don, Herb. Brit., No. 79 (1805).

**Poa cæsia**, Sm.

**Poa glauca**, *Sm.*

**Poa alpina**, *L.*, var. **glomerata**, *Hull.*

River Esk, Angusshire. See Mem. Wern. Soc., iii. (1820), p. 296. Hooker, Fl. Scot., p. 34.

**Poa pratensis**, *L.*, var. **subcœrulea** (*Sm.*), (*P. humilis*, *Ehrh.*).

See Hooker, Fl. Scot. p. 35.

**Poa trivialis**, *L.*, var. **Koeleri**, (*DC.*). Herb. Don.

**Glyceria distans**, *Wahl.* (*Panicularia distans*, *Kuntze.*)

Coast of Forfar and Fife. New to Scotland. Don, Herb. Brit., No. 176 (1806).

**Festuca sylvatica**, *Vill.*

Seen about 1790 by Don in Perthshire and Dumbartonshire. See Eng. Bot., t. 1006 (1802).

**Avena strigosa**, *Schreb.*

Don, Herb. Brit., No. 81 (1805).

**Bromus giganteus**, *L.*, var. **triflorus** (*Sm.*).

Perthshire. Herb. Don.

**Bromus secalinus**, *L.*

Angus and Fife. Hooker, Fl. Scot., p. 41.

**Bromus hordeaceus**, *L.* (*B. mollis*, *L.*), var. **glabratus** (*Doell.*).

Herb. Don.

**Bromus tectorum**, *L.*

As a casual, new to Scotland.

**Bromus racemosus**, *L.*

Angus. Hooker, Fl. Scot., p. 42.

**Bromus commutatus**, *Schrad.*

*Sub nom. B. arvensis*, *L.* Herb. Don.

**Lepturus filiformis**, *Trin.*

See Don, Herb. Brit., No. 178 (1806), but Lightfoot records it from Galloway. (Fl. Scotica, app., p. 1085, 1792).

**Hordeum marinum**, *Huds.* (*H. maritimum*, *With.*).

Angus coast. Hooker, Fl. Scot., p. 46.

**Festuca loliacea**, Huds. (*F. elatior* × *Lolium perenne*).

Forfarshire. Hooker, Fl. Scot., p. 40.

**Festuca rotboellioides**, Kunth (*Triticum lolaceum*, Sm.).

Angus. Hooker, Fl. Scot., p. 45.

**Lolium arvense**, With.

Forfar. Hooker, Fl. Scot., p. 45.

**Lycopodium annotinum**, L.

Clova.

**Isoetes lacustris**, L.

See Eng. Bot., t. 1084.

It is scarcely necessary to say that some of the plants he records are not natives.

In addition, Don added several species of mosses to the Scottish flora, and all his records of these have been verified, two—*Grimmia Doniana* and *Anodus Donianus*—being named after him. Mr. H. N. Dixon has kindly examined all the specimens in Don's "Herbarium Britannicum," and finds that, with one exception, that of *Fontinalis squamosa*, which is a variety of *F. antipyretica*, all are correctly named, and he says that they are all undoubtedly British species, and some are sufficiently rare and others sufficiently inconspicuous to show the collector to have been an extremely keen observer.

A critical examination of a list of Don's discoveries enables us to bring his work into more correct focus, and to obtain a position favourable for arriving at a more accurate idea as to the authenticity of his records. But it is only fair to remember that at the time when Don lived the same precision of locality was not demanded of the botanist, nor was the same importance then attached to the fact that a specimen should come from the locality printed on the label, as is now the case. At that time the specimen itself was valued just as a stamp is now valued by the philatelist, and the other factors as to where it came from or by whom it was collected were to some extent ignored. Therefore we find that Don, even in his own herbarium, wrote out the localities of certain species from text-books before the plants were obtained; indeed, in some instances the place for the plant is still unoccupied. By this practice a loophole for error is at once presented. Again, the

geography of Scotland was imperfectly known, so that Don was often very vague in his localities, and this cannot be wondered at; and if, as sometimes occurred, he gave them from memory, another source of error is opened. Then, too, Don was a florist, and a florist in poor circumstances, and it is quite conceivable that he may, in some instances, have intentionally withheld the exact locality from business motives, so that another in the same trade should not take toll. And it must also be borne in mind that when he lived no British botanist had any but the most elementary knowledge as to the indigenuity of plants. We notice that even in such a standard work as "English Botany" a large number of species are inserted which have no claims to be considered natives of Britain, although found growing in a wild state; and this is even true of Sir W. J. Hooker's "Flora Scotica." We therefore need not be surprised to find Don recording such alien plants as *Hypericum barbatum*, *Cherophyllum aureum*, and, because he found them wild, thinking them to be native. Then Don brought home many specimens, either in seed, root, or flower, and grew them in his garden; and anyone who is conversant with the difficulties under which all botanical gardens labour in the shape of misplaced labels, the encroachment of one species upon the domain of another,<sup>1</sup> in the case of annuals by seed-scattering, or of perennials by root-creeping, need not be surprised to find that Don, poor and overworked as he was, may, with three hundred British species in his Forfar garden, have fallen a victim to the unconscious transference of labels or specimens, and perhaps his memory at times, especially in later years, proved treacherous. To one or other of these causes may, I think, be attributed the records of such plants as *Potentilla tridentata* and *Tussilago alpina*. On the other hand, we must remember with gratitude the enormous energy which enabled him to add such a lengthy list of species to his country's flora.

This lengthy list of Don's discoveries contains such a number of new species, and such great rarities, and comprises so many critical forms, that it would be difficult to find one to rival it; and it places Don in the first rank of workers in the same field of research. We have seen again and again that Don's instincts were correct, but that Smith, then the acknowledged head of British botanists (and notwithstanding the great advantages he possessed in having an extensive foreign herbarium and the types

<sup>1</sup> See Dr. Neill's description of Don's garden, on p. 72.—*J. B. B.*



of Linnæus in his possession), had not the same natural appreciation of minute differences, nor that intuitive power of grasping the relationship of species which Don himself shows, and he lacked just that discriminating power which is only given to the full to those who work with untiring zeal among living specimens. This work of Don's was of the most unsparing kind, and was done, as so often it is obliged to be done, against adverse influences, and without the advantages of rank and fortune, but with the compensating assets which untiring zeal and patient industry, and the inborn touch of genius give to any of Nature's children who have been enriched with its heritage—that something with which no worldly gifts can endow us in a similar way. Don unmistakably was so gifted, and it kept him steadfast at his labours. He had besides that talent of discriminating slight differences which is lacking to many systematic botanists; but none can be truly great who is not its possessor. This discriminating power is evidenced again and again in his acute remarks upon his specimens.

As I have said, Don was too independent in opinion to curry favour with the wealthy, and too fond of Nature—by which I mean Science in the truest sense, hard mistress in some respects as she is to the poor—to make himself, by continuous application, a successful man of business. George Don is an instance—and there are many in the working-classes—of a life devoted to one idea; heroes assuredly, yet reaping no reward, except such reward as earnest and true work done for its own sake confers.

In the case of Don, some of us, and assuredly all who have trodden over the same lovely country which he has made known to us, and who have gathered in the same localities the rare and beautiful specimens he discovered or has left records of, will feel not only gratitude for what his labours have gained for us and made our common possession, but also respect for the independent and sturdy character of the man who lived such a life of toil and endurance.

## APPENDIX C.

## GEORGE DON'S HERBARIUM BRITANNICUM.

As Don's Herbarium Britannicum has in most instances been cut up, so as to allow the specimens to be inserted in herbaria, so that it is difficult to consult it as a whole, I have annexed from the nine fasciculi which Mr. Knox has lent me a verbatim copy of the labels, since they give very considerable information as to the localities of British plants, especially from Scottish localities. When the name now used differs from that which Don employs I have added it, and Mr. H. N. Dixon has kindly examined the Mosses. It will be seen that very few are misnamed, apart from changes of nomenclature. The sign ! means correctly named.

HERBARIUM BRITANNICUM,  
G. DON,  
Consisting of Fasciculi  
of  
Dried British Plants,  
with their appropriate names and  
particular habitats annexed  
by  
G. DON,  
Associate of the Linnean Society.  
Dedicated to Sir Joseph Banks.  
Edinburgh, July 2, 1804.

## FASCICULUS I.

1. *Veronica montana*, Eng. Bot., t. 766!

In moist shady woods at Gordon Castle, near Fochabers;  
and in Lugton Wood, near Dalkeith.

2. *Scirpus acicularis*, *Eng. Bot.*, t. 749!*Cyperus acicularis*, Withering.

Ditches near Belmont Castle in Angusshire; and in the Hay Pool by the side of the river Earn, near Dupplin House, Perthshire. Found also by Mr. R. Miller (Dupplin House) in a drain called the Pow, near Methven, Perthshire.

[The first Perthshire record for *Eleocharis acicularis*, R.Br.—G. C. D.]

3. *Phleum alpinum*, *Eng. Bot.*, t. 519!

On a mountain called Loch-na-Gare, in Aberdeenshire, and on Ben Lawers, Perthshire.

4. *Alopecurus alpinus*, *Eng. Bot.*, t. 1126!

On moist rocks of Loch-na-Gare, near Invercauld, Aberdeenshire.

5. *Poa alpina*, *Eng. Bot.*, t. 1003!

By the side of the river Esk, on a rock called Corbie Craig, parish of Tannadice; and by the side of the river Isla, near Airly Castle, growing among stones; and on the mountains of Clova; all in Angusshire.

[This is apparently a cultivated specimen 16 inches high.—G. C. D.]

6. *Poa flexuosa*, *Eng. Bot.*, t. 1123.

On Ben Nevis, and on Loch-na-Gare. On Ben Nevis generally and on Loch-na-Gare always viviparous.

[This is not the *Poa flexuosa* of Wahlenberg, nor I think of Smith, but a slender form of *Poa alpina* with a narrow panicle which, in a paper read before the Linnean Society, March 1903, I have suggested should be called *P. alpina*, L. var. *acutifolia*. A second specimen presumably from Ben Nevis requires further study.—G. C. D.]

7. *Chironia pulchella*, *Eng. Bot.*, t. 458.*Gentiana pulchella*, Gmel.

By the seaside near Brodie House. First observed there by James Brodie, Esq.

[This is not *Erythraea pulchella*, Fries (*E. ramosissima*, Pers.), but *Erythraea littoralis*, Fries; forma *minor*, Hartm.—G. C. D.]

8. *Juncus biglumis*, *Eng. Bot.*, 898!

By the side of rivulets near the summit of Ben Lawers.

9. *Arenaria serpyllifolia*, *Eng. Bot.*, t. 923!

On dry sandy places and on walls.

[I think these should be referred to the var. *scabra*, Fenzl.—G. C. D.]

10. *Stellaria scapigera*, *Eng. Bot.*, t. 1269!

By the sides of rivulets on the mountains of Badenoch, between Loch Ereachd and Loch Laggan, and by the side of a rivulet on a mountain to the eastwards of Loch Nevis, Inverness-shire.

[Apparently grown in garden soil, and a monstrous condition of *Stellaria graminea*.—G. C. D.]

11. *Stellaria glauca*, *Eng. Bot.*, t. 825.

*S. graminea*, var.  $\beta$ , Huds.

By the sides of Lochend and Duddingston Lake, both near Edinburgh.

[*Stellaria palustris*, Retz.—G. C. D.]

12. *Silene noctiflora*, *Eng. Bot.*, t. 291!

In sandy cornfields, by the seaside, between the villages of East and West Haines in Angusshire—the only known habitat in Scotland where it can be reckoned truly indigenous.

[Practically an addition to the Scottish flora.—G. C. D.]

13. *Euphorbia exigua*, Curtis, *Fl. Lond.*, fasc. 4, t. 36!

In cornfields in Strathearn, but rare; and in the Carse of Gowrie, and on the side of a bank near the toll-bar at North Queensferry.

[The first Perthshire reference. The specimens have rather blunt apiculate leaves.—G. C. D.]

14. *Tormentilla reptans*, *Eng. Bot.*, t. 864.

On ditch-banks by the roadside between Glasgow and Paisley; and near Hewell Hall, not far from Bromesgrove, in Worcestershire.

[*Potentilla procumbens*, Sibth. The first record for Worcestershire.—G. C. D.]

15. *Thalictrum alpinum*, *Eng. Bot.*, t. 262!

On moist rocks and by the side of rivulets, on Ben Lawers, Ben Lomond, Benavorlich, Schichallin [Schiehallion], and the mountains of Clova, in Angusshire.

16. *Ranunculus auricomus*, *Eng. Bot.*, t. 624!

In woods not infrequent.

[The upper leaves are notched on both margins.—G. C. D.]

17. *Brassica campestris*, *Fl. Dan.*, t. 550.

Cornfields near Forfar; in the Isle of Skye; in cornfields near Edinburgh, by the side of the road leading from Queen Street to St. Bernard's Well; and near Stonehaven, Kincardineshire.

18. *Hieracium alpinum*, *Eng. Bot.*, t. 1110.

On the summits of high mountains such as Loch-na-Gare, Ben Nevis, Ben Lawers, Malghyrdy, and mountains of Clova; and on a rock near the summit of a mountain called Craigundurn, about ten miles from Comry in Perthshire.

[The Rev. E. F. Linton thinks this is *H. eximium*, Backh. The first record for Perthshire.—G. C. D.]

19. *Carex remota*, *Eng. Bot.*, t. 832!

In marshes near a fish-pool at Invermay in Perthshire, and among bushes to the east of Cable Haugh, by the side of the river Esk, in the parish of Tannadice, Angusshire.

[First record for Perthshire.—G. C. D.]

20. *Eriocaulon septangulare*, *Eng. Bot.*, t. 733!

*Eriocaulon decangulare*, Lightf. and Hull.

*Nasmythia articulata*, Huds.

In a small lake called Loch na Caiplich, between Sligachan and Drynock, in the Isle of Skye.

21. *Splachnum sphæricum*, *Eng. Bot.*, t. 785!

On the high mountains of Cairngorm in Inverness-shire, and in Loch-na-Gare, always on cow-dung.

22. *Polytrichum alpinum*, *Dill. Hist. Musc.*, t. 55, f. 4!

On mountains and on mountainous heaths. These specimens from the summit of Benachie or Ben High, in Aberdeenshire.

23. *Trichostomum capillaceum*, *Eng. Bot.*, t. 1152.

*Bryum capillaceum*, Dicks., Hull and With.

In marshes and on moist rocks, on Ben Lawers, Loch-na-Gare, and mountains of Clova; and on a rock called Craigmor, in Glen Tilt, near Blair Atholl. These specimens from Corbie Craig, in parish of Tannadice, Angusshire.

[*Swartzia montana*, Lindb.—G. C. D.]

24. **Grimmia conostoma**, *Eng. Bot.*, t. 1135.  
*Bryum tetragonum*, Dicks., Hull and With.  
 On the summit of the highest mountains, such as Ben Lawers, Ben Nevis, Loch-na-Gare, and Cairngorm.  
 [*Conostomum boreale*, Swartz.—G. C. D.]
25. **Lichen sphærocephalus**, *Eng. Bot.*, t. 414.  
*Mucor lichenioides*, Linn.  
*Clathrus cinereus*, Huds.  
*Trichia lichenioides*, With.  
 On a large oak tree at Balmanno Castle, in Strathearn, and on oaks in Den of Dupplin, Perthshire.

## FASCICULUS II.—1804.

26. **Eriophorum alpinum**.  
 [Missing.—G. C. D.]
27. **Aira cristata**, *Eng. Bot.*, t. 648.  
*Poa cristata*, With., Relh., Sibth.  
 On walls and dry pastures not unfrequent. More plentiful in Scotland than in England.  
 [This is *Koeleria cristata*, Pers.—G. C. D.]
28. **Gentiana verna**, *Eng. Bot.*, t. 493; *Bot. Mag.*, t. 491!  
 In Teesdale Forest, Durham, kindly communicated to me by the Rev. Mr. Harriman. . . .
29. **Samolus Valerandi**, Curt., *Fl. Lond.*, fasc. 4, t. 20; *Fl. Dan.*, t. 198; *Eng. Bot.*, t. 703!  
 Marshy ground near Dunfermline, and moist banks in a small wood between Limekilns and Charleston; also near Gourrock, not far from Greenock, found by Mr. Austin of Glasgow. My specimens are from moist ditches in Goulán Links, East Lothian.
30. **Sium repens**, Jacq., *Fl. Austr.*, iii., t. 260.  
 My specimens were collected from the moist parts of Goulán Links, near Aberlady, East Lothian. Not now to be found at Fisherrow, though repeatedly searched for.  
 [This is the slender plant with long peduncles which appears to be distinct from var. *ocreatum* (Bab.), and I should call it *Apium nodiflorum*, var. *repens*, Reichb., f.—G. C. D.]

31. **Trientalis europæa**, *Eng. Bot.*, t. 15; *Fl. Dan.*, t. 84!

In the north of Scotland, not unfrequent on mountains, but more plentifully in fir woods. My specimens are from woods near Forfar.

33. **Ranunculus parviflorus**, *Eng. Bot.*, t. 120!; Ray, *Syn.*, Ed. iii., p. 248, t. 12, f. 1; Pluk., *Phytogr.*, t. 55, f. 1.

I observed this plant in 1784, on hedge-banks, about half a mile from Tutnell toll-bar, three miles east from Broomsgrove, Worcestershire; from whence my specimens were taken.

[The first Worcestershire record is in Stoke's edition of Withering of 1787, but Don appears to be the earliest observer.—G. C. D.]

34. **Raphanus maritimus**!

In the month of November, 1793, I observed this plant by the side of Gair Loch opposite . . . . It was also found in Galloway by the late Mr. John Mackay in 1797; the original discoverer probably was Mr. James Smith, nurseryman near Ayr.

[A mutilated label of a different kind accompanies this specimen: an abstract only is given.—G. C. D.]

35. **Leonurus cardiaca**.

[Missing.—G. C. D.]

36. **Astragalus glycyphyllos**, *Eng. Bot.*, t. 203!

Near North Queensferry; banks of Water of Leith, near Saughton; in Strathearn, Perthshire; about Arbroath, by the seaside plentifully.

[The earliest record for Perthshire.—G. C. D.]

37. **Astragalus hypoglottis**, *Eng. Bot.*, t. 274; *Fl. Dan.*, t. 614.

*A. arenarius*, Huds. and Relh.

King's Park, Blackford Hill, Figget Whins, and Caroline Park, near Edinburgh; Goulan Links, East Lothian; hills of Kinnoull and Moncrieff, Perthshire; dry sandy places by the side of the river Esk, and in the glen of Ogilvy, Angusshire. My specimens are from North Queensferry, where it grows with *A. uralensis*.

[This is *A. danicus*, Retz.=*A. hypoglottis*, Auct. Angl., non Linn.—G. C. D.]

38. *Astragalus uralensis*, *Eng. Bot.*, t. 464; *Lightf., Fl. Scot.*, p. 401, t. 17.

On rocks of Ben Lawers, but rare. On dry banks at North Queensferry, from whence my specimens were taken.

[*Oxytropis uralensis*, DC., and the earliest record for Perthshire, but it has not been confirmed for Ben Lawers.—G. C. D.]

39. *Vicia lathyroides*, *Eng. Bot.*, t. 30!

On Salisbury Crags, and on the south side of Arthur's Seat, near the basaltic rocks; and Blackford Hill; all near Edinburgh; near Forfar and Kirriemuir, Angusshire; and near Forteviot, Perthshire.

[The earliest record for the latter county.—G. C. D.]

40. *Vicia lutea*, *Eng. Bot.*, t. 481!

This rare *Vicia* I observed on banks close by the seashore, a little way east from the village of North Queensferry, in June 1804, in company with Messrs. P. Neill and G. White of Edinburgh.

41. *Hieracium aurantiacum*, *Fl. Dan.*, t. 1112!

This beautiful *Hieracium* may be now regarded as an addition to the British flora, as I discovered it in a truly wild state in several woods in Banffshire, as at Craigston in the neighbourhood of Turriff.

[Wild, but not indigenous; there is no specimen in Mr. Knox's set.—G. C. D.]

42. *Anthemis tinctoria*, *Fl. Dan.*, t. 741!

I observed this plant in the neighbourhood of Forfar in 1788, in abundance; but agricultural improvements have now rendered it more rare.

[A species of casual occurrence rarely found for long in one locality. The first Scottish record.—G. C. D.]

43. *Carex filiformis*, *Eng. Bot.*, t. 904!; *Trans. Linn. Soc.*, ii., p. 172, t. 20, f. 5; *Fl. Dan.*, t. 379, exclusive of the detached spike. *C. tomentosa* of Lightfoot.

I observed this plant in the Moss of Restennet, near Forfar, in the year 1788; but it is more abundant in the White Myre [Mire], also near Forfar, where it covers several acres; likewise near Loch Erich in Perthshire.

[The earliest record for Perthshire.—G. C. D.]



44. **Polypodium dryopteris**, Bolt., *Fil.* 52, t. 28; *Eng. Bot.*, t. 616.

Found in shady places, and on mountains not unfrequent. My specimens are from the Den of Dupplin, Perthshire.

[*Phegopteris Dryopteris*, Fée.—G. C. D.]

45. **Phascum piliferum**, Schreb., *Phasc.*, p. 8, t. 1., ff. 6-10!

Found on dry grassy banks. On the hills of Turrin and Finhaven near Forfar; Blackford Hill, and King's Park near Edinburgh, from whence these specimens were taken.

46. **Splachnum tenue**, Dicks., *Crypt.*, fasc. 2, p. 2, t. 4, f. 2.

*Sp. purpureum*, Hull?

*Sp. purpureum*, With., *Arrang.*, p. 794, t. 18, f. 9.

Also *Sp. tenue* of both these authors.

Found on the mountains of Cairngorm and Loch-na-Gare, always on cow-dung.

[*Tayloria tenuis*, Schimp.—G. C. D.]

47. **Grimmia nuda**, Dicks., *Crypt.*, fasc. 4, p. 7, t. 10, f. 15.

*Bryum nudum* of Dickson.

I observed this plant in the month of March 1795, on clay banks by the side of the river Tay near Perth, producing its capsules from October to April or May.

[*Discelium nudum*, Brid.—G. C. D.]

48. **Orthotrichum aristatum**, Dicks.

*O. diaphanum*, Dicks., *Crypt.*, fasc. 4, p. 5, t. 10, f. 12.

Found on trees in the Botanic Gardens, Edinburgh, and on apple trees in a garden at Hope Park near Edinburgh; at Dalguise, five miles from Dunkeld, Perthshire.

[*O. diaphanum*, Schrad.—G. C. D.]

49. **Polytrichum subrotundum**, Hedw., *Sp. Musc.*, p. 97, t. 21, ff. 7-9; Dill., *Hist. Musc.*, p. 428; t. 55, f. 6 A-F.

*P. pumilum*, Swartz.

Found on heaths and sandy places not unfrequent. These specimens from Ben Lawers, Perthshire.

[*P. nanum*, Neck.—G. C. D.]

50. **Lichen atrorufus**, *Eng. Bot.*, t. 1102.

I have to acknowledge my obligation to the Rev. Mr. Harriman, for a number of excellent specimens of this lichen from Durham and Cumberland. I have observed it on heaths

in Angushire not unfrequent; also on the mountain of Benachie or Ben High, in Aberdeenshire; and on the summit of the Cairngorm mountains, Inverness-shire, in great abundance. The crust in the figure in Eng. Bot. is of a much lighter colour than that of my Scotch specimens or of those I have received from England.

[*Lecidea atrorufa* (Dicks.).—G. C. D.]

FASCICULUS III.—1805.

51. *Schoenus nigricans*, Eng. Bot., t. 1121!

I observed it in marshes by the seaside near Brodie House, Morayshire; also near Loch-na-Caiplich, in some small lakes, where it grows plentifully with the *Eriocaulon septangulare*, and from which place my specimens were gathered. It has also been found wild on the west coast of Scotland by Mr. Smith, nurseryman near Ayr.

52. *Schoenus rufus*, Lightf., *Fl. Scot.*, t. 24, f. 2; Eng. Bot., t. 1000.

On the coast of Fifeshire and near St. Andrews; Sands of Barry; and other places on the coast of Angushire; Isle of Sky, east of Broadford by the seaside, whence my specimens were taken.

[*Scirpus rufus*, Schrad.—G. C. D.]

53. *Schoenus albus*, Fl. Dan., t. 320; Eng. Bot., t. 985.

For excellent specimens of this plant I am indebted to James Brodie, Esq., M.P., whose liberality on all occasions deserves my warmest acknowledgment of gratitude.

Found in marshes near Brodie House. I have observed it also in a marsh called "Moss of Balgown" in Perthshire; in the Isle of Sky, and near Loch Nevis, Inverness-shire, but in no place have I observed it in such plenty as in a marsh near Paisley.

[*Rhynchospora alba*, Vahl. Methven Moss is probably the same as Don's station, which is the earliest reported for the county.—G. C. D.]

54. *Anagallis tenella*, Curtis, Fl. Lond., fasc. 3, t. 15; Eng. Bot., t. 530!

Specimens of this plant were kindly communicated to me by James Brodie, Esq., M.P., who collected them in marshes by the seaside near Brodie House. It also grows in Fifeshire, and has been found near Gourrock, by Mr. Austin, nurseryman, Glasgow. It has also been found in great plenty at Deerness, in the Mainland of Orkney, by Mr. P. Neill of Edinburgh.

55. *Campanula rapunculoides*, Eng. Bot., t. 1369!

Found plentifully near Blair in Atholl, where my specimens were collected.

[Dr. Skrimshire is given as the discoverer under Eng. Bot., t. 1369.—G. C. D.]

56. *Erica vulgaris*, B.

*Erica ciliaris*, Huds.

I know of no figure that represents this variety. Specimens of this plant were obligingly sent me by Mr. James Hoy, who collected them near Gordon Castle. I have observed this heath in the parish of Marycoulter near Aberdeen; and also on a mountain called Werran, in Angusshire; but it is by no means common.

[*Calluna Erica*, DC., var. *incana*.—G. C. D.]

57. *Saxifraga oppositifolia*, Fl. Dan., t. 34! Curt., Fl. Lond., fasc. 6, t. 27; Eng. Bot., t. 9.

Found plentifully on Ben Lawers, and other mountains of Breadalbane; on Ben Lomond; Ben Nevis; Ben Vorlich; Ben-a-conich [Ben Chonzie]; Loch-na Gare; and the high mountains of Clova, Angus.

[The first record for Perthshire.—G. C. D.]

58. *Saxifraga tridactylites*, Curt., Fl. Lond., fasc. 2, t. 28; Eng. Bot., t. 501!

Found in King's Park, Edinburgh; on the tops of walls between Edinburgh and Colington; on rocks by the seaside betwixt Dundee and Broughty Castle; also in the crevices between the slates of some houses in Dundee; and on houses at Wormie Hills near Arbroath; likewise on the banks of the Forth, near Auchtertyre, to the west of Stirling.

[First record for Perthshire.—G. C. D.]

59. *Cerastium semidecandrum*, Curt., Fl. Lond., fasc. 2, t. 33!

On walls and shady places not infrequent. Near Edinburgh and about Forfar, plentifully.

[The plant is scarcely so glandular as our Buckinghamshire specimens and it has a different facies.—G. C. D.]

60. *Cerastium tetrandrum*, Curt., Fl. Lond., fasc. 6, t. 31!

*Sagina cerastoides*, Eng. Bot., t. 166.

Found on wall-tops at Christian Bank near Edinburgh, on Inch Keith and Inch Colm; also near Musselburgh; at Stonehaven, in Kincardineshire, on roofs of cottages and tops of walls; on the sands at Barry and by the shore in some parts of Forfarshire, plentifully.

61. *Cerastium alpinum*, Eng. Bot., t. 472; Fl. Dan., t. 6; Lightf., Fl. Scot., t. 10.

*C. latifolium*, Lightf.

Found on Ben Lomond; Ben Lawers; and Loch-na-Gare. The distinguishing mark between this and *C. latifolium* [*C. arcticum*], which I have been enabled to discover in their native situation, where they are often intermixed, and approach each other in habit, is that in the *C. latifolium* the stamina are longer than the pistilla, and that in the *C. alpinum*, the pistilla are double the length of the stamina.

62. *Cerastium latifolium*, Eng. Bot., t. 473; Jacq., Coll. i., p. 256, t. 20.

Found on Ben Lomond; Ben Lawers; and other mountains of Breadalbane; Ben-a-conich [Ben Chonzie]; Ben Vorlich; mountains of Clova in Angusshire; Loch-na-Gare; and Cairngorm.

[The specimens are not in good condition and I should refer them to *C. alpinum* var. *lanatum* (Lam.), rather than to *C. arcticum*. They are not the *C. latifolium*, L. nor Jacq.—G. C. D.]

63. *Bartsia alpina*, Eng. Bot., t. 361; Fl. Dan., t. 403; Pluk., Phytogr., t. 163, f. 5!

The Rev. Mr. Harrison [Harriman] collected specimens of this plant near Middleton in Teesdale, and obligingly communicated them to me. I discovered this *Bartsia* on rocks on the east side of Malghyrdy, in the month of July 1789, the first time, I believe, it had been observed in Scotland. I communicated it to Mr. Dickson of Covent Garden in company with Mr. Mungo Park and Mr. Austin, nurseryman, of Glasgow, when Mr. Dickson was on his way to the Highlands in 1792. Also found by Mr. James Mackay in several places in the south of Ireland.

[The Irish plant is not *alpina*, but *B. viscosa*.—G. C. D.]

64. *Arabis hispida*, Pluk., Phytogr., t. 101, f. 3; Fl. Dan., t. 386; Dill., Hort. Elth., t. 61, f. 71; Eng. Bot., t. 469.

*Cardamine petraea*, Huds. and With.

*b. Cardamine hastulata*.

*Cardamine petraea*, Lightf., Fl. Scot., t. 15, f. 2.

N.B.—The right-hand or outer specimen is the var. *b*.

The first variety I observed on rocks and among stones by the head of Loch Awen; on the mountains of Cairngorm in Inverness-shire. It has also been found by Professor J. Beattie on rocks by the side of the river Dee, near Pananach Wells, Aberdeenshire. The variety *b*. I found among stones and

rocks by the sides of rivulets upon Ben-na-cailich in Strath, in the Isle of Sky.

[The *var. b.* is only a form with narrower and more deeply-cut leaves such as grows on exposed places; both are *Arabis petraea*, Lam.—G. C. D.]

65. *Hieracium molle*, Jacq., *Fl. Austr.*, t. 119.

I observed this plant among some bushes by the side of a rivulet, near a farm called the Meadows, three miles from Forfar; but at present I know of no other habitat.

[This is *Crepis hieracioides*, Waldst. and Kit. (= *C. succisæfolia*, Tausch), and the first record for the county.—G. C. D.]

66. *Hieracium umbellatum*, Curt., *Fl. Lond.*, fasc. 6, t. 58; *Fl. Dan.*, t. 680!

This plant although not rare in some parts of England is considered rather of rare occurrence in Scotland. I observed it by the side of the river Tay on the road between Dunkeld and Balnagird; but rare. I observed it likewise at Faggot [Figget] Whins, near Edinburgh, from whence my specimens were taken. It has also been found, though sparingly, at Dupplin, Perthshire, by Mr. R. Miller.

[First record for Perthshire.—G. C. D.]

67. *Satyrion repens*, *Eng. Bot.*, t. 289; Lightf., *Fl. Scot.*, 520, t. 22; Jacq., *Fl. Austr.*, t. 369; *Fl. Dan.*, t. 812.

Woods near Brodie House, James Brodie, Esq. It has also been observed in woods near Gordon Castle, by Mr. J. Hoy. I have likewise found it in woods near Granton [Grantown], and in a fir-wood near Forfar.

[*Goodyera repens*, R. Br. = *Peramium repens*, Salisb.—G. C. D.]

68. *Carex pauciflora*, Lightf., *Fl. Scot.*, p. 543, t. 6, f. 2!

Found on Ben Lomond; on mountains between Loch Ern and Loch Tay; also on the mountains of Breadalbane; Isle of Sky; and mountains between Loch Eil and Loch Urn; on Loch-na-Gare; and in Glen Mick; in Glen Esk in Angusshire, not two hundred yards from corn-land. And on mountains on the north of Blair in Athol.

[First record for Perthshire.—G. C. D.]

69. *Aspidium aculeatum*, Bolt., *Fil.*, p. 48, t. 26.

*Polypodium aculeatum*, Linn., Huds., With., Hull., Relh., Sibth., Bolt., etc.

Found on rocks and in woods in shady situations. My specimens are from the Den of Dupplin, Perthshire.

[*Polystichum aculeatum*, first record for Perthshire.—G. C. D.]

70. *Phascum cuspidatum*, Curt., *Fl. Lond., fasc. 4, t. 60; Fl. Dan., t. 249, f. 3; Dill., Hist. Musc., t. 32, f. 11!*

*Phascum acaulon*, Linn., Huds., With., Hull.

Found amongst stubble and fields sown with grass, and in gardens. About Edinburgh and near Forfar plentifully.

71. *Gymnostomum ovatum*, Hedw., *St. Crypt., v. i, t. 6.*

Found on the tops of walls in the neighbourhood of Edinburgh, not unfrequent.

[*Tortula pusilla*, Mitt.—G. C. D.]

72. *Grimmia Doniana*, *Eng. Bot., t. 1259!*

I discovered this moss in 1795, on large stones near a waterfall on one of the mountains of Clova in Angusshire, eighteen miles north of Forfar, as mentioned in "Flora Britannica." I have since found it on stones on the Pentland Hills, near Edinburgh; also on stones on Ben Lawers.

73. *Dicranum fuscescens*, Turn., *Musc. Hib., t. 5, f. 1!*

I observed this moss on the summit of Ben a High in Aberdeenshire; mountains of Clova in Angusshire; and on rocks on the Pentland Hills near Edinburgh.

74. *Dicranum rufescens*, *Eng. Bot., t. 1216; Dicks., Crypt., fasc. 3, t. 8, f. 1.*

In my opinion, the whole figures I have seen of this plant are drawn beyond the natural size.

Found in wet stubble fields near Finhaven, and on ditch-banks near Forfar; plentifully on banks by the foot of Ben Lawers, also in fields to the west of Logie Almond, Perthshire; and on the banks of a rivulet, above the upper water reservoir, near Dreghorn, Pentland Hills.

[*Dicranella rufescens*, Schp.—G. C. D.]

75. *Lichen Fahlunensis*, *Eng. Bot., t. 653; Fl. Dan., t. 958; Dill., Hist. Musc., p. 24, t. 81; Hoffm., Enum. Lich., p. 17, t. 2.*

[*Platysma Fahlunense* (L.).—G. C. D.]

Found on stones on the lofty mountains in the Highlands of Scotland, as Ben Lawers, Schehallion, and other mountains in Breadalbane; Ben Nevis, Loch-na-Gare and Cairngorm, and the mountains of Clova in Angusshire.

#### FASCICULUS IV.—1805.

76. *Valeriana rubra*, Riv., *Monop. Irr., t. 3, f. 2.* [Ord. pl. irreg. monopet.]

Growing on a wall at Inverleith, near Edinburgh, from whence my specimens were taken.

[*Kentranthus ruber*, Druce; *Centranthus ruber*, DC., the first Scottish record, but only as an alien species.—G. C. D.]

77. *Valeriana pyrenaica*, Buxb., *cent. ii.*, *t. 11*!

I first observed this plant in 1782, by ditches and by the sides of walls, near Blair Adam, Kinross-shire. I have also seen it in a wild state near Glasgow. I have since noticed it in one or two other places in Kinross-shire; and some time ago (in company with Messrs. Maughan and J. Neill) I found it plentifully, in a moist wood on the banks of the river Leith, about a mile below Collington, and three miles from Edinburgh; and in September 1805 I observed it on the side of a small rivulet, in a wood at Abercorn, Linlithgowshire (in company with Messrs. P. Neill and Hosey) . . . There can be no doubt whatever of this being a plant truly indigenous to Scotland.

[Wild but not indigenous in Great Britain; this is the first record.—G. C. D.]

78. *Poa rigida*, Curt., *Fl. Lond.*, *fasc. 2*, *f. 4*; *Eng. Bot.*, *t. 1371*.

In the King's Park, Edinburgh, especially below Salisbury Craigs, where my specimens were gathered. I have since observed it on walls near Burntisland, Fifeshire; but this *Poa* may be considered as of rare occurrence in Scotland.

[*Festuca rigida*, Kunth.—G. C. D.]

79. *Phalaris arenaria*, *Eng. Bot.*, *t. 222*; Pluk., *Phytogr.*, *t. 33*, *f. 8*.

Growing plentifully on the seashore, near Wormyhill, two miles west of Aberdeen; on the Sands of Barry, seven miles east from Dundee; and on the shore, about a mile north from Montrose, all in Angussire. Also near Aberdeen and Banff; and at Prestonpans in East Lothian.

[*Phleum arenarium* L.—G. C. D.]

80. *Avena fatua*, Leers., *Fl. Herborn.*, *p. 42*, *t. 9*, *f. 4*; Mart., *Fl. Rust.*, *t. 81*!

Very common in cornfields in Scotland. My specimens collected in fields near Pentland Hills.

[It is the variety *pilosissima*, S. F. Gray.—G. C. D.]

81. *Avena strigosa*, *Eng. Bot.*, *t. 1266*; Host., *Gram.*, *2*, *p. 41*, *t. 156*!

This is still more common in cornfields in Scotland than *A. fatua*. It is no doubt a native, though in the extreme northern parts of Scotland, and in the islands of Orkneys and Shetlands, it is the only kind of oat cultivated for grain.

82. *Cornus suecica*, *Fl. Dan.*, t. 5; Dill., *Hort. Elth.*, p. 108, t. 91; Linn., *Fl. Lapp.*, t. 5, f. 3; *Eng. Bot.*, t. 310!

Plentiful on the mountains of Breadalbane in Perthshire; mountains of Loch-na-Gare, Aberdeenshire; Cairngorm, Inverness-shire, and mountains of Clova, Angusshire.

83. *Phyteuma orbiculare*, *Eng. Bot.*, t. 142; Jacq., *Fl. Austr.*, t. 437! Specimens supplied by James Sowerby; unlocalised.

84. *Juncus uliginosus*, *Fl. Dan.*, t. 817; Scheuchz., *Agr.*, t. 7, f. 10.

I have been favoured with some specimens of this plant collected by James Brodie, Esq., near Brodie House. I have observed it in marshes, not unfrequently, near Forfar; in the King's Park, Edinburgh; and other places in Scotland. I have been induced to give this plant along with the next species (the *J. supinus*), as Willdenow considers them as varieties of the same plant. I consider my plant as belonging to var. *b.* of "Flora Britannica."

[*Juncus supinus*, Mönch, = *J. bulbosus*, L.—G. C. D.]

85. *Juncus supinus*, *Fl. Dan.*, t. 1099.

I observed this plant, in October 1804, by the side of a rivulet, near the summit of Ben Lawers, in a situation where the snow remains during the greater part of the year, and not far from the spot where I first discovered the *Juncus castaneus* in May 1794, at which time the first-mentioned place was deeply covered with snow. I have cultivated the plant, carefully compared my specimens in their different appearances with the figure in "Flora Danica," which I consider as a just representation of this variable plant. The leaves which accompany the flowers, where they become terminal, give the plant the appearance of being viviparous. The plants which I have cultivated, flowered in July; but in their native place, they do not probably shew their flowers earlier than August or September. Willdenow has given this as a variety of the *J. subverticillatus*, under which he also includes the *J. uliginosus*.

[Very small specimens of aggregate *J. supinus*, Mönch, = *J. bulbosus*, L., which Sir W. J. Hooker (*Fl. Scot.*, p. 106) mistook for *J. capitatus*. First record for Perthshire.—G. C. D.]

86. *Saxifraga stellaris*, *Fl. Dan.*, t. 23; *Eng. Bot.*, t. 167; Jacq., *Coll.*, i., p. 202, t. 13; Scop., *Fl. Carn.*, Ed. ii., p. 292, t. 13!

Common on the mountains of Scotland, by the side of rivulets.

87. *Saxifraga aizoides*, *Eng. Bot.*, t. 39; *Fl. Dan.*, t. 72; Scop., *Fl. Carn.*, Ed. ii., p. 293, t. 14!



Common in marshy places and by the sides of rivulets in the Highlands of Scotland; and also in turfy bogs in the lowlands, as in a marsh called the White Myre [Mire], near Forfar.

88. *Thalictrum minus*, *ng. Bot.*, t. 11.

By the seaside near Arbroath, Angusshire; by the side of the Tay, about a mile above Perth; near Blair in Atholl, plentifully near Loch Rannoch, Perthshire; near Montrose; North Queensferry; and at Caroline Park near Edinburgh, from whence my specimens were collected. It has also been observed by my friend Mr. P. Neill, in the parish of Deerness in the Mainland of Orkney.

[*Thalictrum collinum*, Wallroth. Don includes *T. dunense* in the above records.—G. C. D.]

89. *Galeobdolon luteum*, Curt., *Fl. Lond.*, fasc. 4, t. 40; Pet., *Herb. Brit.*, t. 33, f. 6.

*Galeopsis Galeobdolon*, Linn. and Lightf.

By the sides of hedges and in woods, not unfrequent in several places in Worcestershire and Warwickshire. My specimens were collected near Haddington, East Lothian; probably the habitat referred to by Lightfoot.

[*Lamium Galeobdolon*, Crantz.—G. C. D.]

90. *Scrophularia vernalis*, *Eng. Bot.*, t. 567; *Fl. Dan.*, t. 411!

Near Scoon and also near Cluny, Perthshire; and near Lower, about two and a half miles south from Forfar; but I have never observed it any great distance from gardens.

[A new record for Perthshire.—G. C. D.]

91. *Myagrum paniculatum*, *Fl. Dan.*, t. 204; Gaertn., *De Fruct. et Sem. Pl.*, fasc. 9, t. 141, f. 9.

I first observed this plant in 1795, in a gravelly soil, near a rivulet at a village called Craichie, three miles and a half south from Forfar, Angusshire. The ground here had never been cultivated; and I am therefore of opinion that the *M. paniculatum* has a better title to a place in the British flora than the *sativum*, which has been admitted to it. I may further remark that I never saw *M. paniculatum* growing among flax or grain, where the other has generally been found. Although I am convinced that my plant is the true *M. paniculatum* of Linnæus, I confess that it does not agree well with the figure in "Flora Danica."

[This is *Vogelia sagittata*, Medik.= *Neslia paniculata*, Desv.—G. C. D.]

92. *Geranium phæum*, *Eng. Bot.*, t. 322; *Fl. Dan.*, t. 987!

In a wood near Dupplin, Perthshire; also near Auchterhouse, about twelve miles from Forfar, where it appears to be truly indigenous.

[First Scottish record, but it is not native.—G. C. D.]

93. *Geranium columbinum*, *Eng. Bot.*, t. 259!

I observed this plant in cornfields near the seat of Lord Plymouth in Worcestershire; also at the hills of Kinnoul and Moncrieff near Perth, from the last of which places my specimens were kindly communicated by Mr. John Mitchell at Moncrieff House.

[First record for Perthshire and Worcestershire.—G. C. D.]

94. *Trifolium arvense*, *Fl. Dan.*, t. 724; *Curt., Fl. Lond.*, fasc. 6, t. 50!

In sandy cornfields, and in dry pastures, not unfrequent. My specimens from Figget Whins near Edinburgh.

95. *Artemisia maritima*, *Woodv., Med. Bot.*, t. 122!

On the seacoast near Dunninauld [Denninald], Angussshire. Plentiful on Goulan Links, East Lothian, from whence my specimens were obtained.

[First Forfar record.—G. C. D.]

96. *Carex capillaris*, *Fl. Dan.*, t. 168; *Scop., Fl. Carn.*, Ed. ii., p. 220, t. 59!

On rocks on the east side of Malghyrdy; on Ben Lawers; and in Glen Tilt, near Blair in Atholl, all in Perthshire.

97. *Fontinalis antipyretica*, *Eng. Bot.*, t. 359!

In rivers and rivulets not unfrequent in Scotland, but seldom in fructification. I collected my spec. (May 1805) in a rivulet in Morefoot Hills, about fifteen miles south from Edinburgh, being the only place I ever found it in fructification.

98. *Hypnum cordifolium*, *Hedw., Sp. Musc.*, p. 254; *id., St. Crypt.*, iv., p. 97, t. 37; *Eng. Bot.*, t. 1447!

I first observed this moss in marshy places in the neighbourhood of Forfar in 1788, but seldom producing capsules. I have since noticed it in marshes near Edinburgh, my specimens being collected from the side of Duddingston Loch near that city.

99. *Bryum dealbatum*, *Dicks., Crypt.*, fasc. 2, t. 5, f. 3; *Hedw., Sp. Musc.*, p. 174, t. 41, ff. 6-9; *Swartz, Musc. Suec.*, pp. 44 and 94, t. 5, f. 10.

In bogs near Forfar, but rare; on a moist bank by the sea-side, near the ruins of Dunottar Castle by Stonehaven, Kincardineshire. My specimens from a marsh in the King's Park, Edinburgh.

[Now called *Amblyodon dealbatum*, Beauv.—G. C. D.]

100. **Lichen orestæus.**

On fir trees near Forfar; and on fir trees at Caroline Park near Edinburgh, from whence my specimens were collected. I sent this lichen to Dr. Smith, who is of opinion that it is *L. orestæus* of Acharius growing on wood, it being usually found in Sweden, growing on rocks. I have also observed it on rocks in Ravelston Wood, near Edinburgh; and Dr. Smith is therefore probably correct.

FASCICULUS V.—1806.

101. **Festuca bromoides**, Pluk., *Phytogr.*, t. 33, f. 10; Relh., *Rudb.*, t. 17, f. 3; Scheuchz., *Agrost.*, t. 6, f. 10; *Eng. Bot.*, t. 1411.

On walls and dry places not unfrequent. These specimens were collected from wall tops near Edinburgh.

[This is *Festuca sciuroides*, Roth.—G. C. D.]

102. **Galium uliginosum!**

I am not acquainted with any figure of this plant. It is not very uncommon in marshes in Scotland. My specimens were gathered in a marsh in Pentland Hills, near Edinburgh.

[The first Scottish record—G. C. D.]

103. **Galium tricornes**, Mart., *Fl. Rust.*, t. 122; Vaill., *Bot. Paris.*, t. 4, f. 3, a a.

*Valantia aparine*, Mart.

*Galium spurium*, Huds., With., Relh., and Sibth.

In cornfields, but rare. I have observed it sparingly in the Carse of Gowrie. It has likewise been observed in cornfields, near Malton in Yorkshire, by my friend Mr. R. Miller, gardener to the Earl of Kinnoul.

[This is *G. saccharatum*, All., a new record for Scotland.—G. C. D.]

104. **Galium spurium**,—fide clariss. et amiciss. D. Smithii, qui hoc galium specimine Linneano contulit.

I first observed this plant in 1784 in cornfields, near the village of Red Ditch [Redditch] in Worcestershire, but very rare: I have in my possession a specimen from that place. I

next observed it in 1801, in cornfields near the village called Loch-head about two miles from Forfar, but not common. Dr. Smith, who had the goodness to compare specimens of this *Galium* with the Linnean Herbarium, found that my plants agreed in every respect with the Linnean specimen. The circumstance of the seeds being large, smooth, and shining, distinguishes it from all other British *Galiums*.

[New to Britain, but as a casual plant. Smith figured it in *Eng. Bot.*, t. 1871 (1808).—G. C. D.]

105. *Galium verum*, Curt., *Fl. Lond.*, fasc. 6, t. 13; Mart., *Fl. Rust.*, t. 54!

On dry banks and pastures, common. This plant I have given as one of the most beautiful of the British *Galiums*.

106. *Galium mollugo*, *Fl. Dan.*, t. 455!

I observed it about Dregghorn, and in several other places near Edinburgh; in the Carse of Gowrie; Hill of Burnside near Forfar; and also near the village of Broadsworth in Yorkshire.

[This is *G. Mollugo*, L., and the first certain Scottish record as *G. erectum* was not clearly distinguished by Sibbald or Lightfoot.—G. C. D.]

107. *Galium aparine*, Curt., *Fl. Lond.*, fasc. 2, t. 9; Mart., *Fl. Rust.*, t. 104; *Fl. Dan.*, t. 495!

I have been induced to give this common *Galium* along with the *G. spurium*, to which it closely approaches, and is chiefly distinguished by the seeds, which in this plant are rough, whereas in the other they are smooth and shining.

108. *Campanula rapunculus*, *Eng. Bot.*, t. 283!

Found near an old chapel at Dunbarton, by the late Rev. Dr. Walker. I know no other locality for it in Scotland. I have observed it by the sides of hedges near Millbank in the vicinity of London; but it appeared to me hardly indigenous. My specimens are from cultivated plants which agree exactly with those I have seen growing in England.

109. *Campanula glomerata*, *Eng. Bot.*, t. 90!

This beautiful plant I have always observed on dry banks. On the banks of the Tay near the Linn of Campsie, Perthshire; on the river Esk, and by the sea coast near Arbroath, Angusshire. On the coast of Fife near Pettycur. Also near Broadsworth, five miles from Doncaster, Yorkshire.

[First record for Perthshire.—G. C. D.]

110. *Silene nutans*, Eng. Bot., t. 465; Fl. Dan., t. 242!

I first observed this plant in July 1789, on dry banks by the shore near Dunninauld in Angusshire. I have since observed it plentifully on dry banks by the coast in Kincardineshire, from the mouth of the North Water to St. John's Haven, covering a tract of several miles.

[The first Scottish record.—G. C. D.]

111. *Arenaria verna*, Eng. Bot., t. 512; Jacq., Fl. Austr., t. 404; Vaill., Bot. Paris., t. 2, f. 3!

Found abundantly on the rocks of Arthur's Seat and Blackford Hill near Edinburgh, from whence my specimens were collected. A beautiful variety, with double flowers, was shown me by the Rev. Mr. Macritchie in Cluny, found by him in Derbyshire.

112. *Potentilla verna*, Eng. Bot., t. 37!

I observed this plant in Mr. Curtis's collection, under the name of *P. opaca*, as a specimen in my possession evidently proves. His *P. verna* appears to me to be a distinct species, which I have never seen except in the neighbourhood of Hewellhall [Hewell Hall], near Bromsgrove in Worcestershire. [Cf. No. 14, *P. procumbens*.—G. C. D.] The *P. verna* of "Flora Scotica" said to grow on the Highland mountains is not this plant. There are two species which I have found there, and which appear to me distinct plants. These at some future period I flatter myself I shall be enabled to exhibit in this work.

113. *Ranunculus flammula*, Curt., Fl. Lond., fasc. 6, t. 37; Eng. Bot., t. 387; Fl. Dan., t. 575!

In marshes, common. I have found it requisite to give this *Ranunculus* along with the *R. reptans*, as some authors have regarded them as varieties of the same plant.

114. *Ranunculus reptans*, Fl. Dan., t. 108!

*R. flammula* ♂ of *Flora Britannica*.

My specimens were gathered near the west end of Loch Leven, the habitat mentioned by Lightfoot. Some of the starved specimens agree with the figure in the title-page of "Flora Scotica"; but in general they are much stronger, and seem, in my opinion, to run into the *R. flammula*.

115. *Ranunculus lingua*, Eng. Bot., t. 100; Fl. Dan., t. 755!

Found in the Moss of Restennet, and by the side of the lakes of Rescobie and Turin, plentifully; also in a slow-running rivulet called Lemly, in such abundance as to impede the

current; and other places in Angusshire. It has been observed in Strathearn, by Mr. R. S. Miller, Dupplin House. My specimens were gathered by the side of Duddingston Loch near Edinburgh.

[First record for Perthshire.—G. C. D.]

116. *Brassica rapa*, Mart., *Fl. Rust.*, t. 49, 50.

*Brassica napus*, Lightf., *Fl. Scot.*, p. 359.

The specimens of this plant were gathered from the Castle rock of Edinburgh, the habitat mentioned by Lightfoot for *B. napus*.

117. *Geranium sanguineum*, Eng. Bot., t. 272!

Found on rocks and dry banks in Scotland, not unfrequent. My specimens were gathered near Burntisland, Fifeshire.

118. *Matricaria chamomilla*, Curt., *Fl. Lond.*, fasc. 5, t. 63; Mart., *Fl. Rust.*, t. 74!

I have observed this plant as a common weed in nurseries and gardens near London, particularly on the Surrey side. My specimens were gathered near Edinburgh, in cultivated fields, but it may be considered as of rare occurrence in Scotland. I have seen a plant in Fifeshire nearly twice the size of this, the radii always reflexed, the segments of the leaves much broader, and the smell very fragrant. May this be the *Matricaria suaveolens* of English authors?

119. *Satyrion viride*, Eng. Bot., t. 94; *Fl. Dan.*, t. 77.

I have observed this plant not unfrequently in various parts of Scotland. As in pastures at Lower near Forfar; also on the top of a hill, in a marsh called the Greens of Fern, Angusshire; in ascending Ben Lawers; near Dupplin in Perthshire; near the upper reservoir on Pentland hills. My specimens were gathered near Burntisland, Fifeshire.

[*Habenaria viridis*, R.Br., the first record for Perthshire.—G. C. D.]

120. *Splachnum mnioides*, Hedw., *St. Crypt.*, ii, t. 11.

I have found this moss on Ben-High, or Bennachie, in Aberdeenshire; also on the high mountains of Cairngorm in Inverness-shire. On Loch-na-gare, and the mountains of Clova in Angusshire. It may be considered as of rather rare occurrence.

[*Tetraplodon mnioides*, B. & S.—G. C. D.]

121. *Splachnum fastigiatum*.*Spl. mnioides*, Eng. Bot., t. 786.*Spl. Brewerianum*, Hedw., *St. Crypt.*, ii., t. 38.

This *Splachnum* may be considered as the most common one. I have found it on all the highland mountains; as likewise in several places in the neighbourhood of Forfar.

[*Tetraplodon mnioides*, B. & S., var. *Brewerianus*, B. & S.—G. C. D.]

122. *Grimmia recurvirostra*, Hedw., *St. Crypt.*, i., t. 7; Dill., *Hist. Musc.*, t. 48, f. 45; Eng. Bot., t. 1438.

I have met with this moss in Scotland, not unfrequently. In various parts of Angushire, particularly near Forfar; near Dupplin in Perthshire, also in Breadalbane; in the Wood of Darnway; on the hill of Dunaird, near Brodie House. Between Stonehaven and Aberdeen; also in parts of the neighbourhood of Edinburgh, as in the King's Park, Pentland hills, etc.

[This is now *Barbula rubella*, Mitt.—G. C. D.]

123. *Hypnum ruscifolium*, Hedw., *St. Crypt.*, iv., t. 4; Eng. Bot., t. 1275; Dill., *Hist. Musc.*, t. 38, f. 31, etiam t. 40, f. 44.

Found in rivulets, not unfrequent; particularly in alpine situations; as in various parts of Angushire; Ochil Hills, Perthshire; and Pentland hills near Edinburgh.

[This is now *Eurhynchium rusciforme*, Milde.—G. C. D.]

124. *Lichen inclusus*, Eng. Bot., t. 678.

I observed this lichen on trees near Balmanna Castle, in Strathearn, also on a holly tree in the wood near Roslin. I received a specimen from the Rev. Mr. Harriman, Durham, which exactly agrees with the specimens here given.

125. *Lichen salicinus*, Eng. Bot., t. 1305.

Found on trees in several places in Scotland, but not very common. My specimens were collected at Arniston in Midlothian; in May 1805.

## FASCICULUS VI.—1806.

126. *Scirpus palustris*.

[Missing.—G. C. D.]

127. *Scirpus pauciflorus*, Scheuchz., *Agrost.*, t. vii., f. 19!

In marshes and boggy places, not unfrequent, as near the east end of the lake at Forfar, moss of Cairnie, near Dupplin,

Perthshire; by the side of Inverkeithing Bay, Fifeshire; Pentland hills, King's Park, and Leith links, Midlothian. My specimens are from the four latter places.

128. *Scirpus multicaulis*, *Eng. Bot.*, t. 1187; *Fl. Dan.*, t. 167; *Rel. Rudb.*, t. 278, f. 2.

I have observed this plant in great abundance in marshy places by the river Dee, near Aberdeen; also near Banff. Mr. Smith, nurseryman, near Ayr, and the late Mr. John Mackay, found the same *Scirpus* on the west coast of Scotland. My specimen is from the Pentland hills, near Edinburgh, where it grows plentifully.

[*Eleocharis multicaulis*, Sm.—G.C.D.]

129. *Scirpus fluitans*, *Eng. Bot.*, t. 216; *Scheuchz.*, *Agrost.*, t. 7, f. 20!

In ditches and where water has stagnated during winter, not unfrequent. My specimens are from marshes at Duncan Hill, Fifeshire, and Braid hill, near Edinburgh.

130. *Scirpus setaceus*, *Fl. Dan.*, tab. 311; *Leers.*, *Fl. Herbourn.*, p. 10, t. 1, f. 6!

In moist sandy places, not uncommon, as near Forfar and at Dupplin, Perthshire. My specimens are from King's Park, Edinburgh.

[First record for Perthshire.—G. C. D.]

131. *Scirpus maritimus*, *Eng. Bot.*, t. 542; *Curt.*, *Fl. Lond.*, fasc. 4, t. 4!

On the sea coast near the Sands of Barry and by the side of a rivulet at Teake's Bridge, near Montrose, both in Angus-shire. Also on the banks of the Clyde, about four miles above Dumbarton, plentifully. My specimens are from Goulon Links, East Lothian.

132. *Scirpus cæspitosus*, L., *Eng. Bot.*, t. 1025!

On heaths and on highland mountains, not unfrequent.

133. *Symphytum tuberosum*, *Eng. Bot.*, t. 1502!

By the side of the water of Leith, between Colington and Currie; at Bell's Mills, near Edinburgh; and also at Bilstonburn, near the village of Loanhead, Midlothian, whence my specimens were taken. In all these places it is undoubtedly native.

134. *Azealia procumbens*, Linn., *Fl. Lapp.*, ii., p. 60, t. 6, f. 2; *Fl. Dan.*, t. 9; *Lightf.*, *Fl. Scot.*, 139.



I have observed this plant on the Highland mountains, not unfrequent; as on Ben Lomond, Ben Lawers, and Ben Schehallion, and other mountains in Breadalbane; Ben Nevis; the high mountains of Cairngorum; also the mountains of Clova in Angusshire; and Loch-na-gare in Aberdeenshire, from whence my specimens are taken.

[*Loiseleuria procumbens*, Desv.—G. C. D.]

135. *Arenaria tenuifolia*, Eng. Bot., t. 219; Fl. Dan., t. 389!

I have observed it in Worcestershire, but not common. I have lately found it in Fifeshire, growing in gravelly places not far from Pettycur, but rare. I acknowledge my obligation to Mr. Johnstone of Knaresborough, for some excellent specimens of the plant collected by him in that neighbourhood.

136. *Arenaria fasciculata*, Jacq., Fl. Austr., ii., t. 182.

It is several years since I first observed this plant growing on rocks on the mountains of Clova in Angusshire; but very rare. It is but lately that I was able to make up my mind in regard to this species, when I had an opportunity of consulting Jacquin's "Flora Austriaca." I have likewise found it on some rocks in Fifeshire, but rare. My specimens are from Clova in Angusshire.

137. *Arenaria trinervia*, Eng. Bot., t. 1483; Fl. Dan., t. 429; Curt., Fl. Lond., fasc. 4, t. 31!

In shady places, and woods, not unfrequent.

138. *Doronicum pardalianches*, Eng. Bot., t. 636; Jacq. Fl. Austr. [Austr.], t. 350!

Common in the Den of Dupplin. I have nowhere seen it in such abundance as near Stobhall, about 7 miles from Perth, where it covers upwards of an acre of the ground to the exclusion of every other vegetable. . . . I have likewise noticed it in the neighbourhood of Kinnard, near Brichen, Angusshire.

[First record for Perthshire. It is still plentiful at Stobhall.—G. C. D.]

139. *Senecio viscosus*, Eng. Bot., t. 32!

On the shore between Queensferry and Hopetoun; also between Porto-bello and Goulon links in various places; and in the King's Park. My specimens are from the Calton hill, Edinburgh.

140. *Senecio squalidus*, *Eng. Bot.*, t. 600!

I have seen this plant in the neighbourhood of Oxford, the habitat mentioned in "English Botany"; but my specimens are from a garden, where they differ in no respect from those in a wild state. I have not had an opportunity of procuring indigenous specimens.

141. *Gnaphalium minimum*, *Eng. Bot.*, t. 1157.

Upon walls and dry gravelly places in Scotland, frequent. My specimens are from Figgat Whins, near Edinburgh.

[*Filago minima*, Fr.—G. C. D.]

142. *Atriplex littoralis*, *Eng. Bot.*, t. 708!

On the shore between Queensferry and Hopetoun. My specimens were from Goulon Links, East Lothian, where it grows in cornfields, not unfrequent.

143. *Scolopendrium vulgare*, *Eng. Bot.*, t. 1150.

*Asplenium Scolopendrium* of Linn., Huds., With., Hull; Curt., *Fl. Lond.*, fasc. i., t. 67; Bolt., *Fil.*, 18, t. 11.

On rocks by the sea, Angusshire, where my specimens were collected; also on the side of a well at Dumblane, Perthshire; on a rock at Belgavis, about five miles from Forfar; on rocks on Pentland hills, Edinburgh; and on the old walls of Roslin chapel. I have likewise observed it in a shady lane near Tutnal toll-bar, about three miles from Broomsgrove, Worcestershire.

[First record for Perthshire and Worcestershire.—G. C. D.]

144. *Phascum stoloniferum*, Dicks., *Crypt.*, fasc. 3, t. 7, f. 2; Hedw., *Sp. Musc.*, 24.

In a marsh near Gordon Castle. I have seen it in several places near Edinburgh. My specimens from a marsh on Braid Hill in the vicinity of that city.

[*Ephemerum serratum*, Hampe.—G. C. D.]

145. *Gymnostomum Donnianum*, *Eng. Bot.*, t. 1592.

I first discovered this moss in the Den of Dupplin, five miles from Perth, in November or December, 1779, being then in fruit. I have not been in that place at the proper season since; of course I could not ascertain the plant till, on my return from Ben Lawers, in 1804, I visited the spot, and pointed out the rock on which it grew to Messrs. R. Miller, senior and junior, and desired that pieces of that rock might be sent to me at different seasons; and by their obliging attention I am indebted for the specimens now given.

[*Anodus Donianus*, B. & S.=*Seligeria Doniana*, C. M.—G. C. D.]

146. **Trichostomum fontinalioides**, var.  $\beta$ .

*Fontinalis alpina* of Dicks., With., and Hull, Hedw., *St. Crypt.*, iii., t. 14; Dicks., *Crypt.*, fasc. 2, p. 2, t. 4, f. 1.

Upon stones in the water of Leith, and at Collington near Edinburgh. My specimens are from the side of Loch Tay, where it grows in great abundance.

[*Cinclidotus fontinaloides*, Beauv.—G. C. D.]

147. **Hypnum sericeum**, *Eng. Bot.*, t. 1445; Curt., *Fl. Lond.*, fasc. 2, t. 59; Hedw., *St. Crypt.*, iv., t. 17; Dill., *Hist. Musc.*, t. 42, f. 59.

Upon rocks and walls frequent in Scotland. My specimens are from the neighbourhood of Edinburgh.

[*Pleuropus sericeus*, Dixon.—G. C. D.]

148. **Hypnum curvatum**, *Eng. Bot.*, t. 566; Hedw., *St. Crypt.*, iv., t. 8; Dill., *Hist. Musc.*, t. 41, f. 50; Vaill., *Bot. Paris.*, t. 28, f. 4.

In woods in Scotland, frequent. My specimen is from a wood at Burnside, three miles from Forfar, Angusshire.

[*Isothecium myurum*, Brid.—G. C. D.]

149. **Bryum compactum**, *Eng. Bot.*, t. 1527; Dicks., *Crypt.*, fasc. 4, t. 11, f. 11.

I have observed this moss on Ben Lawers, mountains of Clova and Cairngorum; and, in the beginning of April 1806, I found this plant plentifully in marshes in the King's Park, where my specimens were collected.

[No specimen.—G. C. D.]

150. **Lichen fastigiatus**, *Eng. Bot.*, t. 890.

Upon trees in Scotland, plentifully. My specimens are from Caroline Park near Edinburgh.

[*Ramalina fastigiata* (L.).—G. C. D.]

#### FASCICULUS VII.—1806.

151. **Lycopus europæus**, Curt., *Fl. Lond.*, fasc. 3, t. 2; *Eng. Bot.*, t. 1105!

This plant is not unfrequent in England; but it may be considered as rare in Scotland. I have observed it plentifully in Worcestershire and Warwickshire. I have seen it by the side of Gairloch, opposite to Greenock, the only habitat I have

discovered in Scotland. It has also been found by Mr. Smith, nurseryman, near Ayr, on the west coast of Scotland.

[The first record for Warwickshire and Worcestershire.—G. C. D.]

152. *Salvia verbenaca*, Eng. Bot., t. 154; Curt., Fl. Lond., fasc. 6, t. 4!

This plant is found near Salisbury Craigs; near Burntisland; also near Dundee.

- 133 [153]. *Aira præcox*, Curt., Fl. Lond., fasc. 3, t. 7; Fl. Dan., t. 383; Eng. Bot., t. 1296!

On dry barren places, frequent.

154. *Festuca vivipara*, Scheuchz., Prod., p. 21, t. i, f. 2; Eng. Bot., t. 1355.

Found on the Highland mountains. My specimens are from Ben Lawers.

[Viviparous *Festuca ovina*, L., first record for Perthshire.—G. C. D.]

155. *Sagina maritima*.

Annua Fl. Maia-Augusta. Radix parva. Caules plurimi, adscendentes, plerumque divar[i]cati, dichotomi. Foliis lineari-lanceolatis obtusis, carnosius, nitidis, apice submucronulatis. Calyx ovata obtusus, margine scarioso. Petala minuta, sæpe abortiva, stamina 4 ad 8.

A *Sagina apetala*, foliis latioribus obtusioribus crassioribus sub lente hispidis. Vix aut ne vix quid emmucronulatis, calycis foliis ovato-obtusis. Plane differt.

On the sea coast not unfrequent, in Angusshire, Isle of Sky, near Aberdeen, Queensferry and Edinburgh.

[I think this is *S. maritima*, Don, var. *debilis* (Jord.).—G. C. D.]

156. *Sagina apetala*, Curt., Fl. Lond., fasc. 5, t. 14!

Found on gravel walks, on wall tops, and dry gravelly places not unfrequent.

157. *Pulmonaria officinalis*, Eng. Bot., t. 118; Fl. Dan., t. 482!

My specimens were collected in the woods of Arniston, 12 miles from Edinburgh, where it grows in abundance, as also a variety with white flowers.

[An introduced, not a native species.—G. C. D.]

158. *Asperugo procumbens*, *Fl. Dan.*, t. 552!

Found on rocks near the fishing town of Achmithie, miles east from Arbroath, where my specimens were collected. It has also been found by Mr. James Hoy near Brough-head, a supposed Danish fort, on the Moray frith.

159. *Ribes petræum*, Jacq.,  *Ic. rar.*, i., t. 49.

I have again to acknowledge my obligation to the Rev. Mr. Harriman for excellent specimens of this plant collected by him near Egleston in the county of Durham.

[*Ribes rubrum*, L., var. *petræum* (Sm.).—G. C. D.]

160. *Ænanthe crocata*, Jacq., *Hort. Vind.*, iii., t. 55; Woodv., *Med. Bot.*, *Suppl.*, t. 267!

This plant is common in Strathearn, as also by the side of the river Tay in Perthshire. I have likewise seen it in the neighbourhood of Dundee in Angusshire. It has also been found by Mr. James Hoy near Gordon Castle.

[First record for Perthshire.—G. C. D.]

161. *Phellandrium aquaticum*, Woodv., *Med. Bot.*, *Suppl.*, t. 266.

Found in a ditch near Corstorphine as mentioned by Lightfoot, where my specimens were collected. I have never observed it elsewhere in Scotland.

[*Ænanthe Phellandrium*, Lam.—G. C. D.]

162. *Erica Daboëcii*, *Eng. Bot.*, t. 35.

I have to acknowledge my obligation to Mr. J. T. Mackay of Dublin for excellent specimens of this plant collected by him in Ireland.

[*Boretta cantabrica*, Kuntze (*Daboëcia polifolia*, D. Don).—G. C. D.]

163. *Paris quadrifolia*, *Eng. Bot.*, t. 7; *Fl. Dan.*, t. 139!

I have been honoured by Miss Eleanora Campbell with excellent specimens of this plant collected by her in the glen of Kilbryde near Dunblane. I have also received others from Mr. Thomas Bishop, collected in the woods of Methven near Perth. I have likewise observed it in the den of Balthaick [Balthayock, which is Lightfoot's locality for it.—G. C. D.], as also in the woods of Lyndoch, both in Perthshire, and in the grove of Broadsworth, 5 miles from Doncaster in Yorkshire.

164. *Lythrum salicaria*, Curt., *Fl. Lond.*, fasc. 3, t. 28; *Fl. Dan.*, t. 671; *Eng. Bot.*, t. 1061!

I have observed this plant between Dunkeld and Blair in Athol, and plentifully in the neighbourhood of Paisley, in corn-fields and by the sides of ditches. Also near London. It has been found by Mr. R. Miller, Dupplin House, near Newburgh in Fifeshire.

[First record for Perthshire.—G. C. D.]

165. **Potentilla opaca**, Jacq., *Pl. rar. ic. cent.*, i., t. 49 [91].

I discovered this plant some years ago on the mountains of Angushshire to the west of Clova. I likewise observed what I take to be the same plant on rocks opposite Dundee, in April 1786, near to the place where I found the *Grimmia maritima*. I was at a loss as to this species, till I happened to notice the figure in Jacquin's work, which exactly agrees with my plant. This I believe to be the true Linnean plant. The *P. opaca* of the English authors appears to be the *P. verna*; at least such was the case with the plant cultivated in Mr. Curtis's garden at Lambeth Marsh.

[*P. intermedia*, Nestl.=*P. Nestleriana*, Tratt.—G. C. D.]

166. **Teucrium Scorodonia**, Curt., *Fl. Lond.*, fasc. 5, t. 40; *Fl. Dan.*, t. 485; *Eng. Bot.*, t. 1543!

In woods and on rocks, common.

167. **Teucrium chamædrys**, Woodv., *Med. Bot.*, *Suppl.*, t. 243!

On old walls, as at Balgavis, five miles east from Forfar, and at Kelly, three miles from Arbroath, both in Angushshire, but always near houses.

168. **Thymus acinos**, Curt., *Fl. Lond.*, fasc. 1, t. 43; *Eng. Bot.*, t. 411.

Although this plant is not unfrequent in several parts of England, it must be considered as rare in Scotland. I have only seen it in one place, viz. on a rising piece of ground, near a small village called Welltown, about a mile south of Forfar.

[*Calamintha Acinos*, Clairv. (*C. arvensis*, Lam.).—G. C. D.]

169. **Coronopus Ruellii**, *Fl. Dan.*, t. 202; Mart., *Fl. Rust.*, t. 92.

In the neighbourhood of Edinburgh, not unfrequent. My specimens were collected near Burntisland in Fifeshire.

170. **Coronopus didyma**, *Eng. Bot.*, t. 248!

My specimens are from self-sown plants in a garden. I had no opportunity of procuring wild ones.

171. *Iberis nudicaulis*, Curt., *Fl. Lond.*, fasc. 6, t. 42; *Eng. Bot.*, t. 327.

I observed this plant by the side of a hedge a little to the eastward of Kirkintulloch. I likewise found it in dry gravelly fields half a mile south of Forfar. I have seen it nowhere else in Scotland. I have also observed it in cornfields between Ferry Bridge and Doncaster in Yorkshire.

[*Teesdalia nudicaulis*, R.Br.—G. C. D.]

172. *Grimmia recurvata*, Hedw., *St. Crypt.*, i., t. 38; *Eng. Bot.*, t. 1489.

I have observed this plant on rocks by the side of the river Neran about 6 miles from Forfar. Also on rocks to the west of Logie Almond in Perthshire; near Roslin, on rocks at Bilston burn; by the side of Bevelaw burn near the foot of Pentland hills.

[*Seligeria recurvata*, B. & S.—G. C. D.]

173. *Grimmia controversa*.

*Bryum virens*, Dicks.

*Br. viridulum*, Huds., With., Hull., Curt., and Lightf.; Hedw., *St. Crypt.*, iii., B., t. 5; *Eng. Bot.*, t. 1367.

Common in stubble fields on ditch banks, and rocks.

[*Weisia viridula*, Hedw.—G. C. D.]

174. *Grimmia acuta*, Hedw., *St. Crypt.*, iii., t. 35.

*Bryum acutum* of Linn., Hull., and With.

On rocks on the Highland mountains. My specimens are from Ben Lawers.

[*Blindia acuta*, B. & S.—G. C. D.]

175. *Grimmia heteromalla*, Hedw., *St. Crypt.*, i., t. 8.

*Bryum Weisia*, Dicks., With., Hull.

Found on heaths and commons about Forfar, and on banks by the sides of rivulets near the foot of Ben Lawers, and other Highland mountains.

[*Ditrichum homomallum*, Hpe.—G. C. D.]

#### FASCICULUS VIII.—1806.

176. *Poa distans*, Curt., *Fl. Lond.*, fasc. 6, t. 1; *Eng. Bot.*, t. 986.

Found on rocks near Pettycur, Fifeshire; also near Leith.

[*Glyceria distans*, Wahl. = *Panicularia distans*, Kuntze.—G. C. D.]

177. *Rotbollea incurvata*, *Fl. Dan.*, t. 938; *Eng. Bot.*, t. 760.

On the sea-coast in several places to the east of North Berwick Law, but rare.

[*Lepturus filiformis*, Trin., var. *incurvatus* (Trin.).—G. C. D.]

178. *Rotbollea filiformis*, Mant., *Gr.*, p. 23, f. 30; Barr., *ic.*, t. 117, f. 1.

I discovered this truly rare plant on Goulan Links, East Lothian, in August 1804. It grows by the sides of the small pools of water, always among grass. I have never seen it elsewhere.

[*Lepturus filiformis*, Trin. Very weak specimens.—G. C. D.]

179. *Centunculus minimus*, *Fl. Dan.*, t. 177; *Curt.*, *Fl. Lond.*, fasc. 3; t. 11; *Eng. Bot.*, t. 531!

I have to acknowledge my obligation to Mr. Sowerby for excellent specimens of this plant. I have observed it sparingly in the neighbourhood of Forfar, also near Comrie in Perthshire. It has likewise been found by Mr. R. Brown on the links near St. Andrews.

[First record for Perthshire.—G. C. D.]

180. *Campanula persicifolia*, *Fl. Dan.*, t. 1087; Bolliard [Bulliard], *Herb. Franc.*, t. 367!

This beautiful campanula may now be regarded as an addition to the British flora, as I have observed it in woods near Cullen, in July 1802, at which time it was in flower, and appeared to be indigenous. What convinces me the more is, that all the campanulas of this species found in gardens in that neighbourhood were double-flowered. I also enquired diligently if ever it had been seen with single flowers in that country, but was uniformly answered in the negative. I may farther observe, that I have often seen the plant neglected, and to remain without culture for years; but could never observe any variation in its flowers. It may therefore be concluded that this plant is truly indigenous.

[The first record for Scotland, but only as a naturalised, not a native plant.—G. C. D.]

*See Journ. Bot.*, 289 (1903).

181. *Chrysosplenium alternifolium*, *Eng. Bot.*, t. 54; *Fl. Dan.*, t. 366!

Found in moist shady places; as at Bilston burn, near Loanhead, 7 miles from Edinburgh; also in a deep shady den called Burn of Old Whary, and in another called Cox Burn,



both in the neighbourhood of Dunblane; and in several places in Angusshire.

My specimens were collected in the Den of Dupplin, Perthshire, by Mr. R. Miller.

182. *Chrysosplenium oppositifolium*, Curt., *Fl. Lond.*, fasc. 2, t. 27; *Eng. Bot.*, t. 480; *Fl. Dan.*, t. 365!

In moist places, common.

183. *Saponaria officinalis*, Curt., *Fl. Lond.*, fasc. 2, t. 29; *Fl. Dan.*, t. 543; *Eng. Bot.*, t. 1060!

I observed this plant near the village of Red Ditch in Worcestershire, and also not far from Dunblane, in Perthshire. It has been found by Mr. Edward Maughan on the road leading from the Dean to Ravelston.

[First record for Perthshire, and it still exists in the locality, but already recorded for Worcestershire in Withering.—G. C. D.]

184. *Draba verna*, *Fl. Dan.*, t. 983; Curt., *Fl. Lond.*, fasc. 1, t. 49; *Eng. Bot.*, t. 586.

On walls and dry sandy places, common. The right hand or outer specimen is a singular variety, which some time hereafter may be considered as a distinct species. This is found not unfrequent in the neighbourhood of Forfar in Angusshire.

[The specimen referred to by Don is too young to name except as aggregate *Erophila vulgaris*, DC., the other specimen approaches *Erophila stenocarpa*, Jord.—G. C. D.]

185. *Draba hirta*, *Eng. Bot.*, t. 1338.

*Draba pyrenaica* of *Fl. Dan.*, t. 143.

My specimens are from rocks on the summit of Ben Lawers. I have never seen it anywhere else.

[*Draba hirta*, L., var. *rupestris* (R.Br.).—G. C. D.]

186. *Draba aizoides*, Jacq., *Fl. Aust.*, ii, t. 192; Curt., *Bot. Mag.*, t. 170; *Eng. Bot.*, t. 1271!

My specimens are from cultivated plants; but will be found to differ in no respect from those found wild in Wales.

187. *Draba incana*, *Eng. Bot.*, t. 388; *Fl. Dan.*, t. 130!

On rocks on the summits of the Highland mountains. My specimens were collected from Ben Lawers, Loch-na-gar, and the mountains of Cairngorum.

[First record for Perthshire.—G. C. D.]

188. *Draba muralis*, *Pet., Herb. Brit., t. 48, f. 5*; *Eng. Bot., t. 912*!

In a field behind the Botanic Garden, Edinburgh, where my specimens were collected. It has likewise been found by Mr. Robertson at Bellevue near Edinburgh, and appears to be indigenous there.

189. *Carex teretiuscula*, *Trans. Linn. Soc., ii. (1794), t. 19, f. 3*; *Eng. Bot., t. 1065*.

On the Pentland Hills near Edinburgh. My specimens are from the neighbourhood of Forfar, where it grows plentifully.

[*C. diandra*, Schrank (*C. teretiuscula*, Good.), which is still plentiful at Rescobie near Forfar.—G. C. D.]

190. *Carex pulla*, *Trans. Linn. Soc., iii. (1797), t. 14*.

I first observed this plant on Ben Lomond in 1789, and on Ben Lawers in 1798, and on Ben Nevis in 1794. I sent specimens of this plant to Mr. Dickson of Covent Garden in 1794; and I have a letter of that date in which Mr. Dickson acknowledges it to be a nondescript. How he afterwards considered himself to be the discoverer of this plant I cannot explain. If Mr. Brown's information be correct, the Rev. Mr. Stewart of Luss had been acquainted with this plant some years before.

[*C. saxatilis*, L. First recorded for Perthshire in *Trans. Linn. Soc., iii. (1797), p. 78*.—G. C. D.]

191. *C. pilulifera*, *Fl. Dan., t. 1048*; *Eng. Bot., 885*!

On heaths not uncommon, and on the summit of Arthur's Seat and Pentland Hills near Edinburgh. My specimens are from the neighbourhood of Forfar, where it grows abundantly.

192. *Carex stricta*, *Trans. Linn. Soc., ii. (1794), t. 21, f. 9*.

*Carex cespitosa*, Huds. and Lightf., var. b.

*Carex acuta*, a, Leers, *Fl. Herborn.*, p. 207, t. 16, f. 1; *Eng. Bot., t. 914*.

I have seen this *Carex* in several places in Scotland; but it is of the rarer species. My specimens were collected from the side of the river Esk, near Eskmount, three miles from Brichen in Angusshire.

[This is *Carex aquatilis*, Wahl., var. *elatior*, Bab., the first British record, and the first clearly ascertained specimen known, I believe, for Britain.—G. C. D.]

193. *Carex vesicaria*.

*C. inflata* of Lightf., Huds.; *Fl. Dan., t. 647*; *Eng. Bot., t. 1770*!

I have seen it by the side of the river near the foot of Mount Alexander, at the foot of Ben Schehallion, and near Finlarig at the head of Loch Tay. My specimens are from a marsh near Tullybanachar, about three miles [one mile—G. C. D.] from Comrie in Perthshire.

[First record for Perthshire.—G. C. D.]

194. **Carex curta.**

*C. brizoides*, Huds.

*C. canescens*, Lightf., *Fl. Dan.*, t. 285; *Eng. Bot.*, t. 1386.

This *Carex* is not uncommon in marshes in Scotland, as in the neighbourhood of Forfar.

[*C. canescens*, L.—G. C. D.]

195. **Carex arenaria**, *Eng. Bot.*, t. 928!

Sea-coast of Angusshire, but rare; chiefly in marshes.

196. **Carex divisa**, *Trans. Linn. [Soc.]*, ii. (1794), p. 19, f. 2; *Eng. Bot.*, t. 1096!

Sea-coast of Angusshire, but rare; chiefly in marshes.

[*C. divisa*, Huds. recently refound near Arbroath. The first Scottish record.—G. C. D.]

197. **Pilularia globulifera**, D.C. [*Eng. Bot.*], t. 521; *Fl. Dan.*, t. 223; Dill., *Hist. Musc.*, t. 79!

In marshes, not unfrequent, as in a marsh near Gordon Castle; also near Bellmount in Angusshire; Moss of Cairny, near Dupplin, and in the Moss of Balgounie, both in Perthshire. My specimens from the market muir, near Forfar.

[New to Perthshire.—G. C. D.]

198. **Hypnum lutescens**, *Eng. Bot.*, t. 1301; Hedw., *St. Crypt.*, iv., t. 16.

I have observed it, not unfrequent, in the neighbourhood of Forfar, but seldom producing capsules. I have to acknowledge my obligation to Mr. Edward Maughan for excellent specimens collected by him at Caroline Park, near Edinburgh.

[Now known as *Camptothecium lutescens*, B. & S.—G. C. D.]

199. **Fucus dentatus**, *Fl. Dan.*, t. 354; *Eng. Bot.*, t. 1241.

Cast up on the shore of Leith, not unfrequent, as also on the coast of Angusshire.

200. **Fucus alatus**, *Fl. Dan.*, t. 352.

Cast up on the shore of Leith, not unfrequent, and also on the coast of Angusshire.

## FASCICULUS IX.—1806.

[Not issued before 1812, but probably either at the end of 1812 or early in 1813, since the Eng. Bot. plate *Myosotis rupicola* issued in 1813 is not cited.]

201. *Hippuris vulgaris*, Eng. Bot., t. 763; Curt., Fl. Lond., fasc. 4, t. 1! Mare's tail.

In ditches and peat holes, not unfrequent, as in the neighbourhood of Forfar.

202. *Veronica fruticulosa*, Eng. Bot., t. 1028. Flesh-coloured Shrubby Speed-well.

My specimens are from the garden wall at Colinton, where it was planted by the late Reverend Dr. Walker, who, we understand, brought it from Ben Cruachan, a high mountain in Argyleshire. I have never seen it on Ben Lawers, and I have no doubt but the *Veronica saxatilis* has been mistaken for it.

[Not a native of Britain.—G. C. D.]

203. *Schœnus fuscus*, Eng. Bot., t. 1575 [Mar. 1, 1806], Moris. [Pl. Hist. Univ., Oxon., Pars., sec., p. 8, t. 11, f. 40.]

For the specimens of this plant I am indebted to Mr. J. T. Mackay, of Dublin, who collected them in a wet bog near Purple Mountain, Killarney; and at the bottom of the hill of Capil, Cunnamara, and also between Ballynahinch and Oughterard, in 1805.

[This is *Rhynchospora fusca*, R. & S.—G. C. D.]

204. *Potamogeton compressus*, Eng. Bot., t. 418; Fl. Dan., t. 203. Flat-stalked Pondweed.

In the lake of Rescobie and also in the lake of Forfar. Elsewhere I have never observed it.

[This is *Potamogeton zosterifolius*, Schum., and the first certain Scottish record.—G. C. D.]

205. *Myosotis alpinus*.

*Myosotis cæspetosis*, radix perenne foliis radicalibus ovatis oblongis petiolatis, caulinis lanceolatis subamplexicaulibus, floribus fasciculatis amplioribus cyaneus.

This species differs from the *Myosotis scorpioides*, and all its varieties, in being a perennial; and from the *Myosotis palustris*, in having its radical leaves supported on slender petioli, ciliated; as are also the leaves; the hairs on the growing plant bent backwards. The radical leaves of *M. palustris* are lanceolated and can be hardly said to have a petiolus. The

leaf only is somewhat narrower at its base; and when ciliated, the hairs are pointed forwards in the growing plant. I find, on examination, that the hairs of the *Myosotis alpinus*, when the plant is dried, are bent in various directions. This beautiful plant adorns the rocks on the summit of Ben Lawers, producing its flowers during the greater part of the summer.

[The first published record for Britain of the plant now known as *Myosotis alpestris*, Schmidt.—G. C. D.]

206. **Pulmonaria maritima**, *Eng. Bot.*, t. 368; *Curt., Fl. Lond.*, fasc. 6, t. 18. Sea Lungwort.

On the sea-coast, as at Tornshaven and near Auchmithie, both in Angusshire, and near [St.] Johnshaven, in the shire of the Mearns, plentifully, as also a variety with green leaves.

[*Pneumaria maritima*, Hill; *Mertensia maritima*, S. F. Gray.—G. C. D.]

207. **Cherophyllum aureum**, *Eng. Bot.*, t. 2103 (1810)! Golden Cow Parsley or Cow-weed. Golden Chervil.

I discovered this rare plant, several years ago, by the sides of corn-fields between Montrose and Arbroath. I afterwards found a few plants near Corstorphine, within four miles of Edinburgh. I observed what I believe to be an intermediate plant between this and the *Cherophyllum sylvestre*, near the village of Kirkliston, about ten miles west from Edinburgh.

[Not a British species, and now apparently lost in all the localities.—G. C. D.]

208. **Scheuchzeria palustris**, *Eng. Bot.*, t. 1801! Marsh Scheuchzeria, or Lesser Flowering Rush.

I have to acknowledge my obligation to the Rev. J. Dalton at Copegrove, near Knaresborough, Yorkshire, who collected excellent specimens of it in a marsh near Wetherby, in that county, and kindly communicated the same to me.

[See Journ. Bot. 167 (1903).—G. C. D.]

209. **Vaccinium oxycoccus**, *Eng. Bot.*, t. 319; *Fl. Dan.*, t. 80.

Cranberry.

I have again to acknowledge my obligations to Miss Eleanora Campbell for excellent specimens of this plant collected by her near Kilbryde, within three miles of Dunblane, in Perthshire. I have seen this plant in the neighbourhood of Forfar, and near Loch Brandy in the Clova mountains; but it is not common on the Highland mountains. I have seen it also near Loch Katrine. It is not rare in the South of Scotland or the North of England.

[*Oxycoccus quadripetala*, Gilib.=*O. palustris*, Pers., *Schollera Oxycoccus*, Roth.—G. C. D.]

210. *Polygonum fagopyrum*, *Eng. Bot.*, t. 1044 Buck-wheat.  
In cornfields; but I think it can hardly be considered indigenous.  
[*Fagopyrum esculentum*, Moench.—G. C. D.]
211. *Cerastium aquaticum*, *Eng. Bot.*, t. 538; *Curt., Fl. Lond.*, fasc. 1, t. 34. Water Chickweed.  
This, though a common plant in many parts of England, is nevertheless a very rare plant in Scotland. I have never seen it but in one place, viz., in the neighbourhood of Dundee, and here it was extremely rare. It is very common near Birmingham, and also near Bromsgrove, in Worcestershire.  
[This is *Stellaria aquatica*, Scop., and the earliest record for Warwickshire and Worcestershire.—G. C. D.]
212. *Cerastium arvense*, *Eng. Bot.*, t. 93; *Curt., Fl. Lond.*, fasc. 6, t. 29! Field Chickweed.  
In fields in the neighbourhood of Forfar, and near Broadsworth, about five miles from Doncaster, in Yorkshire.
213. *Astragalus campestris*, Haller, *Hist.*, i., p. 177, t. 13. Field Milk Vetch.  
I discovered this truly beautiful species, new to Britain, on a rock on the Clova mountains in July 1812. I have a specimen in my herbarium collected abroad (I believe from Switzerland) which agrees exactly with those I have found on the Clova mountains; and Dr. Smith informs me he has plenty of Swiss specimens which differ in no respect from mine, and that he has others from Oeland differing only in being smaller and more silky. I have seen some of them of that appearance. Although named *campestris* by Linnæus, it is truly an alpine plant.  
[This is *Oxytropis campestris*, DC., of which Don was, as he says, the discoverer as a British plant.—G. C. D.]
214. *Satyrion albidum*, *Eng. Bot.*, t. 505; *Fl. Dan.*, t. 115. White Satyrion.  
In dry, hilly pastures, as in the Forest-muir near Forfar, and in the Glen of Ogilvie near Glammis. My specimens are from the Clova mountains.  
[This is *Habenaria albida*, R. Br.—G. C. D.]
215. *Carex rariflora* of Wahlenberg, in the "Stockholm Transactions," *Carex limosa*, var.  $\gamma$  of Willdenow. Thin-flowering Carex.

I discovered this species, new to Britain, on the summit of the Clova mountains in July 1807, in wet places, where the snow remains during the greater part of the year.

[*C. rariflora*, Sm.—G. C. D.]

216. **Carex salina** of Swartz. Salt-marsh Carex.

I discovered this species, new to Britain, on rocks on the high mountains of Cairngorum in August 1802. I have since observed it on rocks on the Clova mountains. My specimens from Ben Macdowie [Mac Dhu], a high mountain near the head of the river Dee, collected in September 1812. Dr. Smith tells me that Swartz sent him this as a new species from the sea-coast of Norway, latitude 71°.

[This is not *C. salina* but *C. vaginata*, Tausch, of which Don was the first discoverer in Britain.—G. C. D.]

217. **Carex rigida**, *Fl. Dan.*, t. 159! Rigid Carex.

On the summit of the Highland mountains; common.

218. **Carex limosa**, *Fl. Dan.*, t. 646! Green and gold Carex, or Mud Carex.

In marshes. Not unfrequent in the neighbourhood of Forfar. I have also seen it on the mountains between Loch Erne and Loch Tay.

219. **Equisetum sylvaticum**, *Eng. Bot.*, t. 1874; *Fl. Dan.*, t. 1182! Branched Wood Horse-tail.

In most [moist] shady places and woods. Not unfrequent in Angushire.

220. **Fontinalis squamosa**, Dill., *Hist. Musc.*, p. 258, t. 33, f. 3. Shining Scaly Water-Moss.

In alpine rivulets. My specimens from a rivulet that runs from Loch Brandy, on the Clova mountains.

[Mr. H. N. Dixon has examined the specimen and says it must be *F. antipyretica*, var. *gracilis*, on account of the distinctly keeled leaves. The general appearance, capsules, &c., are much like *F. squamosa*.—G. C. D.]

221. **Hypnum molluscum**, Dill., *Hist. Musc.*, t. 36, f. 20! Plumy-crested Feather-Moss.

On dry, upland situations, and in marshes; but it is only in the latter situations where it produces its capsules freely.

222. *Hypnum crista-castrensis*, *Eng. Bot.*, t. 2108!

I discovered this beautiful species about twenty-five years ago in fir woods near Forfar. It was not known for several years after to be a native of Britain. It was not until September 1812 that I found it with capsules in a wood opposite Mar Lodge, by the side of the river Dee, in Aberdeenshire.

223. *Hypnum schreberi*, *Eng. Bot.*, t. 1621! Schreberian Feather-Moss.

On the Pentland hills, and in a wood opposite Mar Lodge. My specimens from fir woods near Forfar.

224. *Hypnum purum*, *Eng. Bot.*, t. 1599; *Curt., Fl. Lond., fasc. 3*, t. 65; *Dill., Hist. Musc.*, t. 40, f. 45!

Neat Meadow Feather-Moss.

Not unfrequent. My specimens from fir woods near Forfar.

[*Brachythecium purum*, Dixon.—G. C. D.]

225. *Lichen nivalis*, Linn., *Eng. Bot.*, t. 1994.

*Cetraria nivalis*, *Ach. Meth.*, p. 294; *Fl. Dan.*, t. 227; *Dill., Hist. Musc.*, t. 21, f. 56.

On the summit of the very highest mountains—as on the Cairngorum, Ben Macdowie, Cairn Towel, and Ben-na-Board, and other high mountains north of the river Dee; and on Loch-na-gare and others in the neighbourhood; and on the Clova mountains. I have never seen it on Ben Lawers nor on any mountains of the West Highlands.



## APPENDIX D.

## GEORGE DON'S PRIVATE HERBARIUM.

(DATE, 1809-1813.)

This is contained in a large folio volume which was purchased by Mr. Blackadder, land surveyor, Glamis, at the sale of George Don's effects in the spring of 1814. After his death it came into the possession of his nephew, Robert Blackadder, civil engineer, Dundee, from whom John Knox purchased it in April 1881.

It contains a number of grasses, sedges, and rushes, often, however, without precise localities. In some cases the name of the plant and even the locality is put in without the specimen to represent it, so that the value attaching to the localities of the species represented is somewhat diminished, and may be the source of error, as we see is the case with another botanist—Dickson—who followed the same plan.

In the following list only those plants which are localised, and which are not represented in the *Herbarium Britannicum* which Don issued, will be given unless they possess some peculiarity worth notice.

**Schœnus rufus var.**

Salt marshes.

[This is the plant with a long bract, so that the inflorescence appears axillary and not terminal, to which the name *Scirpus rufus*, Schrad., var. *bifolius* (Wahl.), is given in our lists.—G. C. D.]

**Scirpus glaucus.**

Near Montrose, but rare.

[This is *Scirpus Tabernæmontani*, Gmel.—G. C. D.]

**Eriophorum alpinum, L.**

It formerly grew in the Moss of Ristenet, near Forfar, but is now lost there, and at present we know of no British habitat. I discovered it in 1791.

**Eriophorum capitatum.**

On Ben Lawers and the Clova mountains. I discovered this in 1810.

[This is a small form of *E. vaginatum*, L., not *E. capitatum*, Host, which is synonymous with *E. Scheuchzeri*, Hoppe, as the stems are decidedly trigonous, not triquetrous, and the bracts are greyish-green, not black.—G. C. D.]

**Eriophorum gracile.**

On Ben Lawers and the Clova mountains. I discovered this in 1810.

[This is a small form of *E. angustifolium*, Roth, not the *E. gracile* of Koch. The pedicel-branches are quite glabrous.—G. C. D.]

**Phleum Michelii.**

On rocks on the Clova mountains, but rare. I discovered this in 1808. It has been found nowhere else in Britain.

[Correctly named. The specimen appears to be a cultivated one, being nearly 24 inches high. Its re-discovery would be extremely interesting, as it is not known for Scandinavia.—G. C. D.]

**Alopecurus alpinus.**

On Loch-na-gare and on the high mountains of Clova; it has been observed nowhere else in Britain.

**Milium effusum.**

In woods, but not common, as near Airly Castle.

**Aira gracile, nova species.**

On heaths and pastures.

[A slender form of *Deschampsia cespitosa*, with longer leaves than the type, and the culm and sheath not asperous.—G. C. D.]

**Aira laevigata, nova species.**

I discovered this on the Clova mountains in 1808; until then it had not been observed.

[This is probably *Deschampsia alpina*, but as the flowers are viviparous, one is unable to ascertain the position of the awn insertion.—G. C. D.]

**Aira flexuosa var.**

This from Ben Lawers.

[This is *Deschampsia flexuosa*, Trin., var. *montana* (Huds.)—G. C. D.]

**Aira scabra, Setacea** of Knapp, *Gram. Brit.*

On heaths where water has stood through winter.

[This is *Deschampsia discolor*, Roem. & Schult.—G. C. D.]

**Poa alpina, var. b.**

This variety on the Corby Craig, parish of Tomaden (?).

[A luxuriant form of *Poa alpina*. David Don describes a variety of *alpina* as var. *glomerata*, and this may be what he meant.—G. C. D.]

**Poa glauca.**

On rocks in Angusshire, but rare.

[Not *P. glauca*, Sm., but a glaucous form belonging to the *memoralis* group, slightly approaching *P. Balfourii*. He sent true *glauca* to Smith in 1810 from Ben Lawers. See *Herb.*, Smith.—G. C. D.]

**Poa flexuosa.**

On Ben Nevis and Loch-na-gare, two of the highest mountains in Scotland.

[The solitary specimen evidently came from Loch-na-gar, and is my *P. alpina*, L., var. *acutifolia*, as are some of his Ben Nevis specimens in *Herb.*, Smith.—G. C. D.]

**Poa caesia.**

On rocks on Ben Lawers.

[*P. caesia*, Sm. Don also sent Ben Lawers *P. caesia* to Smith after the plate in *English Botany* was drawn. It is in *Herb.*, Smith.—G. C. D.]

**Poa trivialis, var. b.**

*P. setacea*, of Hudson.

[This is *P. trivialis*, L., var. *Koeleri*, Doell.—G. C. D.]

**Poa humilis var.**

On walls.

[This is *P. pratensis*, L., var. *subcaerulea* (Sm.)=*P. humilis*, Ehrh.—G. C. D.]

**Poa pratensis var.**

On upland pastures.

[A form with large florets near to *P. subcaerulea*, Sm.—G. C. D.]

**Poa anceps.**

A new species on rocks, but rare.

[In *Herb.*, Smith, this is localised from the Clova mountains. It appears to be an intermediate of *P. Balfourii* and *nemoralis*, but requires further study.—G. C. D.]

**Poa depauperata**, nova species.

On rocks near the sea at Dundee.

[ = *P. leptostachya*, D. Don, in *Mem. Wern. Soc.*, iii., p. 299 (1821). Banks of the Tay to the west of Dundee. Geo. Don, who cultivated it under the name of *depauperata* for many years. It is a monstrosity, not a species, having something of the habit of *P. compressa*, but the florets are quite malformed. See Journ. Bot. 177 (1903).—G. C. D.]

**Poa**, nova species.

Near Arbroath.

[*Glyceria* species probably.—G. C. D.]

**Poa**, nova species.

This rare species I discovered near Arbroath.

[*Glyceria* species probably.—G. C. D.]

**Briza maxima.**

At Newington Butts near London.

[A casual, of course.—G. C. D.]

**Dactylis glaucous.** Of the Continental catalogues, as I suppose it seems a very different species from the *D. glomerata*. On the sea-coast not unfrequent.

[It is a robust glaucous form of *D. glomerata*.—G. C. D.]

**Festuca glauca.**

On the sea-coast.

[A form of *Festuca rubra*; not the *F. glauca* of Lamarck.—G. C. D.]

**Festuca duriuscula** var.

On rocks.

**Festuca cæsia.**

In pastures.

[This is a form of *F. rubra*.—G. C. D.]

**Festuca dumetorum** of Linn.

*F. duriuscula* of Smith, *Flora Britannica*, on rocks in the Highlands.

[This is *F. rubra*, L.—G. C. D.]

**Festuca prostrata**, nova species.

By the sea-side near Arbroath.

[*F. rubra*, L., f.—G. C. D.]

**Festuca triflora.**

By the side of the Lake of Clunie, but rare.

[It is *Bromus giganteus*, L., var. *triflorus* (Sm.). The earliest record for Perthshire.—G. C. D.]

**Festuca longifolia**, nova species.

On the banks of rivers.

[This is a form of *Festuca arundinacea*, Schreb.—G. C. D.]

**Bromus mollis**, b.

This variety on upland pastures.

[A small form of *Bromus hordeaceus*, L., var. *glabratus* = *B. mollis*, L., var. *glabratus*, Doell.—G. C. D.]

**Bromus arvensis.**

Cornfields, but rare.

[This is *Bromus commutatus*, Schrad.—G. C. D.]

**Bromus sericeus**, nova species.

On dry banks by the sea-shore.

[This is *Brachypodium gracile*, Beauv. var.—G. C. D.]

**Avena poaefolia.**

A nondescript on dry banks on the river Melgond near Airly Castle.

[A form of *Avena pratensis*, L.—G. C. D.]

***Avena planiculmis.***

Rocks on the Clova mountains. I discovered this in 1808 ; till then it was unknown to British botanists.

[This is *Avena alpina*, Sm.—G. C. D.]

***Arundo riparia.***

On the banks of a river near Montrose. New to Britain.

[A form of *Phragmites communis*, Trin.—G. C. D.]

***Arundo stricta.***

In a marsh called the White Mire near Forfar. I discovered it in 1808. It has never been observed anywhere else in Britain.

[This is *Calamagrostis stricta*, Nutt. = the *Deyeuxia neglecta* of Kunth.—G. C. D.]

***Rottboellia filiformis.***

On Goulon Links, East Lothian.

[*Lepturus filiformis*, Trin.—G. C. D.]

***Rottboellia incurva.***

By the sea-side near North Berwick Law.

[*Lepturus filiformis*, Trin.—G. C. D.]

***Triticum cristatum.***

On dry banks between Arbroath and Montrose, but rare.

[Also a "var." The latter appears to be a cultivated form of the former.—G. C. D.]

***Juncus filiformis.***

On the Sands of Barrie and near Montrose.

[This is *Juncus balticus*, Willd.—G. C. D.]

***Juncus gracilis.***

The only place we are acquainted with where this rush grows in Britain is on the Clova mountains, but rare.

[This is a form of *J. tenuis*, Willd.—G. C. D.]

***Juncus bulbosus* var.**

Salt marshes.

[Is *Juncus Gerardi*, Lois.—G. C. D.]

**Juncus campestris.**

As it grows in marshes.

[This is *Juncoides multiflorum*, Druce = *Luzula multiflora*, Lej.—G. C. D.]

**Carex straminea.**

In moist woods by the river Esk in Angushshire, rare; not found anywhere [else] in Britain.

[This is a starved form of *Carex remota*.—G. C. D.]

**Carex divisa.**

Near Montrose.

[There is no specimen attached to the sheet; but specimens correctly named were distributed by Don in his *Herbarium Britannicum*, No. 196, and it has recently been refound there.—G. C. D.]

**Carex muricata var. or species.**

Dry banks on the hills of Turin and Tenhaven.

[Probably a young specimen of *C. muricata*.—G. C. D.]

**Carex nivalis**, nova species.

I discovered this new species on the summit of those mountains at the head of the Doll on Clova in 1807. It has never been found elsewhere.

[This is *Carex rariflora*, Sm.—G. C. D.]

**Carex pendula.**

By the side of the river Isla above Airly Castle and near Roslin.

**Carex depauperata.**

Woods in the west of Scotland, but rare.

[There is a probability of this being a slip of the pen for the west of England; its occurrence in Scotland at any time is very doubtful. In this volume the localities were written in before he obtained specimens, and in some cases the blanks were never filled in, as in the case of *Carex Pseudo-cyperus*, which is localised "in woods at Hamilton, rare."—G. C. D.]

**Carex atrata.**

On rocks on Clova mountains and on other Highland mountains,

**Carex pulla.**

On Ben Lawers and Ben Nevis.

[This is young *C. saxatilis*, which is synonymous with *C. pulla*.—G. C. D.]

**Carex fulva var.**

[This is *Carex xanthocarpa*, Déség.—G. C. D.]

**Poa compressa, L.**

[Two specimens—one from Dundee, the other from Dupplin, Perthshire, for which counties this is the earliest record—are preserved in the herbarium of the Linnean Society. Don thought they were distinct, as he had cultivated both for years.—G. C. D.]

**P. pratensis var.**

"Walls at Edinburgh, with narrower leaves, which it retains in cultivation. I suppose this to be your var."—Don, in *Herb. Linn. Soc.*

[It is not quite *P. angustifolia*, L.—G. C. D.]



APPENDIX E.

OBSERVATIONS on some of the Indigenous Grasses of  
Britain, which seem deserving of Culture for Pasture  
or Hay.<sup>1</sup>

By Mr. GEORGE DON, Gardener,  
Botanic Garden, Edinburgh.

*Ducente Naturâ, sequar.*

INTRODUCTORY REMARKS.

That the reader may be enabled to form an idea of the opportunities enjoyed by the author, of investigating the subject on which he presumes to offer some remarks in the following essay, it will be necessary for him to give a very short account of his professional pursuits and habits of life.

<sup>1</sup> This essay is reprinted from Transactions of the Highland Society of Scotland, vol. vii. (1807), p. 194. I am indebted to Mr. James Macdonald, F.R.S.E., Secretary of the Highland and Agricultural Society of Scotland, for the following memorandum explanatory of the circumstances in which it was written by George Don:—

“In the year 1805 the Highland and Agricultural Society advertised amongst other premiums a Piece of Plate value 20 Guineas for the best Essay on ‘Our Native Plants and Grasses,’ a Committee being appointed as usual to examine the Essays sent in.

“This Committee presented its Report at a Meeting of the Directors of the Society on 10th January 1806, and from the Minutes of that Meeting it is learned,

(1) that the Piece of Plate value 20 Guineas was awarded to the Rev. W. Singers, Minister of Kirkpatrick, near Moffat, for his Essay on ‘Our Native Plants and Grasses,’ and

(2) that a Piece of Plate value 15 Guineas was awarded to ‘Mr. George Don of the Botanical Garden, Edinburgh,’ for an Essay on the same subject.

“In a Minute of a Meeting of the Publications Committee held 4th March 1806 there is this note:—

‘The Depute Secretary laid before the Committee an addition given in by Mr. Don to his Essay on Our Native Plants, &c., pointing out such as are not proper to be cultivated.’

“The Minutes of a Meeting of the same Committee held April 3, 1806, show that it was then arranged that the Essays by both Singers and Don be published in the 3rd volume of ‘Transactions’ (1807).”

In the early period of his life, and as far back as his recollection can reach, the author of the following observations felt an irresistible, and almost instinctive attachment to the delightful objects of the vegetable kingdom. This ardent desire, for attaining a knowledge of plants, encreased with his years. No motives of interest, or even the stimulus of emulation, but an invincible propensity to botanical study, induced him to abandon, in a great measure, the more ordinary paths of industry, and devote himself chiefly to his favourite pursuit. Even now, however agreeable in some respects the situation which he occupies may be to his wishes, it is by no means lucrative; he is nevertheless proud to acknowledge the kind and liberal notice of some of the most eminent naturalists in Britain, who have honoured him with their friendship and protection<sup>1</sup>. At his outset in life, he formed the arduous (although to him pleasing,) resolution of visiting every corner of his native country, in search of its vegetable productions; and for twenty-five years past, he has been in the practice of making several botanical excursions every year; particularly to the alpine districts of the Highlands, where he has spent many days and even nights with pleasure, among the lofty cliffs, far from any human habitation, animated by the attainment, or by the hope of botanical discoveries.

These excursions he intends to repeat annually, to such extent as his circumstances may hereafter enable him to accomplish.

Throughout the whole course of his professional investigations, the author considered the *Gramina* of Britain as favourite objects of study, and worthy of his most persevering attention. He has had the satisfaction of examining nearly the whole of them in their native soils and situations; and he has moreover been fortunate enough to add several of them, as well as other plants, to the catalogue of the British *Flora*. Most of these have found a place in Dr. Smith's *Flora Britannica*, and Sowerby's English botany.

### Sect. I.

#### ON THE ADVANTAGES OF CULTIVATED HERBAGE, AND PARTICULARLY OF INDIGENOUS GRASSES.

In every soil and climate, the spontaneous productions of the earth are inadequate to the purposes of husbandry. Nature equally favours all her vegetable productions, whether fitted for the use of

<sup>1</sup> Among these he takes the liberty to mention the names of James Brodie, Esq. M.P. Dr. Smith of Norwich; Dawson Turner, Esq. of Yarmouth; Dr. Scott of Dublin, and Mr. Templeton of Belfast.

man or for other ends : hence arises the great utility of cultivation, not only of the various grains, but of grasses and other herbage for cattle. Even the ancients were well acquainted with the culture of grass crops : Virgil says,

Vere fabis satio ; tum te quoque, *medica*, putres  
Accipiunt sulci ; et *milio* venit annua cura.

*Vid. Georg.*

In this enlightened age, when agriculture is become a regular science, and studied and practised as such by men of eminent abilities, especially in Britain, loose and speculative theories on agricultural subjects should have no place. Nothing can be admitted that is not founded on facts and experiments. Though many learned and excellent treatises have appeared, on the culture of indigenous and other grasses, yet much remains to be done, and much information is still wanted on this very interesting subject.

In the present advanced state of botanical science in Britain, scarcely any one can be in danger of mistaking the species of the *gramina* used, or proposed to be used, in cultivation. With the writings of Drs *Withering* and *Smith* in one hand, and the figures of *Curtis*, *Knap*, &c. in the other, a moderate share of attention will enable any person to discriminate the ordinary grasses. Those grasses that are less known may be examined in the form of a *hortus siccus*, which can never fail to remove every doubt, as the *gramina* are peculiarly adapted for being preserved in the dry state. Even the seeds of the most eligible may be obtained in small quantities.

In selecting the different species of grasses, suited to different soils and situations, nature is our sure guide. Who would hesitate to pronounce, that a plant found at the summit of the Highland alps, would be the most eligible for cultivation in high situations ? Who would question the success of a marsh plant in a wet boggy soil ? Although some useful plants are said to grow in any soil or situation, yet we must always except such *habitats* as are adverse to their nature. The pertinacity of some plants to their peculiar soil or situation, is much greater than is commonly supposed. Of this I shall adduce an instance or two.

The *Aira flexuosa*<sup>1</sup> prefers a dry barren soil. About twelve or fourteen years ago, I discovered a similar *Aira* near Forfar, the specific name of which might be *Aira uliginosa*, from its being always found in a wet marshy soil. Both this *Aira* and the *A. flexuosa*

<sup>1</sup> Waved mountain hair grass.

choose a barren soil. I have repeatedly tried to cultivate them on a rich soil, but could never succeed. I have tried the *A. uliginosa* on a dry barren soil, and the *A. flexuosa* on a wet barren soil, also without success; but I succeeded well when each was placed in the soil indicated by nature<sup>1</sup>.

The only other instance I shall here mention relates to the *Poa flexuosa*<sup>2</sup>, a grass which I discovered in June 1794, growing among stones near the summit of Ben Nevis. I have tried to cultivate this Poa in good soil, but my efforts proved abortive in every instance: yet I have cultivated it ever since 1794, on a barren soil with perfect success.

In the cultivation of grasses the farmer may have two distinct objects in view;

1. To produce herbage of a short duration, in a rotation of crops.
2. To produce permanent pasture.

In regard to the first of these, viz. the production of hay crops for two or three years, it is not my present intention to treat very particularly on that subject; but on some future occasion I may be induced to offer my opinions on that head more fully. In the sequel I shall only suggest some remarks regarding the cultivation of hay crops on poor soils. I may here notice in passing, that no grass which is merely annual can much deserve the attention of the British farmer; and I have lately seen some seeds of panic grass which had been presented to the Highland Society, as the grass cultivated in Hungary for a hay crop; but as this falls under the description of an annual, little is to be expected from it.

The second head above mentioned, viz. to obtain permanent pasture, shall be the chief subject of the present paper. Many words are not necessary to prove, that it would be a most desirable object with every possessor of high lands, or sterile grounds of every description, to have a method pointed out to him by which these lands might be rendered productive. Projectors and visionary writers have broached many schemes, which every skilful farmer would reject without trial; and even those who have done most to effect this desirable purpose, have fallen into strange and unaccountable errors, by the want of truly discriminating the species and nature of the plants which are the subjects of their investiga-

<sup>1</sup> Mr. Knapp in his elegant work on British grasses has admitted my *A. uliginosa* as a distinct species, but he has chosen to change the specific name to *A. scabro-setacea*.

<sup>2</sup> Zig-zag meadow grass.

tion. For example, in the excellent work of Mr. Stillingfleet, we read "That the heath hair grass (*Agrostis capillaris*) is certainly "one of the best, since it is common in pastures where sheep are "very prosperous." Now the *Agrostis capillaris* is not a native; the *A. vulgaris* must therefore be meant. On this supposition also, he is under a great mistake; for that *Agrostis* is known to be one of the worst of grasses. The abundance of its flowering stems is a proof that it is rejected or disliked by the cattle. I have always observed this grass to take hold of barren ground, where tillage had been tried, and after a bad crop or two abandoned. On such sterile land a stranger is often astonished at the apparent luxuriance of this useless grass, in the autumnal season: But every experienced farmer knows that it is the worst of pasture, or rather no pasture at all. How much then must it interest the cultivator of such a soil, to discover a grass that might thrive as well as this, and at the same time afford nutritious food for his cattle?

Having shewn the great utility of this improvement in agriculture, as well as the possibility of making the trial in a satisfactory manner, I shall proceed in the next section to mention the grasses that appear to me preferable to others for the end proposed.

## Sect. II.

### ENUMERATION OF THE GRASSES AND PLANTS RECOMMENDED TO NOTICE FOR THE IMPROVEMENT OF BARREN SOILS; WITH SOME ACCOUNT OF THEIR NATURE AND PROBABLE USE IN CERTAIN SITUATIONS.

1. *Poa nemoralis*<sup>1</sup>. This grass seems to have been entirely overlooked by agricultural writers on British grasses. Both Dr. *Withering* and Dr. *Hull* regard it as an annual, but Dr. Smith, in his *Flora Britannica*, has marked it as perennial—which it certainly is. It is found native in woods and shady places. I have cultivated it for upwards of ten years past in different soils and situations, with complete success. I first planted it on a good soil, when it produced abundantly. I afterwards had occasion to remove my collection of living plants to a piece of ground near the town of Forfar. I then planted it on a dry sloping bank of sand, which formed the back of a mud wall raised as a fence. In this poor soil, this dry and exposed situation, it produced a crop little inferior to what it yielded when cultivated in the rich soil. In this sandy soil it has remained for these seven years past, annually affording a

<sup>1</sup> Wood meadow grass.

good crop. When I last visited my botanical arrangement at Forfar, I found that it had produced a thick crop from a foot to sixteen inches high. I must here observe, that in the second and third years the crop will be more abundant than in the first year after sowing; and then it will continue to produce for many years plentifully. An analogy between plants and animals may here be traced. It is observed, that the longer time an animal requires to arrive at maturity, the longer it remains in a perfect state; so, although the *Poa nemoralis* does not arrive at maturity the first year, yet it would amply repay the farmer for his trouble, as it would continue to produce abundant crops for a number of years in succession. But even the first year after sowing, this grass will in general produce a tolerable crop. Were I to compare this grass with the common rye grass, I should certainly give it the preference. The *Lolium perenne* arrives quickly at maturity, and fails proportionally sooner. Horses, cows, and sheep are equally fond of the *Poa nemoralis*; and I should not be surprised to see it, after trial, more cultivated than the rye grass as a hay crop; at least in some situations. One great superiority which it possesses over the *Lolium*, is the number of leaves it produces. It has generally *six* or *seven*, whereas rye grass has only *three*. I have carefully examined a number of rye grass plants in various soils and situations, and *three* was the number of leaves I constantly found. From this it appears, that there are double the number of leaves produced on the *Poa nemoralis* which are produced on the *Lolium perenne*; and this alone, in my opinion, is a great recommendation: But this *Poa* also frequently branches in the stem, an advantage seldom met with in other grasses. It produces its seeds abundantly. It flowers in June, and ripens its seeds in July.

2. *Poa glauca*<sup>1</sup>. This grass has never attracted the notice of any writer on agriculture. I first found it among the rocks on Ben Lawers, and in other high mountains of Breadalbane, in 1784. It has received the trivial name of *glauca*, from the blueish colour of its leaves and stalks. This grass I have cultivated at Forfar since the year 1793. I have found it to thrive well on the most barren soil. Indeed I am convinced there is no soil, however sterile, which would not produce this grass. It is easily cultivated, and forms a good stool for late pasture. Horses, cows, and sheep are fond of it. It is little inferior to *Poa nemoralis*, though no quite so tall. It affords more radical leaves, and is therefore preferable for pasture. It also flowers in June, and ripens its seeds in July.

<sup>1</sup> Glaucous meadow grass.

3. *Poa alpina*<sup>1</sup>. This grass is also new to the agriculturalist. I first found it in 1788, on a high rock called Corbie Craig, in the parish of Tannadice, and among stones near Airly castle in Angus-shire. It is also found near the summit of several of the Highland Alps; but in these very elevated situations it is always viviparous: that is, its flowers become perfect minute plants, which drop off and strike root in the ground; an admirable provision of nature for the propagation of the plant in such alpine regions, where the severity and continual moistness of the climate would in general prevent the seeds from ripening. Even in the most lofty and barren situations this plant would make excellent pasture; and I am certain that many soils and situations which could never be turned to account otherwise, might be rendered valuable as pasture by the introduction of this grass. It forms a good foggage, and even continues to grow through the winter. In short, the *Poa alpina* is one of the best grasses for establishing a green sod for pasture on upland grounds, where few good grasses would vegetate. It is true, that a hay crop could not be expected from it; but would it not amply repay the expence of labour, by converting sterile heaths into profitable sheep-walks, and green fields for cattle? The enterprising and ingenious farmer might thus be enabled to improve immense tracts, at present not worth a shilling each acre annually, but which might in many cases become of fifty times that value.

4. *Poa compressa*<sup>2</sup>. Mr. Sowerby, in his English Botany, No. 365, justly remarks, that this grass will not succeed in moist or manured ground; but in very stony places it might be cultivated, and form a green surface where few other grasses would grow. I would not have it introduced into fields where crops of corn were raised in rotation, for the same reason that, in such a case, I would reject the *Poa pratensis*, viz. because it would be almost impossible ever to eradicate it from the ground. Nor would I adopt the *Poa annua*<sup>3</sup> as a cultivated grass, though for a different reason, viz. the difficulty of collecting its seeds. Were we to plant it, as mentioned by Dr. Martyn, it would certainly be an excellent grass for pastures that are much trodden.

5. *Poa pratensis*<sup>4</sup>. This grass is generally allowed to make good hay and pasture; but its running roots, as above hinted, render it not eligible when corn is to be cultivated. Its merit lies in intro-

<sup>1</sup> Alpine meadow grass.

<sup>2</sup> Flat stalked meadow grass.

<sup>3</sup> Annual meadow grass.

<sup>4</sup> Smooth stalked meadow grass.

ducing a permanent pasture. It spreads rapidly, and produces abundance of radical leaves; and in sterile fields it ensures a lasting sward of good grass. It will thrive on peat bogs. Its seeds remain long on the panicle, and are easily collected.

6. *Poa trivialis*<sup>1</sup>. This *Poa* is also deservedly praised by all the writers on the grasses. It succeeds beyond any grass in moist and rich soils. It constitutes almost the whole herbage on the meadow under the castle of Edinburgh, and also of the meadow under the north east end of Salisbury Craigs, in both which places it is cut six or eight times every season. It is however to be regretted that the seeds of this grass are fugacious, and cannot be collected, unless cut before they are quite ripe. In boggy soils, it might be worth the trouble to *plant* tufts at the distance of five or six feet, which in a few years would infallibly cover the whole surface with this best of grasses.

7. *Festuca rubra*<sup>2</sup> of *Flora Britannica*. This grass is one of those valuable plants, which like the *Arundo arenaria*, tends to arrest the progress of the sand on the sea shore, and often prevents it from overwhelming great tracts of the neighbouring soil. On observing this grass in its native situation, I am satisfied that it is one of the best for pasture, as it produces a considerable number of succulent radical leaves of uncommon length. This plant has not been noticed by agricultural writers. It cannot be the grass spoken of in Anderson's Essays, under the name of Purple fescue. His grass is said to be common in fields, and must of course, be *Festuca duriuscula*.

8. *Festuca duriuscula*<sup>3</sup>. This is deservedly considered by Mr. Swayne, Dr. Withering, Dr. Martyn, Mr. Curtis, &c. as a valuable grass, springing early, and acceptable to all kinds of cattle. As it forms a very close turf, it may often be preferable to the *F. rubra*, even on the sandy shores. In looking over old pastures, I have always observed this grass closely cropped by the cattle, and scarce a flowering sprig to be seen. It has also the advantage of thriving in a poor soil, and even under trees. It flowers in June, and ripens in July. Its seeds are easily gathered, as they remain till ripe on the spike.

9. *Festuca pratensis*<sup>4</sup>, is a plant justly esteemed by Mr. Curtis, and other writers on the *Gramina*. It is found on the wettest meadows and bogs. If care were taken to sow this grass in such

<sup>1</sup> Rough stalked meadow grass.

<sup>2</sup> Creeping fescue grass.

<sup>3</sup> Hard fescue grass.

<sup>4</sup> Meadow fescue grass.



situations, it would produce an excellent hay crop, and also afford good pasture. I have cultivated it for several years, and find it to answer almost in every soil. I have planted it in peat soil, and found it to succeed astonishingly. It flowers in June, and seeds in July. Cows, horses, and sheep are all fond of it.

10. *Alopecurus pratensis*<sup>1</sup>. This grass has been highly and justly extolled by every author who treats of the British grasses; and so far as I have observed, I consider it as one of the best, particularly for an early hay crop, on any tolerable soil, if not in a very high situation; and it is peculiarly well fitted for drained meadows. When I was in London, about the year 1786, I saw a patch of about twenty square yards of this grass, cultivated by Mr. Curtis, who on the same ground had patches of almost all the British grasses; but in my opinion, this *Alopecurus* exceeded them all, in quantity and quality as a hay crop. And it is an early grass; it flowers in May, and ripens in June. Its seeds adhere long to the spike, and are easily collected.

11. *Holcus lanatus*<sup>2</sup>. This grass has also the name of *Yorkshire fog* in some places of Scotland, probably owing to the thick tuft of leaves which it produces at the root. The late Rev. Dr. Walker, and other good judges, have greatly extolled this *Holcus*. It, no doubt, is very early, and prospers in any moist situation, however poor the soil. It also produces abundance of leaves, and even a full crop of hay; yet Dr. Martyn remarks, in *Flora Rustica*, that it is not much esteemed as a cultivated grass. For my own part, I regard it as inferior to many others. To make tolerable hay for feeding, it should be cut as soon as the spikes are formed. In that case, two crops may easily be had in the season. It has also this advantage, that when sown on meadows recently improved, its bundled roots might exclude the growth of *carices*. Its seeds are easily gathered.

12. *Anthoxanthum odoratum*<sup>3</sup>. This grass has been praised by Mr. Curtis for its early appearance, and readiness to grow in any soil or situation. This I can confirm from my own observation. I have seen this grass growing from the richest meadow, to the summit of our loftiest mountains. It produces a great number of radical leaves, and continues growing throughout the whole season. It communicates a pleasing odour to hay, or to any thing with which it has been in contact. Its seeds are easily collected.

<sup>1</sup> Meadow fox-tail grass.

<sup>2</sup> Soft meadow grass.

<sup>3</sup> Sweet scented vernal grass.

13. *Sesleria cærulea*<sup>1</sup> (*Cynosurus cæruleus*, L.) is the earliest of the British grasses, producing its flowers about the end of March, and ripening in May. Dr. Martyn saw it pushing out spikes on 16th March, 1792, and recommends it for culture. It is a native of Ben Lawers and other Highland mountains. I received specimens from York-shire, which were gathered in an upland wood. Of all the grasses which I know, this seems the most eligible for early pasture. I have cultivated it for ten years past in sterile dry sandy soil, likewise in good soil, and under trees, and it seemed little changed by soil or situation. In all it produced well. It is furnished with a vast number of radical leaves, which form close *stools* of a large size. It is capable of resisting the severity of the winter, and on that account I have long considered it as one of the most valuable of the British grasses. When the season advances, the leaves become strong, and feel harsh to the touch; but I found, on making the experiment, that cows, though fed in the house, preferred these seemingly coarse leaves to all other food that was offered them. In short, I am confident that no other grass better deserves attention; for its early growth, and the thick pasturage it affords, I certainly hold it unrivalled.

14. *Vicia cracca*<sup>2</sup>. This vetch has been recommended by Dr. Plot, and also in Anderson's essays. It grows frequently in stony places, in meadows, and very commonly in hedges, where it often rises to a great height. Cattle are very fond of it. It may be, in some cases, an advantage, and in others an objection, that it takes so deep and so strong a hold of the soil, that it is almost impossible to eradicate it. It might produce a very profitable crop among stones; and on bare spots where scarce any thing else would vegetate.

15. *Medicago sativa*<sup>3</sup>. This plant which is now naturalized in Britain, certainly produces a very superior kind of pasture on sandy downs. Though writers on this subject have not adverted much to this circumstance, I have long considered the chief merit of this plant to be, that it sends forth a number of long and strong roots, which penetrate deep into the sand, and which enables it to resist the longest droughts. I have seen plants of it flourishing in the arid sand, when all the surrounding vegetables were completely scorched. There is still another property for which it is valuable: in such a soil, the longer it remains in the ground, the better is the crop; so that an acre of twelve or fourteen years standing, would

<sup>1</sup> Blue moor grass.

<sup>2</sup> Tufted Vetch.

<sup>3</sup> Lucerne.

be worth three or four acres of the first and second year. I have further observed, that the plant is no where so long lived as in the sandy downs.—Very particular care should be taken in the choice of the seeds of this plant, as the old seeds will not vegetate.

I would not have it to be understood, that the *fifteen* plants enumerated above, are all the indigenous vegetables which I could recommend for trial by cultivation. Being unwilling to exceed the limits prescribed by the Honourable Society, I have confined myself to such as I thought preferable to others which have come under my observation. A full discussion of the British grasses, and of their various and comparative merits, would require a volume.

### Sect. III.

ON THE PURPOSES TO WHICH THE PLANTS BEFORE RECOMMENDED MAY BE APPLIED; AND THE PROPORTIONS OF PARTICULAR SEEDS TO BE USED IN VARIOUS SOILS.

#### 1. For dry gravelly soils.

In almost every upland farm, there are many acres under tillage that produce a scanty and unprofitable crop; and to which manure cannot be easily or conveniently applied. In such case, if the soil be dry and gravelly, and there is no prospect of soon restoring the field to a state of tillage, the following proportions of seeds will, in my opinion, ensure a permanent pasture.

<i>Festuca duriuscula</i> , Hard fescue grass,	one half,
<i>Poa pratensis</i> , Smooth stalked meadow grass,	one fourth,
<i>Poa compressa</i> , Flat stalked meadow grass,	one fourth.

In estimating the quantity to be sown, the cultivator may reckon upon one third less seed than he would take of rye grass, as the *Poas* form large plants.

If it be intended to render the field arable again in a year or two, as the *Poa pratensis* and *compressa* have running roots, and are therefore eradicated with difficulty, we may substitute

<i>Poa nemoralis</i> , Wood meadow grass,	one half,
<i>Poa glauca</i> , Blue meadow grass,	one fourth,
<i>Poa alpina</i> , Alpine meadow grass,	one fourth.

This will secure herbage in the most elevated situations; but if the soil be tolerable, and a crop of hay expected, the *Poa nemoralis* may be used alone.

## 2. For wet boggy soils.

When drainage is not eligible from the nature and situation of the ground, much might be done for marshy grounds if arable during summer. Where a permanent pasture is the only object, and the soil of bad quality, the *Holcus lanatus*, Meadow soft grass, alone appears preferable to all other grasses.

Where the soil and situation are tolerably good, the *Poa trivialis* should alone be used. This grass may be cut, perhaps five or six times during the summer, and will be found more profitable by this management, than if it were reserved for a hay crop.

If it be intended to convert boggy soil into arable land, draining is indispensable, and for a rotation of hay crops, take the following seeds.

<i>Festuca pratensis</i> , Meadow fescue grass,	two thirds,
<i>Poa trivialis</i> , Rough stalked meadow grass,	one third.

This mixture will always produce a good hay crop in tolerable soil. But in case of a superior quality of soil, I would prefer a taller kind of Fescue, called *Festuca elatior*, which some writers have regarded as a variety of the above, and others as a distinct species. It much resembles the above, the chief difference being that it is twice the size. In point of quality, this grass equals the rye grass, and as a hay crop, it should produce double the quantity.

What I have said above in regard to wet bogs, may be equally applicable to peat soil. For I have cultivated the grasses now enumerated, in peat soil, with success.

## 3. For sandy downs on the shore.

In cultivating loose sand, the great object frequently is, to introduce such plants as are likely to bind the soil, and form a sward of pasture acceptable to cattle. In this case the following seeds may be used,

<i>Festuca rubra</i> , Creeping fescue grass,	} one half, equal parts for the other half.
<i>Festuca duriuscula</i> , Hard fescue grass,	
<i>Poa pratensis</i> , Smooth stalked meadow grass,	
<i>Poa compressa</i> , Flat stalked meadow grass,	

If the soil be pure sand, a hay crop need not be expected; but a permanent pasture may be thus established.

In case the sand be dry, and apt to become parched, nothing can equal the Lucerne as a profitable crop, either for cutting or pasture.

If equal parts of Lucerne and *Festuca rubra* were sown in such a soil, it might ensure a tolerable pasture through the whole season.

4. For early pasture.

No husbandman should neglect to lay out some part of his ground for early pasture, the want of which is so often the subject of complaint among farmers in this country.

In a poor soil, with no immediate prospect of subjecting the land to tillage, for a rotation of crops, equal parts of

*Sesleria cerulea*, Blue hair grass, and  
*Anthoxanthum odoratum*, Sweet scented vernal grass, will insure a permanent pasture.

If the situation be much elevated, a portion of the *Poa alpina* may be taken with the *Anthoxanthum*.

If the soil be good, and not too high, take

*Alopecurus pratensis*, two parts.  
*Anthoxanthum odoratum*, one part.

This would afford an early and excellent pasture, or a hay crop, if more desirable.

Sect. IV.

ON PROCURING THE SEEDS OF THE GRASSES.

The greater part of writers on the *Gramina*, have contented themselves with recommending certain plants as fit for the purposes of agriculture: But it should be remembered that the cultivators of land are, for the most part, very ill qualified to discriminate the species of the grasses; much less can they spare time to go in search of them. It is not then to be wondered at, that so few attempts have been made to cultivate the various indigenous grasses. Yet it is certain, that at present, when such a spirit of inquiry is awake, many gentlemen, and others eager for improvement, would gladly take the trouble of making trials, more or less in this way, if the means of doing so were at hand. Were this kind of culture once set on foot, we might reasonably hope to see much of our sterile and waste land (unfit for other crops) converted into profitable pasture.

The vast importance of opening this new track to the view of the improver of land, must be sufficiently obvious. The grand obstacle that stands in his way, is the difficulty of obtaining the seeds of the

grasses, especially of the rarer kinds. To remedy this, I would gladly exert my utmost endeavours to cultivate a moderate quantity of seeds annually; and I might also institute a variety of experiments on grasses and other plants for feeding cattle; which I flatter myself, would contribute to the advancement of that branch of agriculture in this country:—and this I would be the better enabled to do, were I to execute my plan under the auspices, and with the pecuniary support, of the honourable Society to whom this paper is addressed, so distinguished for their patriotic and well-directed exertions.

### APPENDIX.

#### ON SOME INDIGENOUS PLANTS AND GRASSES *not* ELIGIBLE FOR CULTIVATION.

After perusing the foregoing paper, it may be alleged that I have omitted to mention several plants and grasses, which from their size and appearance, seem eminently adapted for cultivation. To obviate such remarks is my present intention; the more especially as it appears as necessary to inform the cultivator what plants he should avoid, as to point out to him those which he should select.

In my humble apprehension, there are two requisites indispensably necessary to every indigenous plant to be tried in cultivation.

1. It must be acceptable to cattle :
2. It must produce a tolerably abundant crop.

There are few persons who would blame me for rejecting those plants on which cattle do not feed; yet many theoretical writers have proposed plants for cultivation, against which this objection may be fairly urged.

To begin with the *gramina*.—In the genus *Aira*, (with the exception of the *A. aquatica*<sup>1</sup>, which seems the connecting link between the *Poa* and *Aira*) there are almost none that can be reckoned valuable. The *A. caryophyllea*<sup>2</sup>, *precox*<sup>3</sup>, and *canescens*<sup>4</sup>, are all diminutive grasses; the *flexuosa*<sup>5</sup> is not equal to the *Festuca ovina*. The *A. cespitosa*<sup>6</sup> is indeed the largest grass that appears as a native of

<sup>1</sup> Water Hair grass.

<sup>2</sup> Early Hair grass.

<sup>3</sup> Waved Mountain Hair grass.

<sup>4</sup> Silver Hair grass.

<sup>5</sup> Gray Hair grass.

<sup>6</sup> Turfy Hair grass.

barren soils; but it certainly is the worst of all the British *gramina*. Other coarse grasses have sometimes their young and radical leaves sufficiently tender and grateful to cattle, but this grass in all its stages, seems equally disliked.—I know not if starvation would force cattle to brouze on it.—I have observed it on the Highland mountains for many years, where cattle are compelled to feed on the coarsest grasses, yet I have never seen a single plant of it cropped by any animal. This grass may be known from all others, by the large tufts it forms, elevated above the level of the pasture, which is occasioned by the accumulation of leaves, from one year to another. In regard to this grass, the question with the farmer, is not how it can be cultivated, but how it can be eradicated.

Among the grasses in the tribe of Bromes, although very frequent among hay, there are few which I can venture to recommend. They intrude themselves every where among cultivated grasses; and although chiefly annual, they shed their seeds so abundantly, that a small number of plants, scattered in a field, soon diffuses the bromes over the whole, to the exclusion of other grasses. The *Bromus erectus*<sup>1</sup> is the only species that has a chance to be useful.

Some gentlemen of considerable observation and experience have thought that the *Agrostis vulgaris*<sup>2</sup> was an eligible plant for cultivation, and that it makes good hay: But to this, I am persuaded, no practical farmer would agree; for in every neglected field in hilly ground, (as for instance, on the top of Braid's hill near Edinburgh) this *Agrostis* may be seen often a foot high or more, matting the surface, so that one ignorant of grasses might mistake it for a hay crop; yet this math remains untouched by the cattle, though these fields be pastured throughout the whole season.

The *Agrostis stolonifera*<sup>3</sup> has been mentioned as the far celebrated Orchestan grass. But this I am fully convinced is a mistake; for I have been assured by an eminent botanist, who visited the place within these few years, that the greater part of the grass on these meadows, was no other than the *Poa trivialis*, a grass which I have already mentioned as constituting the chief herbage in the meadow under Salisbury Craigs, and in other rich meadows round Edinburgh. There is indeed no species of *Agrostis* that cattle are fond of; and as they are generally avoided in pastures, we have no

<sup>1</sup> Upright Brome grass.

<sup>2</sup> Fine bent grass.

<sup>3</sup> Creeping bent grass.

reason to believe that any of them would answer as hay. Besides, there is no grass, not even the *Triticum repens*<sup>1</sup>, so difficult to eradicate. The only other to be compared with it, is the *Holcus mollis*—a grass which can only be useful, when cultivated on sandy downs, with a view to bind the sand by its running roots.

Among the *scirpi*<sup>2</sup>, the *schani*<sup>3</sup>, and the *junci*<sup>4</sup>, none so far as I know, have been thought of as fit for cultivation. Many of the *scirpi* and *schani* are diminutive, and all of them exceedingly harsh. In regard to the *junci*, I have never seen them applied to any agricultural purpose, except the making of ropes. For this purpose the *Juncus effusus*<sup>5</sup>, when peeled, was in some parts of Scotland, much used half a century ago. The *Juncus articulatus*<sup>6</sup> was also made into cushions, to be put under the yoke used by oxen; for which purpose, from its toughness, it seems well adapted. I have often observed this *Juncus* in the most unfavourable situations in the Highlands, where cattle were often straitened for food; but it generally remained untouched. The same observation may be made by any person who will take the trouble to view this plant, on the Pentland hills, near Edinburgh<sup>7</sup>. Not one of the rushes indeed, claims the attention of the farmer, unless it be for the above purpose, or for litter or thatch. Were it even possible to use the *Juncus articulatus* as a grass crop, the extreme difficulty of eradicating it, would be a sufficient objection. I remember, fifteen years ago, to have seen eight oxen and four horses yoked in a plough, on the high grounds in Forfarshire, to tear up a meadow covered with this strong rooted plant; but their efforts were inadequate to accomplish the business completely; for when they had finished the operation, more than a third part remained green, and apparently not turned over.

In regard to plants which are not properly grasses, few have been more loudly recommended by some persons than the *Plantago lanceolata* or rib grass; but in my opinion with no good reason; Mr. Dickenson, a gentleman well known for his attention and accuracy, and whose opinion should be decisive, expressly says, that he has seen twelve acres of rib grass cultivated, but that no

<sup>1</sup> Couch grass, or Creeping Wheat grass.

<sup>2</sup> Bull-Rushes, or Club-Rushes.

<sup>3</sup> Bog-Rushes.

<sup>4</sup> Rushes.

<sup>5</sup> Soft Rushes.

<sup>6</sup> Sprat or jointed Rush.

<sup>7</sup> In the hay from some wet meadow grounds, this species may sometimes be found composing a part of the herbage; but in proportion as it abounds, it renders the forage of little value; and if there be on any spot, a great quantity of it, it is either not mown at all, or excluded out of the general mixture.



animal would eat it. To this account I can give full credit, as I have carefully observed for two years back, that this plant is left untouched by the cattle grazing in the parks adjoining to the Botanic Garden; nor do I think they ever eat it, unless when mixed with other herbage. The habit of growth in this plant is another objection to its culture. Its radical leaves spread like the rays of a circle from the centre, and destroy the herbage around it. Some writers have mentioned the *Bellis perennis*, or common daisy, as a valuable plant in pastures; but the abundance of its beautiful flowers seen in every meadow, demonstrates that it is rejected by cattle, and that as a celebrated agriculturist observes, "it owes its beauty to its worthlessness." Such fancies remind me of the idle notion entertained by some women and children in the country, that the summer butter takes its yellow colour from the flowers of the crow-foot which they call butter-cups!

I cannot conclude without expressing my regret, that speculative farmers in general, and especially those who undertake to write on agricultural subjects, are often altogether unacquainted with Botany, and, of course, have an imperfect knowledge of most of the plants of which they wish to treat. Hence the trials made from their suggestions too often end in disappointment and disgust, and thus throw a bar in the way of improvement; whereas judicious and well conducted experiments guide us in the right path to advancement in agriculture, as well as in every other science.

## APPENDIX F.

ACCOUNT of the Native Plants in the County of Forfar,  
and the Animals to be found there.<sup>1</sup>

By Mr. DON of Forfar.

*Alpine District of Angusshire.*

The lofty mountains which surround the upper part of Clova, present to the Botanist an interesting field for rarities :—not even Ben-Nevis, Ben-Lawers and Ben-Lomond, and the high mountains of Cairngorm, taken altogether, can furnish such botanical treasures as are to be met with on the mountains of Clova.

On the summit of these mountains, the following plants are to be met with.—Those to which an asterisk \* is prefixed, are new to Britain, and almost all of them peculiar in this country to the Clova Mountains.

Cornus Suecica	*Myosotis repens
Ophrys cordata	Alchemilla alpina
Leontodon palustre	Juncus trifidus
Sibbaldia procumbens	"    triglumis
Saxifraga stellaris	"    supinus
"    aizoides	*    "    spicatus
"    rivularis	*    "    gracilis
"    oppositifolia	Cochlearia officinalis, var. γ,
*    "    pedatifida	the Cochlearia Grœnland-
*    "    elongella	ica of our British authors, <sup>1</sup>
*    "    platypetala	but not of Linnæus
*    "    nova species	Epilobium alpinum
*    "    nova species,	"    alsinifolium
which I believe	Rumex digynus
to be the S.	Spergula saginoides
muscoides of	Hieracium denticulatum
Willdenow	"    alpinum

<sup>1</sup> Reprinted from "General View of the Agriculture of the County of Angus, or Forfarshire," Appendix B. By the Rev. James Headrick, Edinburgh, 1813.