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THE BOTANICAL SOCIETY  
AND EXCHANGE CLUB  
OF THE BRITISH ISLES.

REPORT FOR 1917

(WITH BALANCE-SHEET FOR 1916)

BY THE

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G. CLARIDGE DRUCE,

TREASURER AND EX-PRESIDENT OF THE ASHMOLEAN NATURAL  
HISTORY SOCIETY OF OXFORDSHIRE.

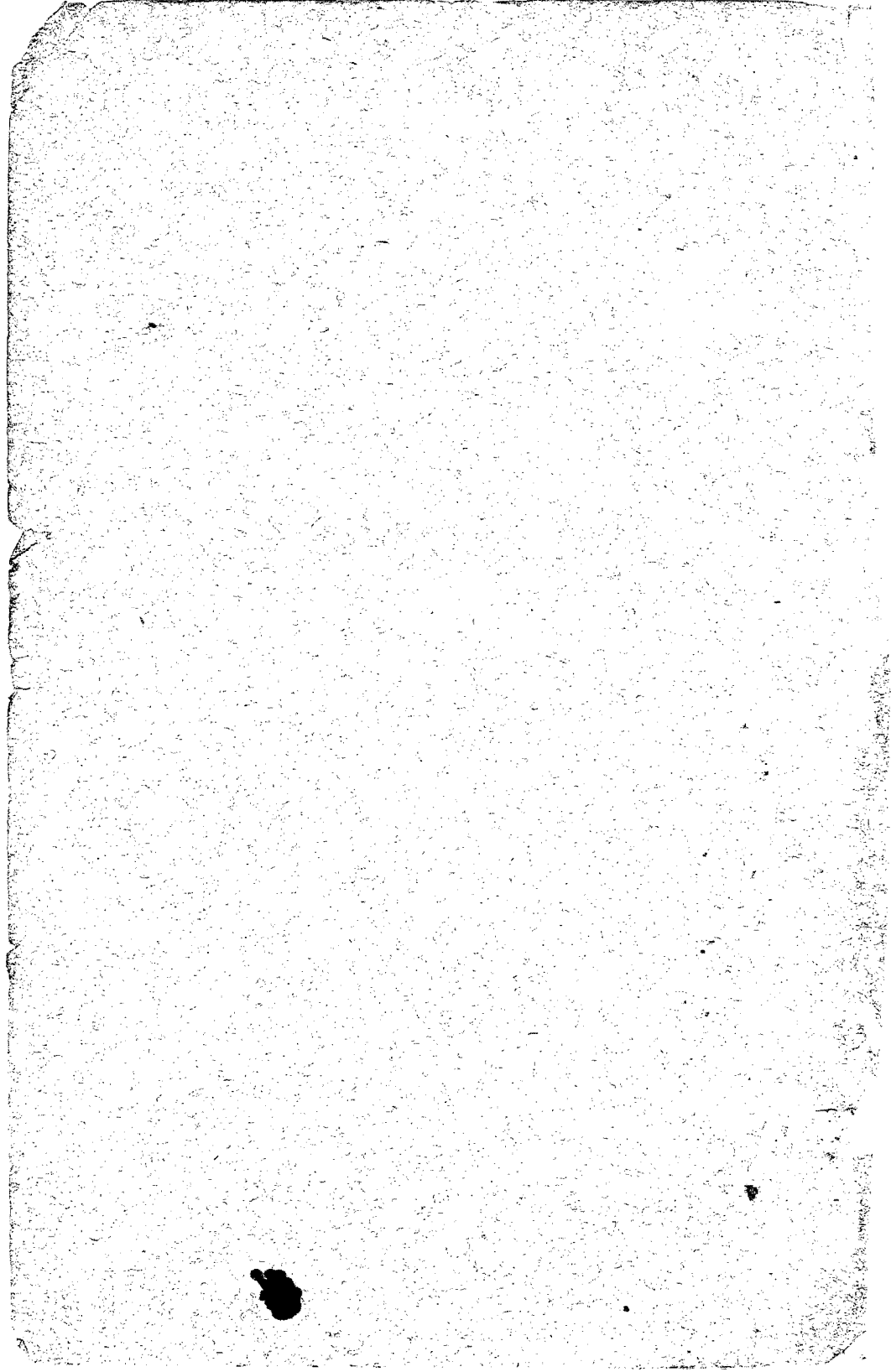
VOL. V. PART I.

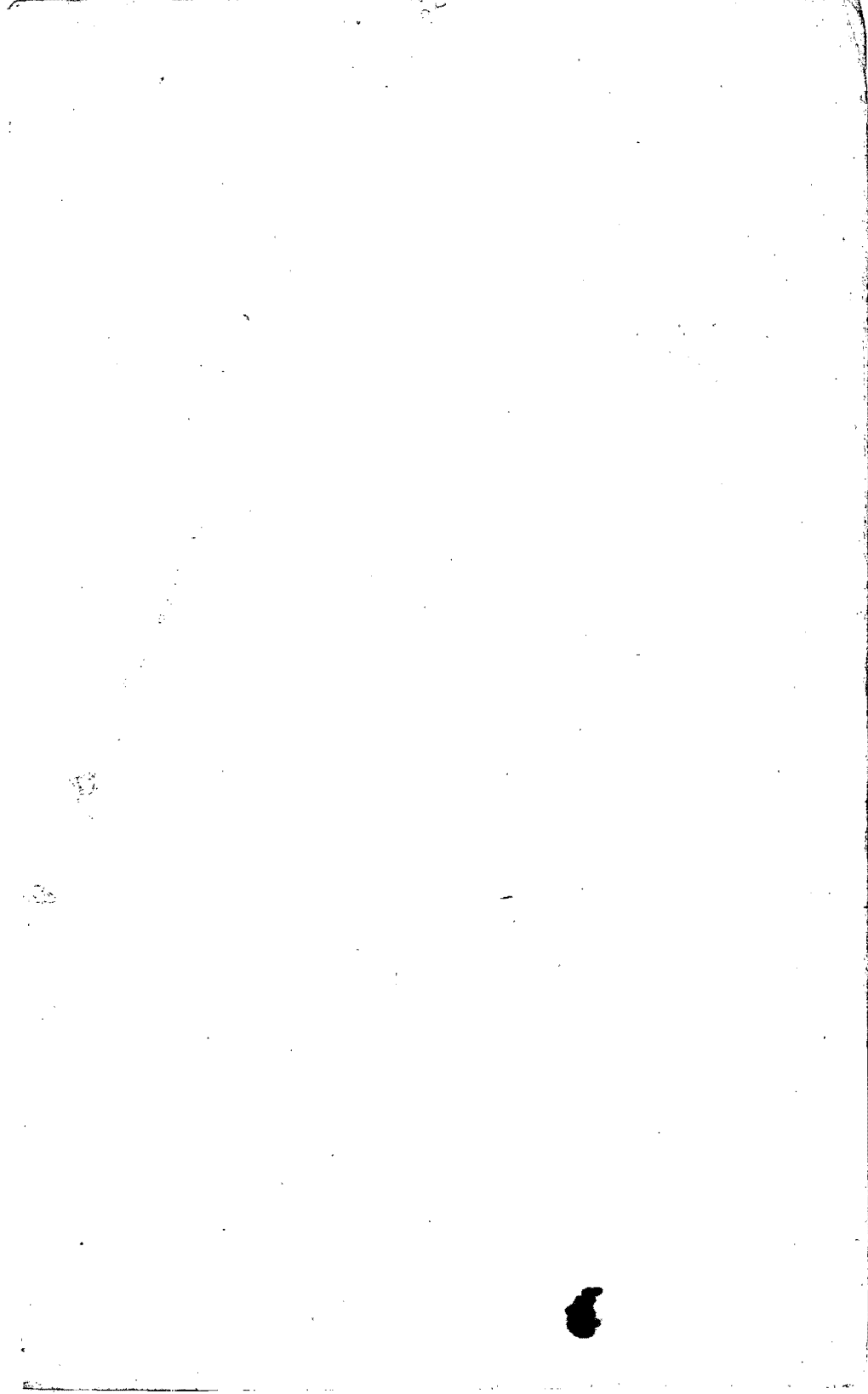
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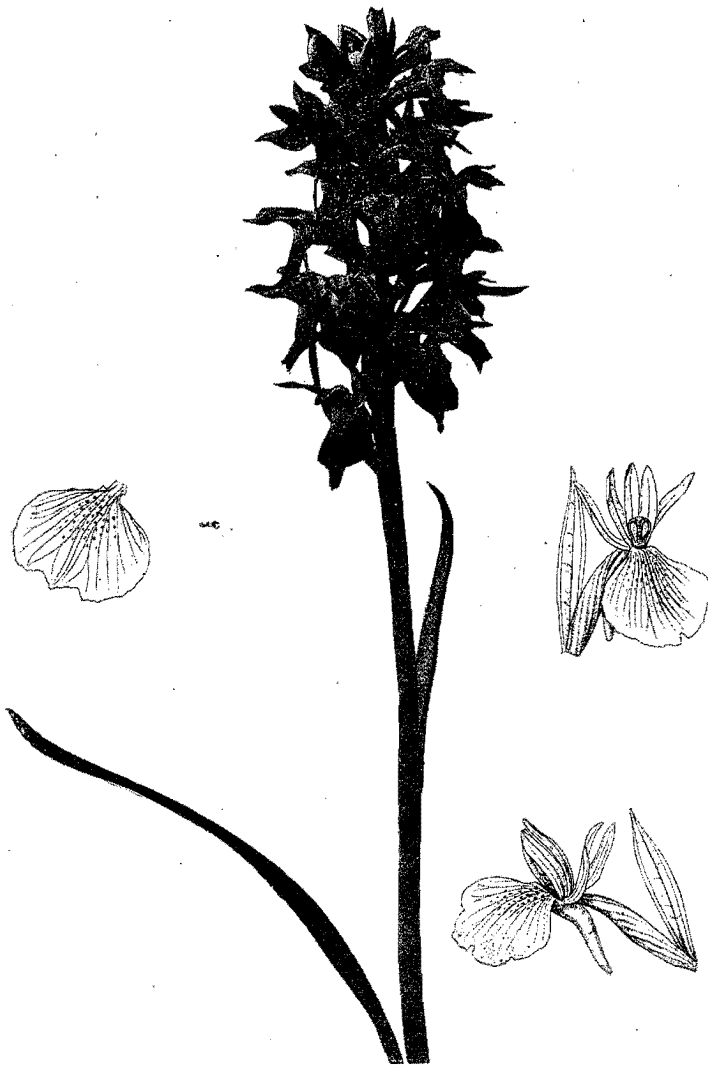
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September 1918.

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ORCHIS PRAETERMISSA DRUCE.

From a photograph of a plant from Abingdon, Berks., grown at Scampston Hall, Rillington, York, by W. H. St Quintin, Esq. The middle lobe of the labellum is longer than usual. The flowers are from drawings made by Miss R. M. Cardew.



THE BOTANICAL SOCIETY  
AND EXCHANGE CLUB  
OF THE BRITISH ISLES.

(VOL. V. PART I.)

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REPORT FOR 1917

BY THE

SECRETARY,

G. CLARIDGE DRUCE,

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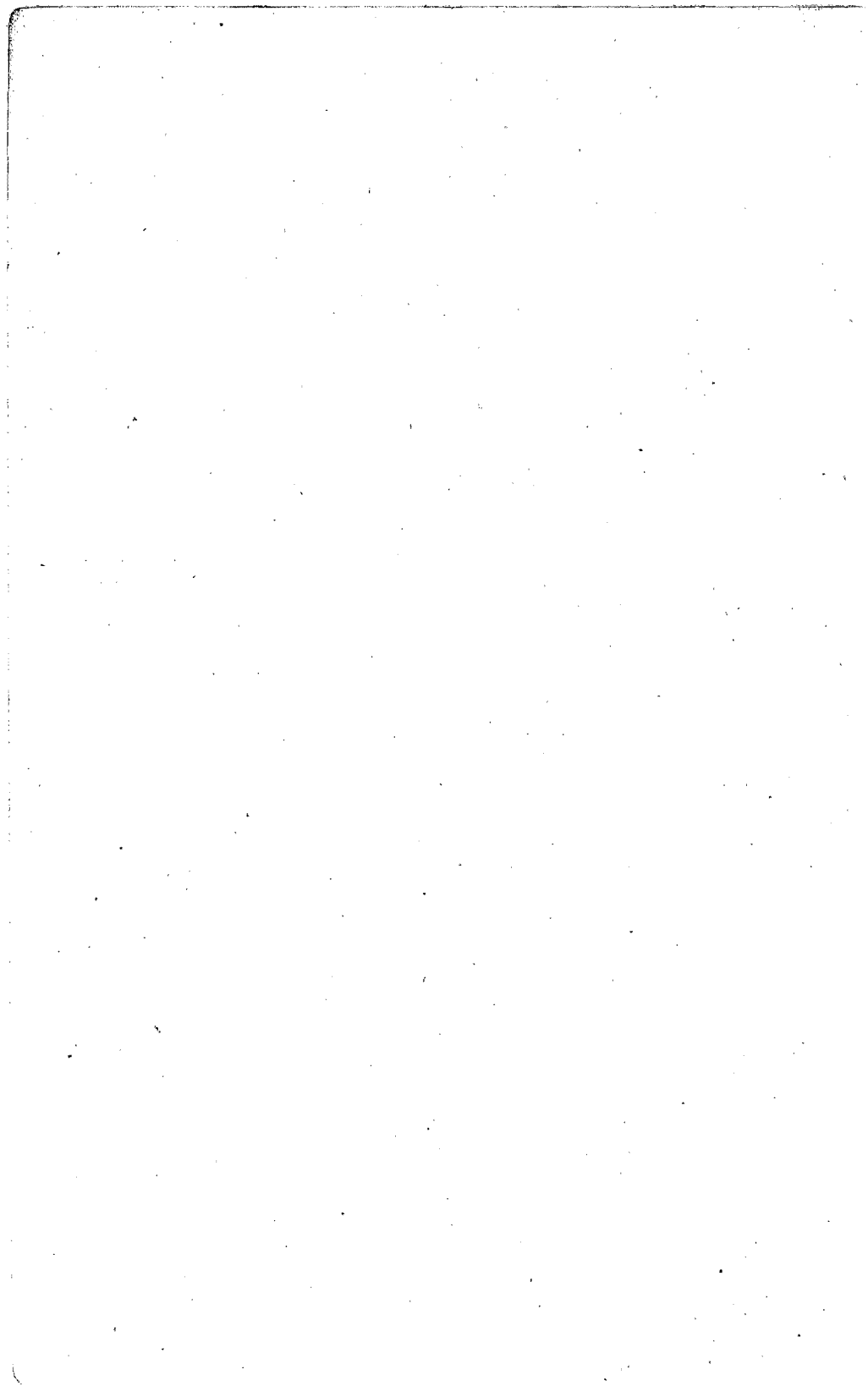
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The Distributor's Report on Plants sent in for 1917 will appear in due course.

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PRINTED BY T. BUNCLE & Co., ARBROATH.

September 1918.



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This list includes those joining for 1918.  
Asterisks denote Exchange Club Members.



THE  
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 OF THE BRITISH ISLES.

THE REPORT OF THE TREASURER & SECRETARY,  
 G. CLARIDGE DRUCE, YARDLEY LODGE, OXFORD,  
 FOR 1917.

*BALANCE SHEET FOR 1916.*

By Subscriptions received, £73 14 0 Sale of Reports, " 5 9 9 Sale of Secy.'s Supplement, " 0 9 0 Donation to do., J. Platts, " 1 1 0 Donation, " 20 0 0  <hr style="width: 100%;"/> £100 13 9	Balance from 1915, - - - £13 11 6 Printing Reports, &c., - - 61 12 10 Printing Secy.'s Supplement, 11 10 0 Expenses of Distribution, " 1 15 0 Postages, Carriage, Stationery, and Incidental Expenses, 11 13 3 Balance in hand, " 0 11 2  <hr style="width: 100%;"/> £100 13 9
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Balance in Treasurer's hands, £0 11s 2d.

Life Members' Fund, invested in War Savings, £9.

Audited and found correct, January 9, 1918.—F. TWINING.

All subscriptions should be paid to the above address on the first of January each year. Exchange Members pay 7s 6d, Ordinary Members 5s. Payment in advance for two or more years is preferred. The application for and acknowledgment of small sums necessarily entails trouble and expense. Members joining in 1918 pay 10s (Exchange Members 12s 6d), to cover entrance fee and the *Report* for 1917.

There are still a few complete sets of the *Reports* from 1879 to 1916, forming four volumes. These are available for members at £3 10s. Odd numbers may be had at a considerable reduction.

Despite the stress of war with the curtailment it has meant of time and means of locomotion and increased economic strain, the results of the past year from a botanical point of view are very encouraging. In no previous year have we had so many accessions

to our ranks or such a large number of specimens sent for observation. The financial position of the Society has greatly benefitted by the increase of members and by kindly help. For the first time for many years there is no adverse balance.

We have to express our warm thanks to Mr D. Lumb and Mr W. H. Pearsall for acting as Distributors and for editing the *Report* for 1916. The plants were returned with most commendable promptitude. The *Report* gained much by the concise and valuable critical notices on the plants sent in and we are much indebted to those botanists—British and foreign—who supply them. Never has there appeared a *Report* freer from ambiguity or more helpful to the collector. No fewer than 5453 plants were sent by 30 contributors.

We are under great obligation to the Director and Staff of the Herbarium at Kew, to the Director and Staff of the National Herbarium at South Kensington and to Professor Vines, F.R.S., of Oxford, for facilities in consulting the specimens under their charge and for other kind assistance. To Dr Albert Thellung of Zurich we are specially indebted for naming many alien species. We heartily congratulate him on his recent marriage, and trust the slight souvenir sent him in the name of the members will be significant of the good-will we have for him. We have also to thank those critics and referees whose names appear in the *B.E.C. Report*, and also Messrs C. C. Lacaite, J. W. White, Professor Percival, Rev. E. S. Marshall, Mr E. D. Marquand—the latter has placed us under special obligation by translating the French papers on *Batrachian Ranunculi*, which we hope to reprint—Rev. F. Bennett, the Rev. H. J. Riddelsdell, and Mr R. H. Corstorphine for editorial assistance.

Thanks are also due to the donors to the Benevolent Fund for kindly help. They include Mrs Shipley, the Hon. N. C. Rothschild, Messrs C. Bailey, H. Graveson, and W. Sanderson.

We are also very grateful to Sir D. Prain for allowing us to publish M. Gay's paper on Channel Island Plants, which had been brought to my notice by Mr F. N. Williams, and to the Rev. S. A. McDowall, the President of the Winchester College Natural History Society for not only allowing us to republish the valuable notes on Orchids, but also for most kindly lending us the blocks of the beautiful drawings made by Miss Corfe, which give such a great additional value to the paper.

During the year we have lost seven members by death. Major Sanderson was killed in France, and through his death we lose a valued member and a skilled horticulturist. Sir Edward Evans, D.L., and Mr J. Platts were well-known figures in the world of pharmacy and valued colleagues. The former, a well-known political worker, had been President of the Pharmaceutical Conference; the latter, one of the writer's oldest friends, died suddenly in Oxford, as he was about to call on him. His sister, Mrs Shipley, has helped our Benevolent Fund by a donation, and she has given £1000 to establish a bed in his memory at the Royal Leicestershire Hospital. Mr S. Margerison of Calverley, Rev. C. W. Peck of Billingford Rectory, Rev. W. Butt of Oakwood, Chepstow, and Mr J. G. Geake of Guildford have also passed away. We have also to record the death of Mr P. N. Vaughan of Redland, Bristol, that distinguished philanthropist who was the life and soul of the Convalescent Home on Durdham Downs which he did so much to support. For the past twenty years it was the writer's privilege to meet our late member at the annual Christmas dinner to the inmates, and on one of these occasions he was asked to propose a vote of thanks to the donors, one of whom was Mr Vaughan, who had given a donation (not the first of its kind) of £5000. It may be remembered that *Lamium maculatum* (recorded in *English Botany*) was found by his mother, Mrs Vaughan, in 1813, at Bristol, close to where he lived at Redland Court.

Our new members for 1917 and 1918 include Lady Edina Ainsworth, Rev. F. S. Alston, Mr J. E. Arnett, Rev. E. Benwell, Mr E. B. Bishop, Miss Ada Cameron, The Charterhouse, Miss A. B. Cobbe, Miss Coles, Rev. E. C. Crutwell, Mr W. Davidson, Mr Docker-Drysdale, Sir Edward Evans, D.L.; Mr W. P. Evans, J.P.; Mr J. G. Everitt, Mr J. Ewing, LL.D.; Mr J. Meade Falkner, M.A.; Mr Reginald Farrer, Mr J. Maurice Franklin, the Earl of Gainsborough, Mr T. R. Gambier-Parry, Mr J. S. Gamble, F.R.S.; Mr C. E. Gardner, D.L., J.P.; Mr T. E. Goodyer, Mr C. B. Green, Mr J. E. Griffith, F.S.A.; Mr R. G. Gwatkin, Mr J. W. Heslop-Harrison, D.Sc.; Rev. J. Clare Hudson, Dr Hurry, Hon. Mrs Ingilby, Mr T. F. Jeyes, Mr R. Kennedy, Rev. C. Q. Knowles, Lady Joan Legge, Mr L. V. Lester-Garland, M.A.; Mr G. E. C. Maconchy, Miss I. H. Martin, Lieut. C. Marquand, Mr H. Messel, Mr H. W. Monckton, F.L.S., F.G.S.; Lord Moreton, Mr W. E. Nicholson, Sir

William Osler, Bart., F.R.S.; Oxford Public Library, Miss Powell, Mr H. Powell, Sir David Prain, F.R.S., President of the Linnean Society; Mr H. S. Redgrave, B.Sc.; Right Rev. Bishop Robertson, D.D.; Lady Victoria Russell, Mr J. Sanderson, J.P.; Miss P. Simons, Professor W. Somerville, Mr A. W. Southall, Mr E. Thurston, C.I.E.; Hon. S. Tennant, Mr N. Temperley, Mr T. Trollope, Mr P. N. Vaughan, Mr R. Vaughan, Miss Clarice Vivian, Mr C. F. Vincent, M.A.; National Museum of Wales, Mr J. A. Webb, Lieut. Whympster, Miss Willmott, Miss M. Wotton, Mr R. C. Wren, F.L.S.

We offer our sincere congratulations to the Raj Rana of Jhalawar on the high dignity of Maharajah recently conferred upon him for his distinguished service to the State.

Many of our members are serving at the front, in other active war service, or in matters appertaining to the war. They include, among others, Lieut. W. James, Lieut. P. M. Hall, Lieut. T. H. Leach, who had the honour of having the General in his Tank at the Cambrai attack at Gouzeaucourt, and who was the only one in the Tank who escaped being killed or wounded; Lieut. H. E. Porter, Lieut. A. R. Horwood, Lieut. C. Marquand, Lieut. Whympster, Mr W. B. Turrill, who received an injury in Macedonia and is now in England; Mr G. C. Brown, Mr R. H. Corstorphine, Colonel H. Halcro Johnston, Major Wolley-Dod, Major W. Harford, Major F. J. Smith, Mr T. Bates Blow, and Major C. C. Vigurs.

Contributions of books, specimens, &c., are welcomed for presentation in after days to the University of Louvain. Each should bear the donor's name.

Our honorary member, Mr J. Gilbert Baker, F.R.S., now in his 86th year, kindly sends the following letter on the commencement of the fifth volume and the sixtieth annual Report:—

3 Cumberland Road, Kew, November 14, 1917.

MY DEAR DRUCE,—I am very pleased to hear "The Botanical Exchange Club" is expanding so wonderfully under your active and able management. When I began it in 1857 I had no idea of starting a new institution. I was a member of the old "Botanical Society of London," and a large contributor to its annual distributions, then managed by the Curator, Mr J. T. Syme, afterwards Boswell Syme. The Society decided that it could not bear the expense of a room in Central London and a paid curator, and soon ceased to exist. It was then expected that it would be soon reconstituted, and I undertook to carry on the distributions until the new Society got into working order, which never took place. In its early days the Club was largely helped by Mr H. C. Watson,

who sent large and extensive contributions, and Dr Boswell Syme. In 1864, when my house and collections were entirely destroyed by fire, fortunately after the distributions for the year had been made, my old friend, Mr William Foggitt, kindly placed at our disposal his large stock of duplicates. I think you yourself were one of the very early members, together with T. R. Briggs, F. N. Webb, and G. E. Hunt

With my very best wishes for the continued prosperity of the Club,

Yours faithfully,

J. G. BAKER.

## PLANT NOTES, ETC., FOR 1917.

(*Mostly New Plants to the British Isles*).

Following the usual procedure, the Secretary, Mr G. C. Druce, has prepared the Annual Report on the salient features of British Botany. This being his own compilation in no way assumed to express other than individual opinion, but all rights in its publication are reserved.

The Secretary is always glad to receive specimens which he will determine himself, or if necessary refer them to special authorities. Any of these which are new county records or undescribed forms will be published in the next *Report*. New county or other records should be accompanied by a specimen as a voucher, and with full particulars of its occurrence, *e.g.*, "No. 4. On the sand dunes, Yarmouth, Norfolk E., July 6, 1917." If a duplicate is retained with a similar number it saves the trouble of returning specimens. Return postage should always be enclosed with a direction label or a directed post card. The Secretary's services are always at the disposal of any member either for naming specimens, or, if possible, for supplying any special plants, books, or general information.

9. ANEMONE NEMOROSA L. The following note on a pascual form of the Wood Anemone may elicit information as to the occurrence of it in pastures elsewhere. In Oxfordshire it occurs in open fields in the woodland area bordering on Otmoor, but the presence of *Geum rivale*, *Serratula*, &c., suggests that the woodland has been cleared at no very distant date. In fact, the plants are degenerates of a damp oak-wood formation. "It grew near Pontypant station, and between it and Roman Bridge, Carnarvonshire, in open fields. Those appeared as if covered with daisies from the abundance of the flowers. It grew on alluvial soil and on drier fields at an altitude of 500—700 feet. It also occurred near Pant Glas as far as to Brynkir, in a country practically bare of trees, without woodland near. The soil there is drift, not alluvium. In one case it grew in a moist meadow near Pontypant. The plants differ from type *nemorosa* (1) in the root-stock being yellowish to brown, not black; (2) leaves more downy; (3) sepals definitely 2-whorled, outer 3, inner usually 4; (4) in the

more dwarfed stature, the plants being however quite vigorous. In the Brynkir locality the following variations in the perianth segments were noted:—P6 (3), P7 (3 and 4), P8 (3 and 5), P9 (4 and 5). The last was a handsome form. There was a considerable range of colour variation from pure white to pale lilac and deep purple-lilac on both surfaces. Roots of these plants continue their purple colouring in garden soil. The greater part of the lilac-purple flowered plants had 7 perianth segments." T. J. JENKINS.

126 (2). *RADICULA NANA* (Weddell) comb. nov. *Nasturtium nanum* Weddell in Act. Sc. Nat. Ser. iv., vol. v., i., 290, 1864. Alien, Bolivian Andes, Peru. Ettrick side, Selkirk, 1916, Miss I. M. HAYWARD. Teste A. THELLUNG.

135 (2). *ARABIS AUBICULATA* Lam. Enc. i., 219. Alien, Europe, Orient. Several near Musselburgh, 83, J. FRASER in *Trans. Bot. Soc. Edin.* 405, 1915.

185 (2). *SISYMBRIUM ERYSIMOIDES* Desf. Fl. Atl. ii., 84, t. 158, 1798-1800, forma *XEROPHILUM* Fourn. Récherc. Sisym. Alien, Spain, Sardinia. St Philip's Marsh, Bristol, 1916, Miss COBBE and G. C. DRUCE.

188 (2). *S. VOLGENSE* M. Bieb., ex Fourn. Thèse Crucif. 97. Alien, Russia. St Philip's Marsh, Bristol, 1916, G. C. DRUCE.

191 (3). For *S. PINNATUM* (Walt.) Greene in *Rep. B.E.C.* iii., 152, 1887 (not of Barnwell 1845) read *S. MULTIFIDUM* (Pursh) MacMillan, sub-sp. *S. BRACHYPHYLLUM* (Richardson) Thellung, forma *EGLANDULOSUM* Thell. in *Hegi Ill. Fl. Mitt. Eur.* iv., 153, 1916. Alien, N. America. Par, Cornwall, 1909, G. C. DRUCE; Galashiels, Selkirk, 1916, Miss I. M. HAYWARD. Det. A. THELLUNG.

193 (4). *S. MYRIOPHYLLUM* (Willd. MS. Humboldt, Bonp. & Kunth ined.) DC. Syst. ii., 477, 1821. Alien, base of Cotopaxi, Quito. Ettrick side, Selkirk, 1916, Miss I. M. HAYWARD. Dr THELLUNG with some reservation thus identifies it with the rare South American species.

228 (2). *ERUCA CAPPADOCICA* Reuter Cat. Hort. Genev. 1857. Alien, Asia Minor. Portmadoc, Carnarvonshire, 1916, Miss COBBE. This differs from *sativa* in its yellow petals, glabrescent leaves which

are less deeply divided, having obtuser segments, larger seeds and longer siliquas.

232 (2). BURSA GRACILIS (Gren.) *Capsella gracilis* Grenier Fl. Mass. Adv. 17, &c. × *C. gracilis* Rouy & Fouc. Fl. Fr. ii., 96, 1895. Focke Pflanzenmisch. 41. (?) *C. rubella* × *Bursa-Pastoris*. Sil. très petites (2½ mm. long) équilatérales ou plus larges que longues, à graines la plupart avortées, sépales rougâtres; pétales dépassant peu le calice. Fl. Fr., l.c. Sewage Works, Leeds, E. C. HORRELL. See Rep. B.E.C. 558, 1916. Det. A. THELLUNG.

247 (18). LEPIDIUM BIPINNATIFIDUM Desv. Journ. Botanique iii., 165, 1814. Alien, S. America. Ettrick side, Selkirk, 1916, Miss I. M. HAYWARD. Det. A. THELLUNG.

247 (19). L. CALYGINUM Godr. in Mem. Acad. Act. Montp. Medic. i., 416, 1853. Alien, S. America. Tweedside, near Galashiels, Selkirk, 1909, Miss I. M. HAYWARD. Det. A. THELLUNG.

247 (20). L. TEXANUM Buckley in Proc. Ac. Sc. Philad. 499, 1861 (1862). *L. virginicum* L., sub-sp. *texanum* Thellung Mon. 163. Alien, North and Central America, Azores. Lyndhurst, S. Hants., 1916, Miss M. COBBE. Swanage, J. Green, 1917. Det. A. THELLUNG.

247 (21). L. TRIFURCUM Sonder in Linnæa xxiii., 4, 1850. Alien, Modder river, South Africa. Tweedside, Galashiels, Roxburgh, 1916, Miss I. M. HAYWARD.

247 (22). L. PAPILLOSUM F. v. Mueller in Linnæa xxv., 370, 1852. Alien, Australia. Galashiels, Selkirk, 1916, Miss I. M. HAYWARD. This is the true plant of von Mueller, the previously recorded *papillosum* being *L. oxytrichum* Sprague.

253 (2). IBERIS PECTINATA Boiss. Diagn. ser. 1, i., 75. Alien, Spain. Dean Clough, Halifax, York, 1916, E. C. HORRELL. The specimen is in fruit, but it is almost certainly this species.

330 (2). GYPSOPHILA ELEGANS Bieb. Fl. Taur.-Cauc. i., 319. Alien, Asia Minor. Waste ground, Scarborough Mere, York, E. C. HORRELL.



356 (4). *SILENE ANTIRRHINA* L. Alien, N. America. Wrentham, Suffolk, 1917, A. R. HORWOOD. Det. A. THELLUNG.

435 (2). *HYPERICUM DESETANGSII* Lam., var. *PUNCTATUM* E. Bonnet. Lamberton, Devon, A. SHARLAND in *Rep. Bot. Devon*, 1916.

441 (3). *MALOPE HISPIDA* Boiss. Diagn. ser. 2, i., 100. Alien, N. Africa. Turnip field, Flasby, near York, September 1916, F. ASHWELL, ex E. C. HORRELL.

443 (2). *LAVATERA TRILOBA* L. Alien, Spain. Chicken run, Woodhall Spa, Lincoln, 1917, Rev. F. ALSTON.

470. *LINUM CATHARTICUM* L., forma *DUNENSE*. In the damp hollows on Braunton Burrows, N. Devon, August 1917, coll. C. P. HURST. A small compact plant, having very short stems and with the habit and appearance of *Sagina maritima*. Plantis 2.5 cm.; ramosis, foliis ellipticis, 2—3 × 1.5 mm., internodiis brevioribus 3 mm., capsulis 2 mm. latis. The plant is strongly infected with *Malampsora Lini*. G. C. DRUCE.

486. *GERANIUM PUSILLUM* Burm. f., var. *CONDENSATUM* mihi. A very compact, densely branching plant, 18 cm. diameter, with very small leaves 20 × 10 mm., short internodes, carpophore 5—7 mm., occurred at The Haven, Muddiford, Hants., and was sent by Mr C. B. Green in 1917. It is very near to var. *humile* Cav. G. C. DRUCE.

490 (3). *ERODIUM BRACHYCARPUM* (Godr.) Thellung, comb. nov. *E. Botrys*, var. *brachycarpum* Godr. Fl. Juv., 16 in Mém. Acad. Montpell. sect. méd. i., 424, 1853; Fl. Juv., ed. ii., 72, 1854; Thell. Fl. Advent. Montpell. 351, 1912; Kunth in Engler's Fl. Reich. iv., 129; Geran. 585, 1912; Aschers. et Graebn. Syn. vii., 80, 1913. *E. Botrys*, f. 2 *montanum*, Brumhard Monogr. Uebers. Erod., 48, 1905 [nomen] et in Fedde Repert. ii., 18, 1906; Thell. l.c. 351, 1912; Aschers. et Graebn. l.c. 81, 1913. *E. Botrys* auct. Chil.; Gay Fl. Chil. i., 390, 1845; Reiche Fl. Chil. i., 288, 1896; auct. Am. bor. occ.: Gray et Watson Syn. Fl. N. Am. i., 362, 1897; Jepson Fl. West Middle Califor. 247, 1901 ["naturalised plant, scarcely known in California ten years ago, but . . . become common"]; Hanks & Small in N. Am. Fl. xxv., i., 22, 1907, ["depauperate forms"]; auct.

Belg. Halin ap. Troch in Bull. Soc. Roy. Bot. Belg. xxxiv., ii., 147, 1895; H $\ddot{e}$ ck in Beih. Bot. Centralbl. ix., 329, *quoad loc.* Belg.; Durand in De Wild. et Dur. Prodr. Fl. Belge iii., 13, 948, 1903—non [Cav.] Bertol. Differt ab *E. "Botrys"* quocum ab auctoribus confusum vel pro cuius forma perperam habitum est, non solum statura gracili, floribus minoribus (sepalis in flore 5 mm., sub fructu 9 mm. longis.), carpellorum rostro brevioris (3—6 cm. tantum longo), sed praesertim carpellorum fovea (apicali) plica concentrica unica tantum (nec plicis binis) circumscripta et inde specificè diversum videtur. Habitat in Chile (teste Brumhard, *l.c.*); advent. et jus civitatis nactum in California (Hansen, No. 502, teste Brumhard; Le Roy Abrams, No. 3350 !); introd. in Galliam (in portu Juvenali pr. Montpelium, ca. 1840, Touchy! see Godron et Thellung, *l.c.*); Belgium—ad ripam fl. Vesdre pr. Ensival, 1904, Halin!; Angliam—Edenbridge, Kent, 1917, coll. G. J. TALBOT. A. THELLUNG. Meanwood, Yorks., E. C. HORRELL.

499 (21). *MONSONIA BIFLORA* DC. Prod. i., 138. Alien, S. Africa. Meanwood, York, 1917, E. C. HORRELL. Det. A. THELLUNG.

501. *TROPAEOLUM MAJUS* L., var. *ATRO-SANGUINEUM* Hook. Bot. Mag. t. 3375. Hortal. On waste ground, Iffley, Oxon. G. C. DRUCE.

509 (2). *OXALIS FLORIBUNDA* Lehm. Ind. Sem. Hort. Handb. 17, 1826. Alien, Brazil. Falmouth Docks, Cornwall, 1917, Miss M. COBBE. Det., with some slight doubt, A. THELLUNG.

542 (3). *ONONIS VISCOSA* L. Alien, S. Europe. Elland, York, 1917, E. C. HORRELL. Det. A. THELLUNG.

560 (3). *TRIGONELLA INCISA* Benth. Alien, India, Beluchistan, Persia, Turkestan. Spring Hollow, Stalybridge, 1914; Valley Road, Rochdale, S. Lancs., T. COLLIER. Det. A. THELLUNG.

564 (2). *MEDICAGO VARIA* Martyn Fl. Rustica 387. (?) *M. Falcata*  $\times$  *sativa*. Alien, Europe. St Philip's Marsh, Bristol, 1916, Miss COBBE and G. C. DRUCE.

581. *M. MINIMA* Desr., var. *CANESCENS* Ser. in DC. Prod. ii., 178. Plant not glandular but canescent with whitish tomentum. Alien. On waste ground near Abingdon, Berks., probably from fellmonger's refuse, August 1917, G. C. DRUCE.

Var. *VISCIDA* Koch Syn. ii., 180, 1846. Stem and leaves glandular-pubescent. Alien. Galashiels, Selkirk, September 1917, Miss I. M. HAYWARD and G. C. DRUCE.

Var. *ELONGATA* Rochel Enum. Fl. Banat. 15. Plant pubescent, not glandular, with elongate stems and larger leaflets. Covering a diameter of a metre, Galafoot, Selkirk, September 1917, Miss I. M. HAYWARD and G. C. DRUCE.

582. *M. LACINIATA* Mill., var. *INTEGRIFOLIA* Godr. Leeds, 1916, E. C. HORRELL.

631 (2). *TRIFOLIUM CERNUUM* Brot. Phyt. Lusit. i., 150, t. 64, 1816. Alien, Spain and Portugal. On pebbles at the junction of the Gala and Tweed, Selkirk, August 1917, Miss I. M. HAYWARD. Det. A. THELLUNG.

641 (2). *ANTHYLLIS RUBRA* Gouan Herb. 173. *A. Vulneraria* L., var. *coccinea* L. *A. Dillenii* Schultes. Plants of this species from Aberfraw Common, and near Newborough, Anglesey (locus classicus), were brought to my garden where they flowered freely and produced seedlings. All show the flower-characters of the parent. Although the plants have increased in size, yet the leaflets retain their narrow shape, the plant is more slender, the hairs on the stem appressed, and the petals rosy pink with darker tips. Dillenius cultivated it in the Eltham garden of James Sherard and figured it in *Hort. Eltham*, t. 320, f. 413. It was first discovered by Dr Richardson (see Richardson *Corresp.* 259), and seems well worthy of specific rank. Having distinctly a Western distribution, it must not be confounded with a form having yellow flowers with red or crimson tips. G. C. DRUCE.

691. *VICIA LUTEA* L., var. *CARRULEA* Archangeli Fl. Ital. 201, 1882. Differs from the type in its bluish flowers and in having 9—10 pairs of leaflets. Evington, Leicester, 1916, ex A. R. HORWOOD; Ware, Herts., 1916, G. C. DRUCE.

696 (2). *V. MACROCARPA* Bert. Fl. Ital. vii., 511. In a cornfield off the Hallatrow Road, Chewton Mendip, Somerset. Identified at Kew. B. W. T. Wells in *Rep. Wells N. H. Soc.* 21, 1917.

698. *V. ANGUSTIFOLIA* Reichb., forma *RACEMOSA* Beck. Chobham Common, Surrey 1909, C. E. BRITTON. Teste A. THELLUNG.

705 (2). *V. PUBESCENS* Link Handb. i., 190, 1831. Alien, Reg. Medit., Lydia, Taurus, Caucasus, and Canaries. Galashiels, Selkirk, 1917, Miss I. M. HAYWARD. Det. A. THELLUNG.

707 (2). *LENS NIGRICANS* Gren. Fl. Lorr. ed. i., 1, 173. Alien, Reg. Medit. Bristol, 1917, Miss I. M. ROPER, in *lit.*

910. *ALCHEMILLA ARGENTEA* G. Don. Valley of the Dole, Clova, Forfar, v.-c. 90, September 25, 1917. Found when returning with Mrs Wedgwood and my wife from a visit higher up the valley in September 1917. We have frequently searched for Mr A. O. Black's locality given for this plant with so much precision but hitherto without success. The ravines on Craig Rennet are well marked on the high ground, and it would seem easy to follow Black's directions, but the streams flowing down these gullies make many channels in the lower ground which are continually changing owing to rock falls. The station is on lower ground than we had previously searched. The plants are in fair abundance, but so far as we could see are confined to a longish straggling patch which is easily discernible from a considerable distance. R. CORSTORPHINE.

*Alchemilla argentea* G. Don ex Trevelyan Veg. Faroe Islands, 10, 1837 (pro parte) emend. *A. conjuncta* Bab. in Ann. & Mag. Nat. Hist. x., 24, 1842 pro parte, et in Eng. Bot. Suppl. under t. 2983, 1864, pp.; Bab. Man. 89, 1851, pro parte. *A. alpina* var. b. (et *A. hybrida* Hort. in syn.) Hook. & Arnott Brit. Fl. 134, 1855. *A. alpina* var. *podophylla* Tausch in Flora 108, 1841. *A. alpina* var. *Godeti* Ducommun Taschenb. Schweiz. Bot. i., 227, 1869. *A. conjuncta* Matthews in Journ. Bot. 91, 1881 spec. collect. includes *A. conjuncta* em. Buser, *A. Hoppeana* Reichb. and *A. pallens* Buser. A sport of *A. alpina* Hook. f. Stud. Fl. 127, 1884. *A. alpina* sub-sp. *conjuncta* Rouy & Camus Fl. Fr. vi., 443. *A. alpina* × *vulgaris* and *super-alpina* Rostr. in Bot. Tids. xvi., 173. *Exsiccata*:—*A. argentea* Don in Herb. Borrer. Isle of Arran, Dr Tyacke in Herb. Chichester Mus. *A. conjuncta* Marret Fl. du Valais 247, a narrow leafletted form. Dorff. Herb. Norm. 3616, 3617 forma *truncata*. Baenitz Herb. Eur. 8227, 8 Val d'Ardran, Jura Gall. Fig. E. B. Suppl. i., 2983. Gardiner's *Flora Forfarshire* 64, 1848. Watson *Cyb. Brit.* i., 363, iii., 423, and *Comp.* 469-70, 510. Syme *E.B.* iii., 139, t. 424. *Rep. B.E.C.* i., 48, 334; iii., 323. Baker *Flora Lake Dist.* 89. Hodgson *Fl. Cumb.* 107, 1898.

Druce *Brit. Pl. List* 23. *Notes from the Royal Botanic Garden, Edin. Biog. George Don*, Druce, 107, 1904. *Journ. Bot.* 308, 1872; 306, 1913. *Ann. Scot. Nat. Hist.* 120, 1906.

The rediscovery of this very rare plant by Mr R. H. Corstorphine is the chief botanical event of the year, and an opportunity may be taken of giving its history in Britain. It was discovered in the Clova district by George Don of Forfar prior to 1812. There are specimens at Kew in Borrer's and Dawson Turner's Herbariums the labels of which are in Don's own writing:—" *Alchemilla argentea* Nova Species. Habitat Clova mountains. It differs from *A. alpina* in the divisions of the leaves—being not divided to their base as in this species." There is no reference to it, however, in Don's writings, nor did he send it out in his *Fasciculi*; yet (as we shall see) his son David knew of this discovery and said that his father had found it in the Isle of Skye. It was first published as a British plant in an incidental reference by [Sir] Walter E. Trevelyan in his *Vegetation of the Faroe Islands (l.c.)*, a small treatise published in Florence in 1837. The book being rare, the reference is given here in full:—

"In all the specimens of *Alchemilla alpina* in the Linnean and Smith's Herbaria the leaflets are divided to the base, but in the plant which is not in these collections they are divided only about half way and are also wider towards the point and serrated rather lower down. In Faroe where it grows in similar situations to *A. alpina* I frequently found it in abundance where that plant did not occur. I am informed by Mr D. Don that the same plant was gathered by his father in the Island of Skye, and that he considered it to be a good species, naming it *A. argentea*, under which name it is occasionally to be found in gardens, though it is often confounded with the true *alpina*, for which plant it is published in *Fl. Danica* t. 49." George Don visited Skye about 1798. Five years after the appearance of Trevelyan's notice, C. C. Babington published it as *A. conjuncta* in *Ann. & Mag. Nat. Hist.* x., 24, 1842, "Foliis radicalibus peltato-palmatis, 5—7 partitis, laciniis oblongis, obtusis, apice adpresso serratis subtus albo-sericeis et conjunctis, corymbis parvis lateralibus terminalibusque distantibus = *A. argentea* G. Don in Borrer Herb. Trevelyan Veg. of Faroes sec. ed. 8." Babington adds "Borrer's is an original wild specimen gathered by the late George Don upon (*sic*) the Clova mountains many years since. Prof. (David) Don also informs me that his father had gathered it in Skye. George Don sent living specimens to

various gardens." Babington says that as Don never published the name *argentea*, and as Lamarck had already used the name, to prevent confusion he gives it the name *conjuncta*. In *Eng. Bot. Suppl.* t. 2983, 1864, Babington supplies an account of *A. conjuncta*, and says the garden plant from which the figure is derived "is from one of Mr Don's original specimens gathered at Clova, Forfarshire." He adds that "*alpina* (*E.B.* t. 244) was also drawn from a garden specimen of *conjuncta* altered to its present state by the directions of Sir J. E. Smith, who saw it did not represent true *alpina*. The original drawing with notes annexed is a proof of this. Thus t. 244 does not represent either plant. In this *Supplement* drawing the engraver has made the lowest and outline leaves appear as if peltate, whereas the external smaller lobes are never quite connected together, although at times they even overlap. Wherever we can trace the history of plants of *conjuncta* they are stated to have been obtained from the late Mr G. Don. In 1853 Mr A. O. Black found a large patch 8—10 feet square in Clova. (See spec. in Herb. Borrer.) In 1832 Dr N. Tyache (Tyacke) gathered it near the head of Glen Sannox, Goat Fell, Arran." On J. W. Salter's drawing (at Oxford) for the *Supplement*, Babington remarks, "Look at form of leaf in its hollow—drawing beautiful there, not so plate. Dear Sowerby, make the leaves exactly shape of . . . I must finish the root." The figure is from G. Don's original specimen, Clova; the colour is from the Royal Botanic Garden specimen July 1, 1848. On a separate sheet are two dried specimens from the Roy. Bot. Gard., dated 1848. In the *Manual*, 90, 1843, Babington adds a locality "Gatesgarth Pass, Cumberland, Messrs Dovaston and Bowman," which was withdrawn in subsequent editions. The admission of *A. argentea* to our British list was not, however, to remain unchallenged. Watson (*Cybele Brit.* i., 363, 1847) queries it as "Incognit, 12—15. Said to have been collected by Mr J. E. Bowman in Gatesgarth Dale or Pass, in Cumberland, as also by Mr G. Don on the Clova Mountains. Mr Don's specimens are still in herbaria; but I suspect some mistake, the specimens appearing so like these from gardens. And the late Mr Bowman expressly stated that the plant brought by himself from Gatesgarth Dale was *A. alpina*, which remained unchanged in his garden." Watson in later years (*Comp. Cybele* iii., 471, 1870) discusses its claims for inclusion in the British flora. In addition to the foregoing records he says there was a living example shown in a

collection of British plants competing for a prize at a flower show at the Botanic Garden. It was labelled "*A. alpina*—Wales," the mistake or trick of a gardener (*Cyb.* 423, 1852). Regarding the Gatesgarth locality he says Bowman himself said the plant was *alpina*, and the plant he brought thence remained unchanged in his garden. Borrer searched the locality in vain. Watson, however, very hastily and erroneously dismisses the Forfarshire locality—"George Don distributed examples ostensibly from Clova, but Don habitually sent garden examples of supposed wild plants, so that his testimony alone goes for nothing." It did not rest on Don alone, for it had been corroborated by Black in 1853. Mr A. O. Black says "The exact station is about 300 feet from the base of the Glen Dole side of Craig Rennet, Clova, on the left-hand side of the first *large* ravine which comes down from Craig Rennet on entering Glen Dole." But Black is treated as summarily, for Watson says—"Black also reported the plant from Forfarshire, but he was convicted of reporting a planted American shrub as if also a true native of that county." The facts are these:—In *Gard. Chronicle* Black reported having seen "*Diervilla canadensis* near Gannachy growing in large scattered clumps, often for as much as forty feet, preventing by the denseness of its foliage the growth of all other plants except the *Pyrola secunda*, which luxuriated beneath it. There are no houses near, and the plant, if not truly wild, which its abundance would induce a person to consider it, is at least perfectly naturalised." Having thus unfairly misrepresented Black, Mr Watson rather rudely attacks Dr Tyacke, spelling his name with inverted commas, who "is also stated to have found the plant in Arran, an island frequently visited by botanists, less fortunate than this Dr Tyacke. If that habitat can be verified by some second collector it will remove *conjuncta* from the group of ambiguities." Dr Tyacke was a member of the Botanical Society of Edinburgh, and was critical enough to distinguish *Lamium intermedium* as British, a plant that Don had previously detected as a new species in Forfarshire. Fortunately four of Tyacke's original specimens are still preserved in the Museum at Chichester, as the Rev. Prebendary Burdon has kindly ascertained. Boswell Syme (*Eng. Bot.* ed. 3, iii., 139) under *A. conjuncta* says, "Very rare, if really occurring wild in Britain." He describes it from a cultivated plant as follows:—"Rootstock branched; stems several, decumbent at base, then ascending, 6 to 15 inches long, silky. Root leaves on petioles 2 to 6 inches

long; lamina 2 to 3 inches in diameter; lobes blunt and rounded at the apex, sharply serrated nearly half way down, plicate when young, flat when mature, deep green above, with an edging of silky hairs, brilliant silky beneath, the basal lobes scarcely more separated than the others, so that the leaf appears peltate; stem leaves reniform. Stipules of the lower stem leaves submembranaceous, silky, with a few large triangular teeth at the apex, those of the uppermost leaves with the free portion entirely herbaceous and longer than the tubular part. Flowers  $\frac{1}{8}$  inch across, greenish yellow, with the segments ovate, spreading in the form of a cross. Calyx and pedicel silky; achene  $\frac{1}{16}$  inch long, broadest a little above the base, then narrowing gradually to the point." The Rev. R. Wood, incumbent of Westward, Cumberland (Trimen's *Journ. Bot.* 308, 1872), says a plant "was found by Mr Dickinson of Thorncroft, many years ago, on one of our fells and preserved in his garden as *alpini*, . . . some specimens [from the garden] were sent to me which I discovered to be *A. conjuncta*." Mr Wood sent me specimens from his garden, but he said they were originally gathered [by Dickinson] in Cumberland. He never, so far as I am aware, collected it himself, as is suggested (*Rep. B.E.C.* 48, 1881). There it still awaits discovery. A cultivated specimen from R. Wood is in Herb. Kew. Hooker speaks of it not as variety but as a sport. In *Notes from the Royal Botanic Garden Edin.* 107, 1904—*Life and Work of G. Don*—I gave a summary of its history, and speaking of the Clova locality said it awaited discovery there. In my herbarium there is a garden specimen dated 1871 said to have been brought from Ben Lawers by Mr J. Morley of Birmingham. In 1916 Mr W. Barclay of Perth kindly conducted me to a little-used railway cutting on the west side of the Tay near Perth, where a nice patch of *argentea* was growing which he had known for some years, but this was probably of garden origin.

This completes its history as a British plant until Mr Corstorphine's fortunate rediscovery of it in Black's and doubtless also Don's original Clova station, which is a perfectly natural habitat, giving the plant a distinct status as a native species. The question of its name is not clear from difficulty. *A. argentea* Don ex Trevelyan is a compound species, that is, Trevelyan added to Don's plant another distinct species which Buser (*Bericht. Schweiz. Bot. Ges.* iv., 58, 1894 in obs.) separated and named *A. faroensis*. This and *alpina* were the only



*Alchemillae* seen by Ostenfeld in the Faroes (Warming *Bot. Faroes* 76). There is an earlier *A. argentea* (that of Lamarck *Fl. Fr.* iii., 303), but as botanical authors are unanimous in treating it as a mere synonym of *alpina* (even M. Buser in his large number of segregates has not identified it with either), and as Rouy and Camus ignore it in *Flore de France*, Lamarck's name sinks in synonymy, and *argentea* is open for application to another species. Since the dual nature of *A. argentea* Trevelyan has been simplified by the removal of the Faroe plant, *A. argentea* Don emend. is available for the Scottish plant. *Conjuncta* was given by Babington not because he thought it distinct from Trevelyan's plant, but from the mistaken idea that *argentea* once having been used in a different sense was not again available owing to a possible confusion. His *conjuncta* was also a compound species, including *faroensis* as well as *argentea*. Even in Groves' edition of the *Manual*, *A. fissa* (Fl. Dan. t. 2101) is cited for it, and this Lange (Nov. Fl. Dan.) says is *faroensis*. *A. faroensis* has its affinity with *splendens*. It has much less silvery undersides to its leaves than *argentea*, and the teeth of the leaflets are longer and more acute. Buser restricts *conjuncta* and uses it for the narrower-leaved limestone plant of the Dauphiny and Jura. Therefore it seems best to call our British plant by the name Don originally gave it—*A. argentea*.

What is its correct grade—a species, sub-species, variety, sport, or hybrid? There exist authorities for each grade. In favour of its being a full species are the facts that it seeds freely, and that its seedlings are like its parent and show no reversions to *alpina* or *vulgaris*. That it differs physiologically is proved by its flourishing even in suburban gardens where *alpina* soon dies out, and by its hybridising with *alpina*. That it is a hybrid is very doubtful, and appears to be without supporting evidence. Is it a sport? Its remarkable distribution in Britain—which, however, is by no means properly ascertained—does indeed somewhat favour its being a mutant. The last word on this has not been said, but with our present inadequate knowledge it may at present be dismissed. Its differences from *alpina* are too great for a variety and the question of calling it a sub-species is one rather for individual opinion. Much may be said for and against. The plant will stand in our List as—*A. argentea* G. Don emend. Ang. 1? Scot. 2 [2] 1?. 70 Cumberland? Dickinson; 88 M. Perth (!) Barclay, adventit.; 90 Forfar (!) G. Don, Black, and Corstorphine; 100 Glen Sannox, Arran (!) Tyacke and

Slater; 104 Skye, G. Don, teste D. Don?; 112 Shetland, Beeby, adventit.

Mr Corstorphine's discovery therefore not only establishes its occurrence as a native plant in Scotland, it does more—it offers a salutary rebuke to botanists who make dogmatic statements about old plant-records culled from the limited horizon of a small library. It also shows how difficult it is to be sure that a place has been thoroughly explored. Black's locality was given far more precisely than is usual, yet, among others, I had made at least half a dozen visits to the Dole after this plant and failed to find it. I had searched the ravine far too high, and it was only last year that it dawned on me that the trough of the valley rather than the cliffs was more likely to be the station. Surely with this example other plants of Don's may be refound. *Savastana* in Glen Kelly, and '*Sagina maritima*' on Ben Nevis are at once suggested.

*A. argentea* × *alpina* = × *A. Bakeri*, hybr. nov. This appeared growing with both parents in the rock-work at Kew (see J. G. Baker in Herb. Kew.) in 1869. The seedlings have the central lobe almost cut to the base and the side ones connate. They are more elongate than in *argentea*.

952 (2). *ROSA RUGOSA* Thunb. Fl. Jap. 213, sub-var. ALBA Druce. In the *Gard. Chron.* 65, August 18, 1917, Sir Herbert Maxwell says he found that on the sandy coast of Monreith, Wigton, far from houses, a stray plant of this well known Japanese species had spread far and wide along a sandy bank. Here, established on pure sea-sand, it has acquired a character vastly superior to that which it displays in cultivation. The bank is thickly covered with *Convolvulus Soldanella*.

966. *CRATAEGUS MONOGYNA* Jacq., var. SIMPLICIFOLIA, var. nov. This plant has the large petals of *oxyacanthoides*. Leaves sub-simple, elliptic, nearly entire, slightly notched in the upper half, thin in texture; style 1, erect, Hardwick Wood, Cambridge, 1897, G. GOODE. Another form with a 3-lobed leaf, the veins rather incurved, coriaceous, style 1, bent, Brean Down, Somerset, 1896, Mrs GREGORY in *Hb. C. E. Salmon*. This variety may include hybrids of *monogyna* and *oxyacanthoides*. It differs from the latter in the less glossy foliage and solitary style.

966. *C. MONOGYNA* Jacq., var. *GLABRA* Sonder, forma. A beautiful form with the petals persistent when the fruit has well developed. It has one bent style, glabrous fruit, leaves rather small. Saintfield, Co. Down, Mrs C. H. WADDELL, ex C. E. SALMON.

966. *C. MONOGYNA* Jacq. Epsom, Surrey. Mr H. C. Watson's specimen, 1845, labelled *C. Oxycantha*, var. *eriocarpa*, is *C. monogyna*.

966. *C. MONOGYNA* Jacq., var. *SUBCRISTATA* Druce. A curious form. The leaves 3-lobed, veins somewhat incurved; style, one; fruit long, narrow, and one-stoned; calyx lobes, erect. Bicknell, near Wroughton, Wilts., Miss TODD. This form is not unlikely of hybrid origin.

993 (5). *SAXIFRAGA TRIFURCATA* Schrad. Hort. Gott. fasc. i., 13. Alien, Spain. Wall top, Adel, near Leeds, 1916, E. C. HORRELL.

976 (2). *S. LEPTOPHYLLA* D. Don Mon. Sax. in Trans. Linn. Soc. xiii., 450 (? not of Persoon). See *Rep. Wats. Exch. Club*, 17, 1916. Root from Cwm Idwal, Carnarvonshire. Coll. J. GRIFFITH many years ago and sent as *S. groenlandica*, var. nov. *Griffithii* Guermontprez, in *lit.* Cult. Bangor, 1916. The Rev. E. S. Marshall (*l.c.*) identifies it as being the same as a well-marked saxifrage which he gathered in Cwm Idwal and on and near Snowdon. Mr F. N. Williams doubts its identity with Persoon's *leptophylla*, and proposes to call it *arvonica*. Mr J. Griffith, however, thinks *leptophylla* is not uncommon on the Snowdon range, although, in spite of searching for many subsequent years, he only once collected this plant. He showed me *Griffithii* growing in his garden last year. It seems a distinct species, remaining quite constant in culture. M. Guermontprez, who made a close study of this group, named it *S. groenlandica*, var. *Griffithii*, but never published the name. In a letter of his in my possession he says: "In this the leaf-lobes are somewhat mucronate or . . . aristate pointed . . . The plant is not stoloniferous."

1015. *SEDUM DRUCEI* Graebner, in *Rep. B.E.C.* 160, 1912. The specific grade of this plant has been recently challenged. The *Sedum* was noticed on the Phyto-Geographical Excursion in 1911, and was stated by the erudite author of the *Syn. Fl. Mitt.-Eur.*, Dr Graebner, Professor of Botany at Berlin, to be quite distinct from the common

form of *S. acre* on the continent. The statement came quite as a surprise to me, because one had never questioned the identity of the British with the continental *acre*. Descriptions are not of great value and herbarium specimens are usually inadequate in dealing with critical forms of this group. Dr Graebner took plants back with him and grew them side by side with the continental plant and found they kept quite distinct. He considered it to be an endemic form. In the *Rep. B.E.C., l.c.*, I ventured to suggest that the occurrence of our plant in France, etc., was not unlikely. Illness prevented my visiting the continent until 1913, when a flying visit was paid to the Auvergne. There I saw *acre*, a different form from our British plant, but from which I should only have separated it varietally. Plants brought home died in my garden. In 1914 I saw the same plant in Dalmatia and on the Rhine side near Schaffhausen. The petals were half as long again as those of our plant; the leaves much larger, more succulent and more closely approximate; the plants more erect and lacking the trailing shoots. No plants like the British one Graebner described were seen. Plants brought from the Rhine side died, although *S. saxan-gulare* from the same place is still living. To obtain independent opinions, I sent British plants to Sweden (about which I have had no report), and to Dr Schroeter of Zurich, who is by no means a splitter. He cultivated them and compared them with Swiss *acre*, and considers that the differences "vis-à-vis du *S. acre* ne sont très suffisantes pour en faire une espèce distincte, mais qu'il s'agit d'une variété (race?) voisine de la var. *neglectum* (Ten.) Rouy & Camus." My own view was and is that our common British plant is not distinct as a big species from *acre*. Therefore, without giving it any grade, I put it under *acre* in the thirteenth edition of *Hayward's Bot. Pocket Book*. It essentially differs in its acidity from *neglectum* Tenore, which is almost devoid of taste. It must be remembered that Prof. Graebner is not only a highly skilled critical botanist, but a practical horticulturist, and that his view of species is a generous one. Unfortunately he cannot now give evidence.

1058 (2). *EPILOBIUM PEDUNCULARE* A. Cunn. sens Hausskn. = *E. nummulariifolium*, sub-sp. *nerterioides* (A. Cunn.) T. Kirk. Alien, New Zealand. Near Leeds, York, 1916, F. A. Lees.

1126. *ANTHRISCUS SYLVESTRIS* (L.) Hoffm. H. E. Petersen *Dansk. Bot. Arkiv.* i., 1-152, 1915 (see *Rep. B.E.C.* 412, 1916, and

*Bot. Centralb.* 115, 1917) has divided the forms of this plant into 16 groups based upon the leaf-form. The description of the groups is as follows:—

*Division I.* The foliaceous part of the median nerve of the terminal segments clearly broadening from the 6th to the 8th lateral lobe (counted from the terminal lobe) to the terminal lobe.

*Group 1.* BREVISSECONDA. The terminal lobes of the lateral segments of the 3rd order with a base more than 8-tenths of their length, often as much as 3 times longer than the edge of the next lateral lobe.

*Group 2.* LATIOR BREVIDIVISA. The term. lobes of the lat. seg. of the 3rd ord. have a base of about 7—9 tenths of their length. The sup. lat. lobe of these leaflets with an edge generally longer than  $\frac{1}{2}$  of the base.

*Group 3.* LATADIVISA. The base of the term. lobes of the lat. seg. of the 3rd ord. with a breadth of 6—10 tenths of the length. The term. lobes often oblong, more or less ovate.

*Group 4.* ENSIS. The term. lobes of the seg. of the 3rd ord. have a broad base of 6—10 tenths of their length. They are always distinctly acute and are generally broadest near the base.

*Group 5.* MOLLIS. The term. lobes of the seg. of the 3rd ord. have a base the breadth of which is 6—9 tenths of their length. They are always distinctly acute and are generally broadest a little above the base.

*Group 6.* DIVENSIS MAJOR. The lobes, etc., are distinctly pointed.

*Group 7.* ACIPHYLLA MAJOR. The lobes, etc., all very long and pointed.

*Group 8.* BREVIDIVISA. The lobes, etc., have a base of about 5—7 tenths of their length. The entire lat. lobes are never 3 times longer than broad, and have generally an inferior contour, which shows concave and convex parts almost equally long.

*Group 9.* MOLLITERES. The lobes, etc., are pointed and narrowed at the base.

*Group 10.* DISSECTA. The lobes, etc., are oblong, pointed.

*Group 11.* SEMIENSIS. The lobes, etc., are sometimes pointed and narrowed at the base.

*Group 12.* DENSIMINOR. The lobes, etc., with a base 7—8 tenths of their length. The ent. lat. lobes are not 3 times longer than broad,

and the convex part of the inferior contour is generally two-thirds longer than the whole length.

*Group 13. DIVENSIS MINOR.* Like the 6th group, except that the term. lobes of the seg. of the 3rd ord. have a shorter base (4—6 tenths of their length), and the spaces between the ent. lat. lobes are usually larger than the lobes themselves.

*Group 14. ACIPHYLLA MINOR.* Like the 7th group, except that the term. lobes of the seg. of the 3rd ord. have a shorter base (about 4-tenths of their length), the spaces between the ent. lat. lobes are usually larger than the lobes themselves, and the involueral bracts are typical.

*Group 15. PUGIENSIS.* The ent. lat. lobes are linear, serrate, less than 3 times longer than broad, and the convex part of the inferior contour is quite twice the length of the concave.

*Division II.* The foliaceous part of the median nerve not broadening from the 6th to the 8th lat. lobe.

*Group 16. TERES.* The term. lobes, etc., with a base of about 4 tenths of the length, generally acuminate. The ent. lat. lobes are linear, serrate, generally 3 times longer than broad, with the convex part longer than the concave.

Matonshek (*l.c.*) says it is evident that the differences between these groups are essentially based on the development of the extent of the limb and on the breadth of the lobes. One sees by a comparison of the various figures on plates 2-18 that it is a question of a series of forms of which the foliaceous area becomes smaller and smaller. The broadest types are in the groups *Brevisecunda*, *Latior*, *Brevidivisa*, *Latadivisa*, *Mollis*, and *Ensis*; the narrowest in the groups *Teres*, *Pugiensis*, *Aciphylla minor*, *Divensis minor*, *Densimajor*; and the medium types in the groups *Divensis major*, *Aciphylla major*, *Brevidivisa*, *Molliteres*, *Dissecta*, *Semiensis*. Alongside these differences there is a varied development of the limb of the lobes—broad and rounded to narrow and pointed. Analogous differences are similarly to be found in other polymorphous species, as for example, in *Oenothera Lamarckiana* and *Erophila verna*. Some of the forms have been cultivated, seeds obtained by self-pollination, and young plants grown (in several cases to the third generation). The result of these experiments is that there is generally great geno-typical differences between the forms of the various groups—for example, between the forms of *Brevisecunda* and those of *Aciphylla major*—always perhaps

with the exception of the groups *Divensis major* and *minor*, *Aciphylla major* and *minor*, and *Divensis* and *Ensis*. Experiments appear to indicate that each of these groups is only a fluctuating variation of a single type. It is, however, the opinion of the author that these groups differ also in their geno-typical character. Experiments alone can prove it. The study of the distribution of the forms of the groups 1—16 in Denmark and in part of Sweden has been carried out by statistical methods.

1137 b. *CENANTHE LACHENALII* Gmel., var. *APPROXIMATA* (Mérat) Koch. Syn. 1251, 1857. *C. approximata* Mérat Nouv. Fl. Paris, 115. Benacre Broad, Suffolk, E., A. R. HORWOOD, teste A. BENNETT. This (teste Rouy & Camus *Fl. Fr.* vii., 261) differs from the type in having the trifid segments of the pinnatisect radical leaves "cunéiformes obtus;" in the type the bipinnatisect radical leaves have obovate "incisés-crénulés" segments. In Britain I have the type from Headington, Oxford; Wick; and Freshwater, Isle of Wight. *Approximata*, however, seems the more general form. I have collected it at Dawlish, S. Devon; Newquay, Cornwall; Marcham, Berks; Surlingham, Norfolk; Treardur, Anglesey; and Port Logan, Wigton, G. C. DRUCE.

1140. *CAPNOPHYLLUM PEREGRINUM* Lange in Willk. & Lange Prod. Fl. Hisp. iii., 33, 1874. *Tordylium peregrinum* L. Mant. 55, 1767. *C. dichotomum* Lange. Alien, S. Europe. St. Philip's Marsh, Bristol, Miss COBBE and G. C. DRUCE. Already recorded in the *Brit. Pl. List*, 32, as *C. dichotomum*. The above retains the earlier trivial.

1160. *DAUCUS CAROTA* L., var. *COMOSUS* Grognot ap. Carion Cat. Pl. Saône et Loire 156. Involucral leaves much longer than umbel. Ventnor, Isle of Wight; Oxford, G. C. DRUCE.

1164 (2). *D. HISPANICUS* (Lam.) comb. nov. *Caucalis hispanica* Lam. Enc. i., 658. *Durieuva hispanica* Boiss. & Reut. Diagn. Pl. Hisp. 14. *Daucus durieuva* Lange Prod. Fl. Hisp. iii., 23, i., 1880. Alien, Spain, N. Africa. Galashiels, Selkirk, 1916, Miss I. M. HAYWARD. Dr Thellung suggests this name. *Daucus hispanicus* Gouan is (teste *Ind. Kew.*) *D. Gingidium* L.

Gen. 264 (2). VALANTIA (TOURN.) L. (*Vaillantia*).

1191 (5). V. MURALIS L. Alien, S. Europe. Several plants near Musselburgh, Edinburgh, J. FRASER in *Rep. Bot. Soc. Edin.* 404, 1915.

1193. GALIUM MOLLUGO L. × G. VERUM L., var. MARITIMUM DC., hybr. nov. Hayling Island, S. Hants., in great plenty and showing all grades between *verum* on one side and *Mollugo* on the other. Since the only form of *verum* there was the var. *maritimum* DC., this is a new hybrid. The enormous quantities gave very pleasing colour effects from the bright golden yellow nearest *verum* through various tints of yellow to cream and creamy white. The Rev. Prebendary Burdon and the Rev. J. Parrington were with me when it was observed. (Var. *maritimum* = *littorale* Bréb.)

1237. SCABIOSA SUCCISA L., var. OVALIS Rouy Fl. Fr. viii., 115, 1903. Stem short, 15—25 cm., simple; cauline leaves sublinear. Moel Hebog, Carnarvon; The Glen, Peebles. In these plants the leaves were glabrescent.

1242 (3). GRINDELIA GRANDIFLORA Hook. Bot. Mag. t. 4625. Alien, W. America. A garden escape, Headington, Oxon., ex Hon. Mrs GUY BARING.

1242 (4). G. ROBUSTA Nutt. in Trans. Am. Phil. Soc. n.s. vii., 314, 1841. Alien, California. Southport, Lancs., 1916, J. D. FIRTH.

1262 (5). ERIGERON PHILADELPHICUM L. Alien, N. America. Tintern, Monmouth, 1916, J. LAMB—to replace *E. caucasicum*, which it was first thought to be.

1294 (2). XANTHIUM CANADENSE Mill. *X. macrocarpum* DC. Fl. Fr. Suppl. 356. Alien, N. America. Birkenhead, J. A. WHELDON.

Gen. 299 (2). LEPACHYS Rafin. Journ. Phys. vol. 89, 100, 1819.

1297 (5). L. COLUMNARIS Torrey & Gray Fl. N. Amer. ii., 315. *Rudbeckia columnaris* Sims Bot. Mag. t. 1601. Alien, N. & N.W. America. It is known on the western plains and prairies as the Prairie Cone-flower. On remount ground, Bristol, 1917, Miss I. M. ROPER.



1302 (4). *HELIANTHUS STRUMOSUS* L., var. *MOLLIS* (Willd.) Torrey & Gray. Alien, N. America. Waste ground, Oxford, 1898, G. C. DRUCE. Det. A. THELLUNG.

1302 (5). *H. BOLANDERI* A. Gray in Proc. Am. Acad. vi., 544, 1865. Alien, California. On fields at Patricroft, S. Lancs., 1914, T. KILSBY, teste A. THELLUNG. This is made synonymous with *H. scaberrimus* (quid) in *Ind. Kew.* It is said to be a different species from *H. scaberrimus* Elliot.

1302 (6). *H. SEROTINUS* Tausch in Flora xi., 504, 1828. Alien, N. America. Waste heaps, Ware, Herts., 1916, J. HIGGENS, teste A. THELLUNG.

1302 (7). *H. LAETIFLORUS* Pers. Syn. ii., 476. Alien, N. America. Galashiels, Selkirk, 1916, Miss I. M. HAYWARD, teste A. THELLUNG (with reservation).

*Gen.* 301 (2). *SPILANTHES* Jacq. Enum. Pl. Carib. 8, 1760.

1304 (5). *S. DECUMBENS* (Sm.) A. H. Moore in Proc. Am. Acad. xlii., 549, n. 55, 1907. *Rudbeckia decumbens* Sm. in Rees Cycl. xxx., n. 11, 1815.

Var. *LEPTOPHYLLA* (DC.) A. H. Moore. (*S. leptophylla* DC. Prod. v., 621, 1836, in *Ind. Kew.*, made = *arnicioides*). Alien, S. America—Brazil, Paraguay, Uruguay, Argentina. St. Philip's, Bristol, 1916, Mrs SANDWICH. Det. A. THELLUNG.

1309. ?*BIDENS CERNUA* × *TRIPARTITA*. On the borders of a pond at Brownlow Harts Farm, Sibbertoft, Northants., is a *Bidens* exactly like the one at Putney-on-Thames which I saw years ago, and which Sir J. D. Hooker names in the third edition of his *Student's Flora*. Surely both are the above hybrid or more likely *B. tripartita* × *cernua*. The characters are wholly mixed. Leaves generally entire, perhaps 1 in 20 (this season) three-cleft, always more or less stalked; heads sub-erect as a rule, but a few nodding; pappus bristles 2—4, generally but not always 3. It is just like the Putney form as regards its mixed characters. It is quite fertile and may be *B. tripartita* × (*cernua* × *tripartita*). It is certainly neither type *cernua* nor *tripartita*. E. A. WOODRUFFE-PEACOCK, in *lit.* Hooker (*Student's Flora* 211, 1870) says a Thames form has broader heads,

more numerous florets, and 3—4 pappus bristles. In 1878 I found a somewhat similar plant by the Canal at Northampton. The upper leaves were simple and much resembled those of *cernua*. (*Flora Northants. N. H. J. of Nton.* ii., 279, 1883).

1311 (3). *BIDENS BIPINNATA* L. Spanish Needles. Alien, N. America, Mexico, Trop. America. Near woollen mills, Selkirk, 1916, Miss I. M. HAYWARD.

*Gen.* 310 (2). *BAHIA* Lag. *Gen. et Sp.* Nov. 30, 1816.

1319 (10). *B. NEOMEXICANA* A. Gray in *Proc. Am. Acad.* xix., 27, 1883. Alien, N. America, Colorado, Mexico. Near woollen mills, Selkirk, 1916, Miss I. M. HAYWARD. The name is suggested (with a query) by Dr THELLUNG.

1320. *SCHKUHRIA PINNATA* O. Kuntze, vice *S. abrotanoides* Roth.

1320 (3). *S. ADVENA* Thell. in *Fedde Rep.* xi., 308, 1912. A lanal alien. Native home uncertain, probably S. America. Adventive in Transvaal, S. Africa; Hanover; Rodleben, Holland; Wormeweer, etc. Bristol, Mrs SANDWICH, teste A. THELLUNG.

1329. *ACHILLEA MILLEFOLIUM* L., var. *CONSPICUA* mihi. Ligules large, pink or white; the blade 3—4 mm. by 3 mm.; plant usually robust. Beddgelert, Carnarvon, August 1917; on the trenches, The Parks, Oxford, September 1917; Pembrey, Carmarthen, 1916; sent also by W. J. GREENWOOD from Foss Cross, E. Gloster, 1917, G. C. DRUCE.

*Gen.* 322 (5). *ISOETOPSIS* Turcz. in *Bull. Soc. Nat. Mosc.* xxiv., i., 174, 1851.

1363 (2). *I. GRAMINIFOLIA* Turczaninow. Alien, Australia. Tweedside, between Galashiels and Melrose, Roxburghshire, 1916, Miss I. M. HAYWARD.

1365 (12). *SOLIVA NASTURTIIFOLIA* DC. *Prod.* vi., 142, 1837. *S. stolonifera* Loudon. *Gymnostyles nasturtiifolia* A. Juss. in *Ann. Mus. Par.* iv., 212, 1804. Alien, S. America. Lanal. Ettrick side, Selkirk, 1916, Miss I. M. HAYWARD. Suggested to compare, A. THELLUNG. The plant is naturalised in N. America from N. Carolina to Florida, and in Louisiana.

1384. TUSSILAGO FARFARA L. With pink florets, Bentley, Durham, J. HESLOP-HARRISON, in *lit.*

1393 (2). SENECIO ERRATICUS Bert. Amoen. Ital. 92. *S. aquaticus* Sm. Prod. Fl. Gr. ii., 178. *S. Jacobaea*, var. *erraticus* Beck. Fl. N. Oester., 1222. Lower leaves deeply lyrate, the terminal segment large, cordate, truncate or slightly narrowed at base, rounded at the top, oval or oblong; lateral segments of cauline leaves patent, with straight angles, oblong, toothed; peduncles divaricate, slender; flower-heads small. This differs from *Jacobaea* in the thickened root-stock; in the larger terminal lobe to the upper leaves being distinctly larger than the lateral; in the spreading peduncle, and the elliptic-lanceolate (not lanceolate) phyllaries; and from *aquatica* in the less deeply lyrate lower leaves, the more oblique and narrower lateral segments of the stem leaves, which are entire or only slightly toothed, and the spreading or ascending peduncles. The flower-heads of *S. aquaticus* are about a third larger than in *erraticus*. Koch (*Syn. Fl. Germ.* 388) italicises the characters of *erraticus*, "pinnis dentatis subquinis lateralibus patentissimis obovato-oblongis." Babington (*Prim. Fl. Sarn.* 53, 1839) records *erraticus* from Jersey on the authority of La Gasca, and from marshes behind Ivy Castle, Guernsey, and he says it grows at Buttington, Montgomery. Babington's record has been thought to belong (Hook. *Stud. Fl.* 582, 1884) to a large state of *aquaticus*. That Babington was mistaken is borne out by the fact that he has a var. *major* of *aquaticus* (*Manual* 179, 1847) which he queries as *erraticus* Bert. In the edition of 1851, p. 178, he leaves out any reference to Bertoloni's plant, and in the seventh edition of 1874 the variety *major* as a name itself disappears. He, however, refers to "a larger much branched form, leaves all lyrate, terminal lobe truncate or subcordate below, segments subspathulate." In the ninth edition, 214, 1904, he adds, "this was supposed to be *erraticus* Bert." In 1832 M. J. Gay visited the Channel Islands and found *S. erraticus* Bert., a plant he doubtless knew well, on August 10; between Cobo and Vale, Guernsey, but sought for it in vain in Jersey. That portion of the island has, however, in recent years undergone so great a change that the plant may well have disappeared, but it is highly desirable that careful search should be made to rediscover the plant. It seems at best to deserve only the rank of sub-species under *aquaticus*, although Koch, Brébisson, Grenier and Godron, Boreau,

Coste, and Nyman keep it as a distinct species. Brébisson says that it differs from *aquaticus* in its stronger and less hairy stem; its larger number of slender, open, divaricate branches; the terminal segment of the leaves being broad, ovate and rounded at the apex; in its smaller flower-heads and leaves of a more sombre green.

1412 (11). BERKEYHA PINNATA Less. Syn. Comp. 75. *Stobaea pinnata* Thunb. Alien, S. Africa. Bradford, York, 1917, J. CRYER. Det., with some doubt, A. THELLUNG.

1422 b. CARDUUS NUTANS L., var. MACROCEPHALUS (Desf. Fl. Atlant. ii., 245, 1800, as a species). *C. nutans*, sub-sp. *macrocephalus* Gugler. St. Philip's, Bristol, 1916, Miss COBBE and G. C. DRUCE; Woodhall Spa, Lincoln, 1917, Rev. F. ALSTON.

1430. CIRSIUM PRATENSE (Huds.) Druce, var. POLYCEPHALUM (Coss. & Germ.) Druce in Rep. B.E.C. 417, 1916. Recently a type specimen of Watson's labelled *Carduus pratensis*, var. *Pseudo-Forsteri*, gathered near Esher Station, Surrey, in 1866, has come into my hands. It is quite ordinary *Cirsium pratense*, about 6 dm. high, except that the stem bifurcates about half-way up, thus bearing two heads of quite normal flowers. Watson does not seem to have described it as a variety, but he distributed it through the *B.E.C.* in 1866 (see *Rep.*, p. 10) under the name *Carduus Pseudo-Forsteri*, and adds "this luxuriant form of *C. pratense* has been often misnamed *C. Forsteri*" (e.g., by Sir W. Hooker, Mr Mill, &c.). The curators, Baker and Trimen, add a note that "it does not differ from the usual *pratensis* except in size." Therefore, *Pseudo-Forsteri* is a nomen nudum, but even if it had been described it is antedated by Cosson & Germain's trivial *polycephalum*, which dates from the *Fl. Env. Paris* 417, 1845. In the *Rep. B.E.C., l.c.*, I have associated that name with a plant especially common in Ireland which has two or more heads of flowers and the leaves rather deeply sinuate or cut—a plant often mistaken for the hybrid with *palustre*, e.g., × *C. Forsteri*. G. C. DRUCE.

1451 (5). CENTAUREA TRICHOCEPHALA M. Bieb., ex Willd. Sp. Pl. iii., 2286. *C. Simonkaiana* van Hayek. Alien, Hungary to Persia, E. Europe, and West Asia. Chicken run at Tower-le-Moor, Lincoln, Rev. F. ALSTON.

1457 (2). *C. STOEBE* L., sub-sp. *RHENANA* (Bor.) Schinz & Thell.  
With the above, 1917.

1459 (4). *C. DIFFUSA* Lam. × *C. STOEBE* L. (? sub-sp. *RHENANA*)  
= *C. PSAMMAOGENA* G. Gayer in Maygar Bot. Lapok viii., 59, 1909.  
Alien, E. Europe. Chicken run at Tower-le-Moor, Lincoln, Sep-  
tember 1917, Rev. F. ALSTON. Teste A. THELLUNG.

1480 b. *CICHORIUM INTYBUS* L., var. *GLABRATUM* (Presl). Hutton  
Bushell, York, August 1916, E. C. HORRELL.

1486. *RHAGADIOLUS CRETICUS* (L.) All. Fl. Pedem. i., 226, 1785.  
*Hedypnois cretica* Willd. Sp. Pl. iii., 1617. *R. Hedypnois* All. I.K.  
Alien, Europe. Ware, Herts, 1916, J. HIGGENS and G. C. DRUCE.  
Teste A. THELLUNG. Previously recorded.

1645. *TARAXACUM VULGARE* Schrank, var. *RUBRINERVE* (Jord.).  
The stalk and the median nerve of leaf red, external involucre bracts  
reddish. Bangor, Carnarvon, August 1917, G. C. DRUCE.

1650. *LACTUCA SALIGNA* L., var. *CRACOVENSIS* Rouy Fl. Fr. ix.,  
198, 1905. Whitstable, Kent. Cauline leaves for the most part  
entire, elongate, linear, smooth at the sides. In *runcinata* the median  
cauline leaves are runcinate, and the edges have spinescent hairs; in  
*Ruppiana* the median and upper cauline leaves are entire, lanceolate,  
the sides having rough hairs.

1652 (2). *LACTUCA PLUMIERI* Gren. & Godr. Fl. Fr. ii., 322, 1852.  
*Mulgedivum Plumieri* DC. Prod. vii., 248. *Sonchus Plumieri* L.  
Alien, mountainous woody places of Central Europe and N. Spain.  
This differs from *L. alpina* in having glabrous peduncles and in-  
volucre bracts. Found by Mr F. W. Stansfield, apparently wild, in  
the neighbourhood of Preston, Lancs. See *Gard. Chron.* 235, 1917.

*Gen.* 365 (2). *UROSPERMUM* Scop. Introd. 122, 1777.

1663 (9). *U. PICROIDES* F. Schmidt in Samm. Phys. Ausf. i., 276,  
1795. Alien, S. Europe. Galashiels, Selkirk, Miss I. M. HAYWARD.

1666 (2). *JASIONE PERENNIS* Lam. Enc. iii., 216. St Martin,  
Guernsey, "Rochers maritimes," J. Gay MS., 1832. Rouy (*Fl. Fr.*  
i., 91) keeps this as a distinct species, with a restricted and peculiar

distribution, namely, the silicious mountainous districts of the Vosges, the Pyrenees and Corsica, N. Spain, and W. Germany. It differs primarily from *J. montana* in its stoloniferous root-stock, sterile rosettes, and flat leaves. *J. montana* has a simple stem, without barren rosettes, and the leaves are ordinarily undulated. My plants, from the coast near Boulay Bay, seem to be this species, but further investigation is desirable before definitely including it in our List.

G. C. DRUCE.

1682 (2). *LEGOUSIA BIFLORA* Britton in Mem. Torr. Club v., 309, 1894. *Campanula biflora* Ruiz and Pavon Fl. Peruv. ii., 55, t. 200, f. 6, 1799. *Specularia biflora* Fisch. & Mey. Alien, America. Galashiels, Selkirk, 1916, Miss I. M. HAYWARD. Teste A. THELLUNG.

1727. *PRIMULA FARINOSA* L., sub-var. *ALBIFLORA* (pure white flowers) and forma *ACAULIS*. Middleton, Teesdale, Durham, J. HESLÖP-HARRISON, in *lit.*

Ord. 56 (3). *LOGANIACEAE* Lindl. Nat. Syst. 306, 1836.

Gen. 404 (10). *DESFONTAINIA* Ruiz & Pavon Prod. 29, t. 5, 1794.

1751 (20). *D. SPINOSA* Ruiz and Pavon, *l.c.* Bot. Mag., t. 4781. Alien, S. America. An ornamental garden shrub, now naturalised at Madryn Castle, Carnarvonshire. Teste J. GRIFFITH.

1762. *GENTIANA VERNA* L., sub-var. *ALBA*. Middleton, Teesdale, Durham, J. HESLÖP-HARRISON, in *lit.*

1788 (3). *LAPPULA STIPITATA* (Greene as *ALLOCARYA*) comb. nov. *Allocarya stipitata* Greene in Pittonia i., 19, 1887. Alien, W. Amer. Wotton, Norfolk, 1916, F. ROBINSON. Teste A. THELLUNG.

1806 (2). *NONNEA PULLA* DC. Fl. Fr. iii., 626. Alien, S. Europe. St. Philip's Marsh, Bristol, 1916, Miss COBBE.

1820. *MYOSOTIS COLLINA* G. F. Hoffm., var. *LEBELII* Corbière Fl. Norm. 407. *M. adulterina* Lebel Obs. Pl. Manche 17. *M. Lebelii* Gren. & Godr. Fl. Fr. ii., 532, much altered. *M. hispida*, var. *Lebelii* Rouy, Fouc. & Cam. Fl. Fr. x., 328. Stems much branched from base, with spreading ascending branches; leaves spatulate, upper lanceolate; flowers small, bluish-white or yellowish-white; inflorescence often bracteate at base. Dry sunny banks near Wool, Dorset, May

1917, G. C. DRUCE. To this probably belongs the sand-dune plant at Littlestone-on-Sea, Kent.

1826. *ECHIU M ITALICUM* L., var. *PYRAMIDALE* (Lap. Abr. Pyr. 91, 1913, as a species). Cothill, Berks., 1907, G. C. DRUCE; Ware, Herts., 1907, Miss TROWER; on a chicken run at Woodhall Spa, Lincoln, 1917, Rev. F. ALSTON. Mr C. C. LACAITA, who kindly named this segregate of *italicum*, says it agrees with La Perouse's own specimens at Kew, and with the Toulouse plant distributed by Bordère and others. It may be worth the specific distinction claimed for it by its original describer. G. C. DRUCE.

1828 (2). *E. TUBERCULATUM* Hoffmg. & Link Fl. Port. i., 183. *E. violaceum* LINN. Herb. Alien, S. Europe. Near Bristol, 1917, No. 7, Miss I. M. ROPER. Det., C. C. LACAITA, as probably their var. *latifolium*.

1848 (2). *SOLANUM FONTAINESIANUM* Dunal in Poir. Enc. Suppl. iii., 777. *Nyctarium Fontainesianum* Sweet Bot. Reg. t. 177. Alien, Brazil. On farm waste near Swanage, Dorset, Miss I. M. ROPER.

1851 (6). *PHYSALIS MINIMA* L. Alien, S. America, etc. Meanwood, Leeds, 1916, E. C. HOBRELL; Bradford, York, 1917, J. CRYER, teste A. THELLUNG.

1867. *VERBASCUM NIGRUM* L. × *OLYMPICUM* Boiss., hybr. nov. This appeared at Oxford with both parents and in two distinct forms—one a broad and the other a narrow-leaved plant. The flowers are about 25 mm. diameter (in *olympicum* they are 50 mm., in *nigrum*, 15 mm.); the tint is darker than in *olympicum*; the filaments have pale purplish hairs (in *olympicum* they are deep yellow); and the leaves are less soft than in *olympicum*. The narrow-leaved form has linear-lanceolate leaves with sharper crenatures than the broad-leaved form. August 1917, G. C. DRUCE.

1895. *SCROPHULARIA SCOBODONIA* L., sub-var. *VRIDIFLORA* mihi. This grows with the type near Par, Cornwall, Miss M. COBBE. Its foliage is of a paler green, and its corolla is pure green (foliis læte-virentibus, corolla viridi). An analagous condition to the sub-var. *Bobarti* (Pryor) as a var. July 1917, G. C. DRUCE.

1906. VERONICA HYBRIDA L., sub-var. ALBIFLORA. Flowers pure white, coming true from seed. Originally found at Gloddaeth, Carnarvonshire, by J. E. GRIFFITH.

Sub-var. PURPURASCENS grows with the above and also keeps true in cultivation.

1943. EUPHRASIA KERNERI × ROSTKOVIANA = × E. RECHINGERI Wettst. Mon. Euphr. 2, 289. In boggy ground in a valley, and in thick spongy turf on Mendip, near Rowberrow, N. Somerset, September 8, 1916, Dr C. BUCKNALL. See *Rep. B.E.C.* 580, 1916. Wettstein says it differs from *Kernerii* in the leaves, bracts and calyces being sparingly clothed with rather short glandular hairs; from *Rostkoviana* in the glandular hairs covering the leaves and calyces being shorter and less numerous. Dr Drabble is inclined to think that these plants are merely forms of *Rostkoviana* . . . and resemble plants collected at Cym Idwal by G. Goode, and from Helvellyn, Grisedale, and Cathole, Derby, by himself.

#### The Genus MELAMPYRUM L.

M. Beauverd in his most valuable and elaborate Monograph, which is reviewed on p. 66, has very minutely described a large series of forms of *M. pratense*. These, and those of the other species, are given here for convenience of reference. All the British specimens cited are in *Herb. Druce* at Oxford and were found by him unless otherwise stated. The spelling of place-names is corrected.

1958. M. CRISTATUM L. Ang. 11 (cited from *Brit. Pl. List*). Two varieties of this are described—*maritimum* Beauv. and *solstitiale* Maly—as well as the type, which alone occurs in Britain. Of the type, he describes four sub-varieties, and of *solstitiale* two.

1959. M. ARVENSE L. Ang. 8 (1). Under this he has four sub-species—*elatius*, *eu-arvense*, *barbatum*, and *ciliatum*. Of *elatius* there are two sub-vars. *Eu-arvense*, to which our British plants belong, has three varieties—*genuinum*, *impunctatum*, and *versicolor*, and four sub-varieties. The British plants are sub-var. TYPICUM Beauv. from Costessy, Norfolk, *Pitchford* in *Dickson Fasc. Brit.* and sub-var. SCHINZII Beauv. in Schinz & Keller *Fl. der Schweiz* 304, 1914. This is mixed with the type in *Dickson Fasc. Brit.* n. 74, but differs from it in the stem being about 40 cm. high and the thick scabrid leaves



being about 15 mm. broad. In the type the leaves are narrower (about 4—8 mm. broad) and the plant is rather smaller. The sub-species *barbatum* has four varieties. The sub-species *ciliatum* has a var. *transiens* Beauv. The sub-species *elatus* has two sub-vars. and a form.

1960. *M. PRATENSE* L. 109, Hib. 39. Beauverd removes the names of two varieties from our list of British Plants—var. *latifolium* Schueb. & Mart. Fl. Würt. 401, 1834, introduced into the *Student's Flora* 274, 1870, without the varietal authority supplied in the 9th edition of Babington's *Man.* 311, 1904 (he says our plant differs from *latifolium* Schueb. & Mart.) and the var. *purpureum* of British authors (see *Rep. B.E.C.* 467, 1909), which he considers to come under *alpestre*. In the elaborate treatment of *M. pratense* M. Beauverd first divides it into two sub-species—*eupratense* and *vulgatum*.

*M. EUPRATENSE* Beauverd. Corolla post anthesin purpurea vel  $\pm$  roseo-diluta; antherarum pili basales appendiculas antherarum (appendiculis 2 exterioribus antherarum anticarum exceptis) perspicue excedentes; bracteae inferiores semper integrae; herbae heliophilae. The corolla after flowering more or less pale rose-purple; the basal hairs conspicuously exceeding the appendage of the anthers except in the case of the two exterior appendages of the anterior anthers; the lower bracts always entire. Plants of sunny places.

*M. VULGATUM* (Persoon) Beauv. Corolla [albida, lutea vel versicolor] post anthesin nigrescens; antherarum pili basales appendiculas antherarum (appendiculis 2 antherarum anticarum exceptis) aequantes subbreviares vel eis sublongiores; bracteae inferiores subdentatae, sequentes gradatim profunde dentatae apicales  $\pm$  regulariter pectinatae (rarius parum dentatae). The whitish, yellow, or versicoloured corolla becoming black after flowering; the basal hairs of the anthers equalling, or slightly shorter or longer than the appendages of the anthers, except in the case of the two appendages of the anterior anthers; lower bracts subdentate, those above more deeply cut, the apical more or less regularly pectinate, rarely slightly dentate.

Sub-sp. *pratense* has the following varieties, sub-varieties, and forms:—

Var. *purpureum* Hartm. differs from the plant of British authorities in the narrower leaves, sub-simple habit, and in the corolla being purple (not white or variegated) before flowering. It is recorded only

for Sweden and Norway. Var. *maculatum* Behm has spotted stem and leaves, Sweden. Var. *purpurascens* Ascherson, N.-Germany and Russia. Var. *fragrans* Behm, corolla small, yellow with purple striae, Sweden. Var. *alpestre* Beauv. with its sub-var. *tenerum* Dahl., Norway, and sub-var. SCOTIANUM Beauv. This is the *purpureum* from Glen Eunach 720 m., A. Wilson. It is also the "var. *purpureo* of Hooker *Hibernia* 1816" in *Hb. DC.* and the one gathered in "mt. bogs, Mangerton, Kerry, 1844." Stem slender, simple or slightly branched, about 10 cm. high; the lower internodes short, about 10 mm.; cauline leaves rather thick, scabrous on both sides, 15—35 by 2—3 mm. broad; bracts ovate-lanceolate, broader than the leaves, the lower entire, the apical distinctly shorter and more or less dentately cut at base; corolla at flowering small (10 mm.), yellow, with white lower lips rose-striate, after flowering blackish-purple. The inflorescence begins at the third or fourth, rarely at the second node (in *purpureum* from the third to the fifth). Type sub-var. *alpestre* occurs in Austria, Switzerland, and Italy. Sub-var. *sabaudum* Beauv. is limited to the Alps of Annecy. Sub-var. *rhodanicum* Beauv., Switzerland. Var. TYPICUM (*M. pratense* sensu stricto), sub-var. *brachycladum* Beauv. Vosges. Sub-var. FOLIATUM Neum. Plant rather strong, 25 cm. high; stem (diam. 1½ mm.) glabrous at base, with short bent brownish hairs towards the top; branches oblique, erect, longly naked at the base, the top bearing leaves and flowers at the apex; cotyledons (about 30 by 7 mm.) present during flowering; cauline leaves remote (internodes 40 mm.), ovate-lanceolate, about 50 by 5 mm., erect-spreading; no intercalary leaves; lower bracts entire, about 40 by 7 mm.; upper cuneate-sub-hastate at base; inflorescence beginning at second or third, rarely at the fourth node; calyx-tube short (2 mm.) with arcuate-filiform teeth; corolla about 13 mm. long, open, white or yellow, after flowering pale purple. Clogher Valley, Tyrone, 1907, C. L. Peck; Middlehath Wood, Graffham, Sussex, C. C. Lacaita, as a new form—*laxum* Beauv., with a pale yellow corolla which becomes purple after flowering. Sub-var. *quercetorum* Beauv., Germany, Sweden, Switzerland, France. This has intercalary leaves and smaller cotyledons (15 by 5 mm.) and might be found in Britain. Var. PALUDOSUM Gaud., sub-var. EU-PALUDOSUM Beauv. Inch Garth, M. Perth, shown me by D. Haggart; see also *Rep. B.E.C.* 487, 1913, Marshall and Shoobred; Wybonbury, Cheshire, n. 1960, August 1906, G. C. Druce. Rigid, erect, slightly branched; stem about 23 cm. high,

the erect branches sterile or sparsely flowering; intercalary leaves 0—2 entire, erect; cauline leaves and bracts linear-lanceolate, about 54 by 2 mm.; corolla whitish, about 12 mm. long (not cm.), bearing a ring of hairs round the base of both the superior filaments; smaller cotyledons, about 18 by 3 mm., absent or dry at flowering. This also occurs in France, Switzerland, and Austria. Sub-var. *platyphyllum* Beauv. and sub-var. *neocomense* Beauv., Switzerland. Var. *elongatum* Beauv., France. Var. *rhaeticum* Beauv., Switzerland. Sub-var. *abyssale* Beauv. and sub-var. *culminale* Beauv., both Switzerland. Var. *castanetorum* Murr, Austria, Switzerland, and Italy. Var. *thinobia* Beauv., France.

Var. MONTANUM Johnston. Johnston's name should be in brackets. He described it as *M. montanum* sp. nov., in the *Flora of Berwick-on-Tweed*. Beauverd's contrasting descriptions of *montanum* and *ericetorum* are as follows:—MONTANUM. Caulis nanus  $\pm$  8 cm. altus,—subnudus vel parum ramosus, ramis brevibus ( $\pm$  4 cm. lg.)—oblique erectis; folia intercalaria (2—4 paria) anguste elliptico-lanceolata (superf.  $\pm$  20 by  $1\frac{1}{2}$  mm.) inflorescentiae initium ad 6—8 um. nodum situm (area britannica). Alltnaharra, Suth. W. Miller 1889; Gran Wood, C. E. Palmer; Dunbeag Bog, Co. Clare, 1882, B. King; also since publication of *Mon.* Lawers, M. Perth; Glen Dole, Forfar. ERICETORUM. Caulis ( $\pm$  15 cm. altus) medio ramosus, ramis elongatis ( $\pm$  15 cm. lg.) flexuosis horizontaliter patulis; folia intercalaria (0—2 paria) elliptico-lanceolata ( $\pm$  35 by 4 mm.) inflorescentiae initium ad 5—7 um. nodum situm. Aberglaslyn, Carnarvonshire, 1851, C. E. Palmer; Hook Common, N. Hants., 1890, C. E. Palmer; near Richmond, York, Ward; Teallach and Braemore, W. Ross, Druce; Wybonbury Bog, Cheshire, Marshall and Wolley-Dod; Lough Derg, Lomax; Roundstone, B. King; Galway; Disserseth, Radnor, 1899, W. H. Painter; Birch Copse [? Berks.], 1858, Holliday; Dunbeath, Caithness, 1888, W. R. Linton; Leith Hill, Surrey, 800 ft., No. 4955c, C. B. Clarke; Huddersfield, York (in quercetis), 1911, C. Schroeter; and now recently, Bellside, Lanark; Downton, Hereford.

Sub-sp. VULGATUM (Pers.) emend. Beauverd. Under this there is var. *oligocladum* Beauv., which has a wide continental area, but is not as yet reported from Britain, with a sub-var. *pinetorum* Beauv. and sub-var. *rigidum* Beauv., both from Switzerland—the latter from near Lugano. Sub-var. *mesophyllum* Beauv. with *ovatum* and *nanum*,

Belgium, France, Switzerland, and Italy. Sub-var. *platyphyllum* Beauv., Belgium, Hungary, and Switzerland. Sub-var. *acuminatum* Beauv., Scandinavia. Var. *vallesiacum* Beauv., Switzerland, with f. *elongatum*.

Var. BRITANNICUM Beauv. This has a brittle stem about 20 cm. high; axillary branches flexuous, arcuate, spreading, sterile or bearing a few flowers; stem leaves usually 50 by 5 up to 60 by 19 mm., absent after flowering; inflorescence from the third or fourth node; calyx  $\pm$  6 mm. long with falcate-filiform teeth; corolla pale yellow, soon turning blackish, about 12 mm. long. New Forest, Brockenhurst, S. Hants, 1887, No. 1074, *C. E. Palmer*; "Higachan pr., Killarney, 1910, Druce." [Probably Sligachan, Isle of Skye.]

Var. COMMUTATUM Beck. (*M. vulgatum* Dorfler Herb. Norm. 4749 non. Pers.) This is characterised by the inflorescence starting from the fourth to the twelfth node. In *britannicum* it starts from the second to the fourth. Sub-var. *paradoxeum* Beauv. (*M. paradoxeum* Rönninger) et f. *paludosum* etc., Austria, Switzerland, Italy, France. Sub-var. *pseudo-nemorosum* Beauv., Austria, Switzerland, Italy.

Sub-var. CONCOLOR (Schönheit). This is *M. commutatum* Tausch in the restricted sense. It has 3—5 pairs of intercalary ovate-lanceolate leaves, and the lower bracts are deeply pectinately cut. Bagley Wood, Berks., *Baater*; Killarney, *C. Schroeter*. The corolla is greenish-white, about 14 mm., with the upper part spotted with black and yellow or citron-yellow, soon turning black. Its range extends into France, Italy, Austria, and Hungary. Var. *congestum* Beauv., Alsace.

Var. VULGATUM (Pers.) Beck., sub-var. *eburneum* Beauv., Switzerland. Sub-var. *hastatum* Beauv., France, Switzerland, Austria, Russia. Sub-var. BREVIDENTATUM Beauv., France; and I have since had it from Tarbert, Argyll. Sub-var. *monticolum* Beauv., Austria, Switzerland, Italy, France. Sub-var. *calidorum* Beauv., ff. *robustum* and *elongatum* Switzerland; f. *transiens* Beauv., Austria; f. *fallax* Beauv., Switzerland, Italy.

Sub-var. LAURIFOLIUM Beauv. (*M. pratense*, var. *latifolium* auct. Brit. non Schueb. & Mart.) Stem strong, 2 mm. diam., about 40 cm. high, branched from the base with elongate, arcuate-erect, simple or slightly compound branches; cauline leaves ovate-lanceolate (80—110 by 15—22 mm.), erect, remote, with rarely a pair of intercalary leaves; lower bracts entire (69—90 by 14—20 mm.), more or less

narrowed at base, apex acuminate, the others sub-entire or more or less dentate or pectinate-digitate at the base; narrowed into a short petiole; more or less floriferous, the inflorescence from the fourth to the sixth node; calyx 7 mm., including the teeth, which are  $4\frac{1}{2}$  mm. long; corolla 14 mm., sulphur-white, the top somewhat open. Wootton-under-Edge, Gloucester, 1900; Oaresbury, Berks., 1891; Brickhill, Bucks., 1881; Rotherfield, etc., Oxon., 1883; Woburn, Beds., all *Druce*; Brecon, 1882, *Fryer*. Sub-var. *digitatum* Beauv., f. *laciniatum* Beauv., Russia, Switzerland, France; f. *murorum* Beauv., Ticino.

Sub-var. DIGITATUM, f. OVATUM (Spenner as var.) Beauv. (*M. pratense*, var. *latifolium* Schueb. & Mart. p.p.), Weir Head, S. Devon; Wynd Cliff, Monmouth; Glendalough, Wicklow (not Mecklom), all *Druce*. M. Beauverd has since determined sub-var. DIGITATUM—my plant from Wood Perry, Oxon., 1916. It verges towards *laurifolium*. *Latifolium* differs from *laurifolium*, which has its area in Britain, in its much shorter leaves (50 by 20.5, against 110 by 20 mm.) and in its eu-asiatic distribution—Belgium, Germany, Switzerland, France, Serbia, Spain.

f. LANCEOLATUM Spenner (*M. pratense*, var. *angustifolium* Lange. *M. nemorosum*, var. *angustifolium* Caruel). Herba vulgatissima. Cauline leaves narrow lanceolate, 40 by 5.8 mm. Widely distributed in Europe. In Britain—Holten wood, Bath (? Holten wood, Oxon.), 1890, *Druce*; Alverstone, Isle of Wight, *C. E. Palmer*; Dunbeath, Caithness, *Linton*. f. *extremum* Westerl., Sweden. f. *divaricatum* Kerner (*M. pratense*, var. *aureum* Norman), Sweden.

Var. HANS *Druce*, f. STENOPHYLLUM Beauv. Polycladous rarely oligocladous; about 20 cm. high; stem (1 mm. thick) flexuous, glabrous below, slightly goniotrichous above; cotyledons about 20 by 5 mm., disappearing before flowering; cauline leaves 1—3 pairs, more or less distant (internodes 20—35 mm.), ovate-lanceolate (about 35—70 by 3—14 mm.), glabrous on both surfaces; branching from the base; the branches elongate, flagelliform, flowering and leafy at the top; the intercalary leaves (0—2 pairs) similar to those of the stem; lower bracts entire, ovate lanceolate (30—70 by 3—16 mm.), shortly stalked; the upper (5—10 pairs) cuneate at base, more or less toothed or sub-entire; inflorescence from the fourth to the seventh node; calyx tube short with arcuate-setiform teeth; corolla golden-yellow, the mouth open, about 15 mm. long. The form STENOPHYLLUM

has the inflorescence from the fifth to sixth node; the intercalary leaves (1—2 pairs) about 40 by 3 mm. M. Beauverd thus names my specimens from Glen Dole, Forfar, 1843, *Gardiner*; near Moffat and Millaw Burn, Dumfries, *Druce*; Bridge of Brown, 1905, *Marshall*; near Betty Hill, *Shoolbred*; Findhorn, Nairn, 1887; Beauly, Easternness, 1889; Pandy Mill, Carnarvon, 1909; Boughrood, Radnor, 1908; Aber, Llanberris; Penmaenmawr, Carnarvon, *Loydell*; Keswick, Cumberland; Templemore, Co. Down; Killarney, Kerry [not Kelly], all *Druce*; Ashopton, Derby, *Linton* (see *Rep. B.E.C.* 1893); Derwent Dale, *Painter*. To these may be added the classic station Glen Cree, Wigton; Boat of Garten, Easternness; Blairgowrie, E. Perth; Kirkcudbright; Lake Lancashire (*Pearsall*)!; Arthog, Merioneth (*Barton*)!; Ambleside, Westmoreland; Somerset, N.; Beddgelert, Carnarvon.

F. PLATYPHYLLUM Beauv. differs in the less branched stronger stem—2 mm. broad; stem leaves ovate-lanceolate (50—70 by 10—14 mm.); intercalary leaves one pair or none, broadly lanceolate; upper bracts conspicuously toothed or pectinate-lanceolate; inflorescence from the fourth to fifth node. This is the southern and western analogue of the previous form. It occurs at Weir Bridge, S. Devon, 1895; Watersmeet, N. Devon, 1896; Winch Bridge, York, 1909; Glendalough, Co. Wicklow, 1901; Glengariff, Co. Cork, 1890; Glenariff, Co. Antrim, all *Druce*; also from Killarney, 1911, *C. Schroeter* in *Herb. Polytechnic Zurich*. Recently I have gathered it at Millook, Cornwall. Var. *chrysanthum* Beauv. and ff. *stenophyllum*, *dubium* and *latifolium*, Switzerland, Italy. Var. *sibiricum* Beauv., Siberia.

Var. INTEGERRIMUM Doell (*M. pratense*, sub-sp. *hians*, var. *vogesiacum* Beauv.), f. PSEUDOSILVATICUM Beauv. (*M. pseudosilvaticum* Schur). A polymorphous plant. The form has much the aspect of *silvaticum*, having the intercalary leaves (1—3 pairs) narrow, 35 by 4 mm., and the upper bracts entire or very slightly subdentate at base; Wassails Copse, Odiham, N. Hants., *C. E. Palmer*; Burnham Beeches, Bucks., *Loydell*. F. *vogesiacum* Beauv., Germany, Austria, France, Switzerland. Var. *linifolium* Rönninger, Germany, Switzerland.

This notice has been drawn up under difficulties. All my specimens of the *pratense* group prior to 1914 were sent to M. Beauverd, and in consequence of the war he has been unable to return them,

The identification, therefore, of some of the localities cited is somewhat conjectural, and I had no opportunity of checking the spelling of place-names. With regard to the forma *platyphyllum* of var. *hians*, it is probable that if M. Beauverd could have seen living examples in situ he might have given it a higher grade, to which Dr Schroeter, to whom I showed it at Killarney, thought it was entitled. See also *New Phyt.* and *Rep. B.E.C.* 362, 1915.

1961. *M. SYLVATICUM* L. This *M. Beauverd* divides into three subspecies. *M. Guinieri* Beauv., France; *M. saxosum* (Baumg.) Beauv., and *M. eu-sylvaticum* Beauv. The latter has two vars. and two sub-vars. from Hungary and Bulgaria. *M. eu-sylvaticum* is divided into the pale and dark yellow forms. Those with the pale corolla are: var. *tricolor* Beauv., sub-var. *abietinorum* Beauv., and *cembrarum* Beauv., Switzerland; sub-var. *roseum*, Switzerland, Austria; var. *albidum* Beauv., Sweden, Austria; var. *bicolor* Behm, Sweden; var. *pallens*, Austria; var. *ochroleucum* Beauv., Switzerland; var. *angustissimum* Schur, Hungary. The darker yellow forms are: var. *nanum* Beauv., Austria, France; var. *decumbens* Westerl., Sweden, Switzerland; var. *dentatum* Schur and sub-var. *laricetorum* Beauv., Germany; f. *macrodontum*, f. *obscurum*, and f. *typicum* Westerl., Germany, Sweden, Switzerland, Hungary, Italy, France; f. *reflexum* Schur, sub-var. *intermedium* Beauv., Sweden; f. *sinuatum*, Switzerland; f. *subdentatum*, Sweden, Germany, Austria, Switzerland; var. *edentatum* Schur; sub-var. *gracillimum* and f. *maritimum*, Switzerland, Italy, France; f. *norvegicum*, Scandinavia, Russia; f. *montanum*, Germany, Switzerland, Italy, France; sub-vars. *latifolium* Hartm., *angustifolium*, *NEPHELOBIUM*, *turfosum*, *genuinum*, *vulgatum*, *dubium*. No British localities are cited for any of the varieties or subordinate forms except in the case of the var. *EDENTATUM*, sub-var. *NEPHELOBIUM*. This is my plant from Coshieville and Lawers, M. Perth.

In a tabular form the British species of *Melampyrum* therefore stand as:—

*Gen.* 463. *MELAMPYRUM* (Tourn.) L.

- 1958. *M. CRISTATUM* L., Ang. 11.
- 1959. *M. ARVENSE* L., Ang. 9 (1), sub-var. *Schinzii* Beauv.
- 1960. *M. PRATENSE* L., 109, H. 39, sub-sp. *pratense* [var. *alpestre* Beauv.], sub-var. *scotianum* Beauv. (var. *purpureum* auct. ang.), Scot. 2, Kerry.

[Var. *typicum* Beauv.], sub-var. *foliatum* Neum., Tyrone; f. *laxum* Beauv., Sussex.

Var. *paludosum* (Gaud.), sub-var. *eu-paludosum* Beauv., Cheshire, M. Perth.

Var. *montanum* Johnst. 15, H. 1.

Var. *ericetorum* D. Oliv., 10, H. 2.

Sub-sp. *vulgatum* (Pers.) em. Beauv., var. *britannicum* Beauv., Hants., Skye.

[Var. *commutatum* Beck.], sub-var. *concolor* (Schönheit) Beauv., Berks., Kerry.

[Var. *vulgatum* Beck.], sub-var. *laurifolium* Beauv. (*latifolium* auct. ang.), Ang. 6.

[Sub-var. *digitatum* Schur], f. *ovatum* (Spenner) Beauv., Ang. 2, H. 1; f. *lanceolatum* Spenn., 3.

Var. *hians* Druce, f. *stenophyllum* Beauv., 17, H. 2; f. *platyphyllum* Beauv., 2, H. 4.

[Var. *integerrimum* Doell], f. *pseudosilvaticum* Beauv., Ang. 2.

1961. *M. SYLVATICUM* L. Brit. bor. 21, H. 2 (1).

Var. *pallidiflorum* F. B. White, Scot.

Var. *edentatum* Beauv., sub-var. *nephelobium* Beauv., Scot. 2.

2026. *SALVIA VERBENACA* L., a large flowered form. Between Shoreham and Hove, Sussex, 1917, Miss Todd. An entirely different plant from *S. Marquandi* so that the length of the corolla tube is not necessarily correlated with other characters.

2044. *PRUNELLA VULGARIS* L., var. *DUNENSIS* mihi. Plants small, 3—4 cm., with arched lower branches; leaves with a few blunt teeth or sub-entire, thinly clothed, as is the stem, with strong white hairs; inflorescence in short compact heads, 1—1.5 cm., the bracts large and fringed with white hairs. In the slacks of sand-dunes at Pembrey, Carmarthen, and at Whiteford Point, Glamorgan, July 1916, G. C. DRUCE.

2050 (2). *MARRUBIUM PEREGRINUM* L. Alien, S. Europe. Chicken run near Woodhall Spa, Lincoln, 1917, Rev. E. A. WOODRUFFE-PEACOCK and Rev. F. ALSTON.

2060. *STACHYS OFFICINALIS* Trevis, lusus *PELORIA* Druce. A fine peloric form with the terminal florets perfectly regular and campanu-



late. Gibside Wood, Durham, J. HESLOP-HARRISON in *Vasculum* 95, 1917.

2065. *LEONURUS CARDIACA* L., var. *HIRSUTUS* Hornem. Suppl 66. Leaves for the greater part trifid, more rugose and more softly hairy than the type; calyces softly hairy and less strongly spinescent. Chicken run, Tower-le-Moor, Lincoln, Revs. F. ALSTON and E. A. WOODRUFFE-PEACOCK; Didcot, Berks., and waste ground, Oxford, G. C. DRUCE.

2077. *BALLOTA NIGRA* L., var. *MOLLISSIMA* Druce. Mitcheldean, Hereford, Miss TODD; Llenford, Monmouth, DRUCE. Foliis tenuibus, magnis, molliter pubescentibus, calyci pilis albis longissimis copiose hirsuto. This differs from *membranacea* in the soft pubescence of the leaves and the densely long white hairs of the calyx. In *membranacea*, which has the same thin large leaves, the pubescence is much sparser and shorter.

2079. *TEUCRIUM SCORODONIA* L., var. *CRISPUM*. Devonshire, F. W. STANSFIELD. This has been in cultivation for 50 years and still retains the curious crisped margin to the leaves. The plants are under experimental culture by Miss Rayner at the University College, Reading.

2091. *PLANTAGO MARITIMA* L., sub-var. *BRACTEATA*, comb. nov. Leaves broad, slightly toothed; lower flowers of the inflorescence strongly bracteate; bracts gradually diminishing in size (the lowest 10—15 mm. long) upwards. Polperro, Cornwall, 1916, F. RILSTONE. This is a *lusus* rather than a variety.

2091. *P. MARITIMA* L., var. *LEPTOPHYLLA* Mert. & Koch Deutsch. Fl. i., 808. Cape Grosnez, Jersey, August 6, 1832, J. GAY MS., in *Bibl. Kew.*

2111 (2). *AMARANTHUS ANGUSTIFOLIUS* L., var. *GRAECIZANS* (L.) Thell. in Asch. & Graeb. Syn. v., 306, 1914. *A. graecizans* L., *A. Blitum* (not of L.) Th. Dyer Fl Trop. Afr. & Fl. Cap. Alien, Asia, occ., Africa. Tweedside, Selkirk, 1913, Miss I. M. HAYWARD; ash-heap, Aldrington, W. Sussex, 1911, T. HILTON. Det. A. THELLUNG.

2116 (7). *A. PANICULATUS* L. Alien, tropical and semi-tropical areas. Cult. fields, Gorey, Jersey, 1900, S. GUTTON. This is placed under *A. hybridus* L. by Thellung in his erudite Monograph in Asch. & Graeb. *Syn.*, l.c.

2116 (8). *A. QUITENSIS* Humb. Bonpl. & Kunth Nov. Gen. et Sp. ii., 194 [156], 1817. Alien, S. America, Argentine, etc. West Drayton, Middlesex, 1916, Miss COBBE; Malvern, Worcester, DRUCE.

2124. *CENOPODIUM ALBUM* L. Under the group ALBA Dr Standley in the North American Flora xxi., i., 11, 1916, has made a key of the allied species as follows:—

Blades of the lower leaves about as broad as long.

Young leaves and inflorescence bright red; plants 1-3 metres high,  
stout.....*C. amaranticolor*

Plants bluish-green, never red, 3-10 dm. high, usually slender...*C. VIRIDE* L.  
(*opulifolium* Schrad.)

Blades of all the leaves conspicuously longer than broad, often twice as long or longer.

Calyx open, exposing the fruit.....*C. ferulatum*

Calyx closely enclosing the fruit.

Plants coarsely and loosely farinose yellowish; seed coarsely punctate.....*C. dacoticum*

Plants very finely and closely farinose; seed finely punctulate or smooth.

Seed dull; blades of leaves conspicuously hastate.....*C. petiolare*

Seed shining.

Leaf-blades, all except the lowest, entire, lanceolate or oblong-lanceolate, bright green....*C. LANCEOLATUM*  
(*album*, var. *integerrimum*)

Leaf-blades nearly all dentate or lobed, broader than lanceolate.

Seed 1.3-2 mm. broad; plants not ill-scented.

Plants bright green; inflorescence usually loose and open.....*C. PAGANUM*

Plants copiously farinose; inflorescence usually dense.....*C. ALBUM*

Seed 0.8-1 mm. broad; plants usually ill-scented.

Leaf-blades conspicuously three-lobed, the upper hastate; plants stout, yellowish.

*C. HIRCINUM*

Leaf-blades dentate, never three-lobed; plants slender, never yellowish....*C. BERLANDIERI*

The plants of this section which have been found in Britain are printed in capitals, and as some of them are of frequent occurrence on

waste ground, remount areas, etc., it was thought that this key might be useful, especially as in the most recent British Flora they are either not included or inadequately described. It will be noted that Dr Standley makes *opulifolium* Schrad. = *viride* L.

2130 (3). *CHENOPODIUM PANICULATUM* Hook. in Bot. Misc. ii., 237, 1831. Alien, S. America—Peru, etc. Woollen mill, Selkirk, 1916, Miss I. M. HAYWARD, teste A. THELLUNG. Probably this from Pye Hall Farm, Suffolk, E., 1917, A. R. HORWOOD.

2151 (3). *ATRIPLEX MUELLERI* Benth. Fl. Austr. v., 175. Alien. Plants probably belonging here were found at Bradford, York, in 1917, by J. CRYER.

*Gen.* 510 (3). *BASSIA* All. Misc. Taur. iii., 177, t. 4, 1766 (not of L. Mant. 1771). *Chenolea* Thunb. Nov. Gen. 10, 1781, I.K.

2153 (20). *B. QUINQUECUSPIS* F. v. Muell. Census 30. *Anisacantha quinquecuspis* F. v. Muell. Trans. Vict. Inst. 134, 1855. *A. muricata* Moq. Chenopod. 84, I.K. *Chenolea quinquecuspis* F. v. Muell. Fragm. x., 91. Alien, Australia—N.S. Wales, Queensland. Between Galashiels and Melrose, Roxburghshire, 1913, Miss I. M. HAYWARD, teste A. THELLUNG.

2161 (2). *SALICORNIA GRACILLIMA* × *RAMOSISSIMA*. Brading Harbour, Isle of Wight, September 8, 1916, W. C. BARTON.

2161 (3). *S. DISARTICULATA* × *PROSTRATA*, var. *APPRESSA*. Newtown, Isle of Wight, September 1916, W. C. BARTON.

*S. DISARTICULATA* × *RAMOSISSIMA*. Newtown, Isle of Wight, September 1916, W. C. BARTON in *lit.*

*S. DISARTICULATA* × (*DISARTICULATA* × *RAMOSISSIMA*) with above, W. C. Barton. All these determined by Dr E. J. SALISBURY.

2168 (2). *SALSOLA PESTIFER* A. Nelson, Coult. & Nels. Man. 169, 1909. *S. Tragus* Reichb. Fl. Germ. Exc. 583, 1832 (not of L.). *S. Kali*, var. *tenuifolia* Tausch in Flora xi., 326, 1828. *S. Kali*, var. *pseudotragus* Beck in Reichb. Ic. Fl. Germ. xxiv., 172, 1909. Alien, Medit. region, Western Asia, Russia, central and south. Completely naturalised in N. America. Wrentham, Suffolk, 1917, A. R. HORWOOD.

*Ord.* 72 (2). PHYTOLACCACEAE Lindl. Nat. Syst. 219, 1836.

*Gen.* 515 (10). PHYTOLACCA L.

2168 (30). *P. DECANDRA* L. Of American origin, now quite naturalised in Europe. Alien, waste ground, Bradford, York, M. W., J. CRYER, vide sp.

2183. *POLYGONUM PATULUM* M. Bieb. *P. Bellardi* auct., non All. Port Talbot, Glamorgan, 1904, G. C. DRUCE; N. Wales, 1917, A. DALLMAN.

2186 (2). *P. POLYSTACHIUM* Wallich Cat. n. 1686. Alien, India. Hortal. Near Lynton, N. Devon, 1917, Miss COBBE. From a little hollow in a sand pit near the golf links at Woodhall Spa, Lincoln, Rev. F. ALSTON. A very large plant which looks as if it had been established for some years. This is a very ornamental and freely growing species which, like *cuspidatum*, may become naturalised. Planted at Welbeck, Notts., R. W. GOULDING.

*Gen.* 536 (2). *HELXINE* Req. in Ann. Sc. Nat. ser. I, v., 384, 1825.

2253 (5). *H. SOLEIROLII* Req., *l.c.* Alien, Corsica, Sardinia. Hortal. St. Just in Roseland, Cornwall, May 1917, Miss COBBE.

2261. *QUERCUS ROBUR* L., var. *CRISTATA* Henry in Gard. Chron. 34, 1917, fig. 13. *Lusus insignis, foliis parvis, contortis, obliquis, glandibus-glabris, apice depressis.* Cluster Oak. Savernake Forest, Wilts. The acorns are quite glabrous and have a flattened apex with a depression containing the remains of the styles. The leaves, much smaller than those of the type, are clustered together, owing to the abbreviated growth of the shoot. They are twisted and very oblique, the midrib dividing the blade into unequal parts. This seems to be a very interesting teratological condition—a *lusus* rather than a true variety. A. HENRY.

2313. *CEPHALANTHERA DAMASONIUM* Druce (*GRANDIFLORA*). A narrow-leaved form has been sent by Mr J. EDWARDS from Colesborne, Gloucester. It flowers a full fortnight before the ordinary broad-leaved form, and has, he says, a different habit.

2326. *ORCHIS INCARNATA* L., var. *PULCHELLA* Druce. (For details of this and the following Orchids see Supplement.) Lyndhurst, Teesdale, Sutherland.

2326 (2). *O. PRAETERMISSA* Druce, *lusus ECALCARATA* mihi. Padmore, Surrey, J. C. E. BOYS. *Lusus reversa* mihi. Charlbury, Oxford. Sub-var. *albiflora* mihi. Abingdon, Berks., G. C. DRUCE.

2327. *O. MACULATA* L., sub-var. *LEUCANTHA* mihi. Longmer, Salop; Tregaron, Cardigan, T. N. STEPHENSON; Wool, Dorset; Tackley, Oxon.; Ballyvaughan, Co. Clare. O'KELLY.

*O. maculata* × *foliosa* = × *O. scampstoni* mihi. This shows the natural hybrid. It occurred spontaneously at Scampston Park, York, and was sent me by Mr W. H. ST. QUINTIN.

*O. maculata* × *Habenaria Gymnadenia*. Tregaron, Cardigan, T. N. STEPHENSON; Birkenhead, Cheshire, 1917, E. F. PAYNE.

2327 (2). *O. FUCHSII* × *H. GYMNADENIA* Fermoy, Cork, 1916, T. H. LEACH.

Sub var. *albiflora* mihi. Wool, Dorset.

2338. *HABENARIA GYMNADENIA* Druce, var. *BOREALIS* Druce. Borrowdale, Cumberland, G. C. DRUCE.

Var. *bicolor* et *spiralis* (Heslop-Harrison in *Vasculum* 8, 1917). Durham.

2349. *IRIS PSEUDACORUS* L., sub-var. *AURANTIACA*. Flowers deep orange. In great plenty near Oxwich, Glamorgan, July 1917, Miss VACHELL.

2416 (3). *LILIUM CANADENSE* L. Alien, N. America. One plant far from houses in Tilgate Forest, Sussex, July 1917, Mr STEPHENS, ex A. WEBSTER, vide sp.

2429 (2). *JUNCUS VAGINATUS* R. Brown Prod. Nov. Holl. 218, 1810. *J. pallidus* R. Br., *l.c.* Alien, Australia. Tweedside, Selkirk, 1916, Miss I. M. HAYWARD.

2440. *J. GERARDI* Lois., var. *SORANTHUS* (Trautv. Bull. Bot. Soc. Mosc. xl., 3, 110, 1867). *J. soranthus* Schrank. Wyke Regis, Dorset; Anglesey, J. GRIFFITHS; Islay, Inner Hebrides. See A. BENNETT in *Rep. Wats. Exch. Club* 35, 1916-17. Buchenau describes it "flores turmatim, approximati, pallidiores (ferruginei vel straminei)." Engl. *Pflanz.* iv., 36, 112.

2448. *J. URUGUENSIS* Griseb. in Guett. Abh. xxiv., 317, 1870. Alien, Argentina. Tweedside, between Galashiels and Melrose, Roxburghshire, 1915, Miss I. M. HAYWARD. Det. (with reservation) A. THELLUNG.

2527. *CYPERUS DECLINATUS* Moench Meth. 317, 1794. *C. vegetus* Willd. Sp. Pl. i., 283, I.K. Alien, Chile. Border of Batchmore Lake, Rickmansworth, Herts., 1914, G. C. MACONCHY.

2614. *CAREX MURICATA* L., var. *FUMOSA* Grenier Fl. Jurass. 835. Husnot Cyperac. 18. Race *C. fumosa* Rouy Fl. Fr. xiii., 412. Spikelets in a compact head, glumes blackish, fruits black and shining. Near Didcot, Berks.; Wansford, Northants., G. C. DRUCE.

Var. *REMOTA* F. Schultz (name suggested by Rev. E. S. Marshall). Asthully, Oxon., July 1917, G. C. DRUCE.

*Gen.* 634 (10). *ELEUSINE* Gaertn. Fruct. i., 7, t. 1, 1788.

2631 (20). *E. INDICA* Gaertn. i., 8, 1788. Alien, tropical and sub-tropical areas. On ballast at Liverpool, 1872, J. HARBORD LEWIS; Meanwood, Leeds, 1916, E. C. HORRELL; Galashiels, Selkirk, 1916, Miss I. M. HAYWARD.

2656 (2). *PHALARIS LEMMONI* Vasey Ill. N. Amer. Grasses ii., t. 5, 1892. Alien, America—California, Arizona. Near Thetford, Norfolk, introduced with forage, 1916, F. ROBINSON.

2662. *ALOPECURUS PRATENSIS* L., var. In a pond near the Sewage Works, Galashiels, Selkirk, September 1916, Miss I. M. HAYWARD. An extraordinarily robust plant, with broad glaucous leaves, resembling those of *Elymus arenarius*. The flowers, however, are normal. The condition may have been induced by the strong nitrogenous mud in which it grew. In stature and coarseness it resembles *A. antarcticus*. G. C. DRUCE.

2673. *PHLEUM PRATENSE*, var. *INTERMEDIUM* (Jord.) F. Schultz Arch. Fl. Fr. et All. 325 as a species. *P. pratense*, race *P. nodosum*, var. *intermedium* Rouy Fl. Fr. xiv., 50. This chiefly differs from *nodosum* in being a more robust plant, 3-7 dcm., with the stem not much bent below, in the long inflorescence, 8-10 cm. (other vars. 2-4 cm. only). This is the plant which Mr Chester sent to the Club in 1916 (see *Rep. B.E.C.* 593, 1916). This year I have seen the same

robust plant at Nuffield, Oxon., and near Wilston, Wilts. Mr H. J. Goddard has also sent some for distribution from the vicinity of Salisbury. It has the swollen stem base of *P. nodosum*.

Var. *LONGIARISTATUM* Parnell Brit. Grasses 176, 1845. Root bulbous, awns nearly as long as glumes. Moist shady places, Roslyn Wood, etc., Midlothian, Parnell, *l.c.* As the author says, this variety occasionally occurs with a very short spike, in which case it closely resembles *P. alpinum*.

Var. *ARMATUM*, var. nov. Differs from type in the long awn (as long as the glume), and the usually shorter inflorescence. Parnell describes his var. as having a bulbous root, and thus var. *nodosum* L. But we have the same long-glumed form occurring in fibrous-rooted plants, as at Galafoot, Selkirk, Miss I. M. HAYWARD and G. C. DRUCE; Alyth, Mid Perth, M.T. COWAN; Slough, Bucks., 1900 (a short inflorescenced plant); Port. Talbot, Glamorgan, 1904, G. C. DRUCE.

2697. *DEYEUXIA NEGLECTA* Kunth, var. *BOREALIS* (Laestad.) Druce in *Rep. B.E.C.* 238, 1888. One of the most important discoveries of 1917 is that of the above arctic grass by Mr JAMES FRASER. It was originally found by me close to Killin Pier, Mid Perth, in 1888, and is one of our most northern grasses, being recorded from Finmark, Finland, West Bothnia and Greenland. It was still at Killin in 1891. After the hurricane, however, sawmills were erected for the cutting up of the uprooted pines. The sawdust from these mills gradually filled up the marsh, and in a few years the plant was destroyed. It seemed curious that no other marsh in the neighbourhood should yield it. Searches round the western end of Loch Tay on several occasions proved fruitless. There were good hopes that the somewhat extensive marshes between Killin and Crianlarich, part of which I vainly explored in 1916, might afford it a home. It was, however, reserved for Mr Fraser (who has kindly sent specimens for distribution) to discover it within a mile of its original station in 1917, so that this very rare and interesting grass is once more to be restored to the Scottish flora. The Vienna Actes seem to demand the name *Deyeuxia neglecta*, var. *elatior* (Hartm.) comb. nov., since it was first described as a variety by Hartman, under that name in Anders. Skand. Vaxt. ii., 95. Nyman places it as a sub-species *borealis* under *neglecta*. G. C. DRUCE.

2735 (4). *DANTHONIA PILOSA* R. Br. Prod. 177, 1810. Alien, Australia. Lanal. Selkirk, 1917, Miss I. M. HAYWARD.

2735 (5). *D. NUDA* Hook. f. Fl. Nov. Zel. ii., 337. Alien, New Zealand. Lanal. Selkirk, 1917, Miss I. M. HAYWARD.

*Gen.* 679 (5). *DISSANTHELIUM* Trin. in *Linnaea*, x., 305, 1836.

2744 (10). *D. SUPINUM* Trinius, *l.c.* Alien, Chile, Bolivia, Peru, Mexico. Galashiels, Selkirk, 1916, Miss I. M. HAYWARD. Det. Professor HACKEL through Dr A. THELLUNG.

2748 (6). *ERAGROSTIS CAPILLARIS* Nees *Agrost.* Bras. 505. Alien, N. America, West Indies. On canal bank, Aintree, Lancs., 1914. J. A. WHELDON.

2759. *POA PRATENSIS* L., var. e. *PLANICULMIS* Parnell *Grasses* 74, 1845. Stem stout, compressed; leaves short, broad, upper leaf folded, compressed, with the summit rounded behind; panicle erect; spikelets large; lowermost branches smooth and mostly in pairs; whole plant dark green. Common by roadsides. Var. *umbrosa* Parnell, *l.c.* Tall, slender; panicle somewhat drooping; branches rough, lower ones generally in fives; leaves long, narrow; whole plant light pleasant green. Shady places (often mistaken for *P. nemoralis*). Var. i. *arida* Parnell, *l.c.* About a foot high; panicle somewhat drooping; stem sheathed nearly to the summit, with the upper leaf passing behind the panicle; whole plant soon assuming a bleached appearance. Common in dry exposed places. Var. j. *retroflexa* Parnell, *l.c.* A small slender plant, with the lower branches of the panicle suddenly bent downwards. Frequent in pastures under shady trees. Occasionally mistaken for *Poa distans*. Var. k. *muralis* Parnell, *l.c.* Slender; 5-8 inches high, with short upright panicle. Frequent on wall-tops in shady places. Var. l. *arenaria* Parnell, *l.c.* Stout, upright, with large somewhat angular spikelets; outer palea 7-ribbed, inner palea frequently divided to base; whole plant somewhat glaucous. Sandy places on sea coast.

2761 g. *P. TRIVIALIS* L., var. *RIGIDIOR* Fl. Ingr. 760, 1861. Hungerford, Berks., July 1892; near Chatteris, Cambridge, G. C. DRUCE.



2776. GLYCERIA MARITIMA Wahl. Fl. Gothob. 17, 1820. *Poa maritima* Hudson Fl. Angl. 35, 1762. *Schlerochloa maritima* Lindl. Syn. 315, 1829. *Puccianellia maritima* Parl. Fl. Ital. i., 370, 1848. *Atropis maritima* Griseb. in Led. Fl. Ross. iv., 389, 1853. *Brachypodium maritimum* Roem. & Schultes Syst. ii., 743. *Hydrochloa maritima* Hartm. Gram. 8, 1819. *Molinia maritima* Hartm. Handb. 27, 1820. *Festuca maritima* Nyman Consp. 942, 1882; DC. Fl. Fr. iii., 47. *Festuca thalassica* Kunth Gram. i., 129, 1829. This is one of our most polymorphic grasses with a range of variation quite inadequately described even in Syme's *English Botany*. It has a wide geographical distribution, being found on the coast of nearly every British and all the Irish maritime counties. It is most abundant in muddy estuaries within the reach of tidal influence, salt marshes, gravelly margins of coast-line, or even in damp, rocky places, thinning out and disappearing where fine sea-sand occupies the shore. J. W. White (*Flora Bristol* 660) records *maritima* as growing on blown sand at Burnham, N. Somerset. With so wide a range of habitat and of geographical, edaphic, and soil conditions we might expect such a plastic species (or conglomeration of micro-species) to be a source of confusion to systematic writers. The above synonyms—and the list is by no means exhaustive—show the difficulty there has been in assigning even the generic name. Boswell Syme and Babington chose *Schlerochloa*; Hooker, *Glyceria*; Ascherson & Graebner, *Festuca*; Rouy, *Atropis*; Parlatore, *Puccianellia*; and Grenier & Godron, *Scleropoa*. Not only is the geographical range extensive, but *Glyceria maritima* extends to the limit of the mud seawards, only *Salicornia*, with occasionally submerged *Zostera* (as at Montrose, Poole, etc), acting as advance guards. Landwards it extends as far as the salt wash of the tide reaches. In salt mud-flats *Glyceria maritima* is a very conspicuous feature. The grey-green foliage, with numerous barren shoots and sparse small panicles, often prostrate or decumbent, occupy great tracts through which the tide-waters force their way, making runnels over which the procumbent branches hang. In the soft mud the branches occasionally root. The leaves are often rush-like, but they are folded, not truly junciform. When the wash of the tide becomes less pronounced and the mud changes into a less liquid consistence, the branches tend to become more compact and the stems more erect. In these drier marshes, especially where cattle feed, the plant is only about 3 dm. high, but it has a more upright

stem and large panicle. When the ground becomes gravelly, or rather when a stratum of gravel covers a mud-flat or the clayey margin of a tidal stream, the plant becomes distinctly caespitose (here and there a runner suggests what it might do if opportunity offered), and grows to the height of 6—8 dm. It has erect stout stems and comparatively few barren shoots with the characteristic distichous, spreading leaves of the mud form. On distinctly rocky or shingly coasts the plant assumes slightly different modifications. It is the plant which was reported from Ireland as *festuciformis*, and which I named as var. *hibernica* of that species. This *Glyceria* association on our coasts (the *Glycerietum* of Yapp, Johns & Jones) consists of *G. maritima* and *Salicornia*. When the mud is more solidified it forms the *Armerietum* of the same authors. This consists of several species, including *G. maritima* as a more tufted form. As those authors say (*Journ. Ecol.* v., 1917) when *G. maritima* colonises "bare silt, long creeping shoots are formed, which spread rapidly. Later, as the sward becomes higher and denser, the mode of growth changes. The main shoots take up a more erect position, and grow slowly or even die away, while a succession of lateral shoots of limited growth appears, giving the plant a close tufted habit." This tufted habit, however, becomes more specialised as the drainage becomes more complete, and with it come other variations, the cause for which does not at present appear to be ascertained. *Glyceria maritima* is a grass which seems to have been unknown to Linnaeus, its first binomial being given by Hudson in *Fl. Ang.* 34, 1762, where it is defined "Poa paniculata subspicata, spiculis secundis coarctatis, foliis convolutis." Hudson gives two Raian names, *Gramen paniculatum*, *maritimum vulgatissimum*, Syn. 409, and *Gr. caninum maritimum paniculatum*. In the *Historia* ii., 128, 1286 Ray describes it "Radix fibris albis tenuibus constat, unde plura exeunt germina. Folia brevia longitudine vix palmari, perangusta, carinata lateribus ita adductis et quasi complicatis ut teretia seu juncea videantur. Culmi satis firmi, pedales duobus tribusve geniculis intercepti in summo paniculam gestant palmarem, non multum diffusam, purpurascentem, e locustis seu spicis oblongis angustis, squamosis, non aristatis compositam. In palustribus maritimis ubique frequentissimum est. Hujus alia species occurrit major et elatior multo, ad bicubitalem altitudinem assurgens, stipulis, crassis etiam triticeis majoribus, quam nobis ostendit D. Newton." The first

Raian plant is represented in the Dillenian Herb. and the second is in Bobart's Herb. (*Hist. Oc.* iii., 202, n. 31). The latter consists of panicles only. The character of "radix fibris albis" distinguishes it from *Festuca rubra*.

Smith (*English Flora* i., 118, 1824) unites both plants of Ray under his *G. maritima*. Despite the polymorphism of the Grass few varieties have been described in British Floras. Parnell (*Grasses* 222, 1845) has a variety *hispida* under *Poa maritima*, which essentially differs in the weak and variable characters of the hispid or slightly toothed panicle branches (these also occur in *hibernica*, etc.), and in the more compressed stem. Townsend (*Fl. Hamps.* 648, 1904), under *Sclerochloa*, describes a var. *riparia*, which is a slender plant with fewer spikelets, nerves closer together, and a narrower white border to the lower palea, a character which Syme attributes to the type. Syme (*Eng. Bot.* xi., 103) has a var. *deflexa*, in which the panicle branches are deflexed or reflexed in fruit. In more recent times Praeger records *Glyceria festuciformis* from Strangford Lough. This I went to collect, but found that it graded towards *maritima*, and seemed to differ from the Adriatic plant in several points. Therefore (*Rep. B.E.C.* ii., 482, 1909) I named it var. *hibernica*. (Hackel agreed that it might be a local form). Recently I have seen similar plants in abundance in W. Sussex and S. Hants. The Rev. E. S. Marshall found about Port Victoria and Grain Port in Kent a remarkable form which was identical with one found by M. Foucaud on the coast of Charente-Inférieure, and which was subsequently named by Hackel as *Atropis Foucaudii* Hackel, ex Fouc. in Bull. Soc. Bot. Rochell 173, 1893 (see Husnot *Gram.* 49, 1896). The Kent specimen has flat leaves, and was (*Flora Kent* 405, 1899) 30 inches high, with an inflorescence 9 inches long. It had the silky pubescence on the nerves of the flowering glumes and ciliated upper palea, characters common to other *maritima* forms. It was afterwards reported from Muddiford, Hants., and Auginish Island, Co. Limerick (see *Rep. B.E.C.* 260, 1907). My type specimen from Mr Marshall, though of caespitose growth, has a runner. With the exception of the flat leaves, the presence of a runner, the larger central cavity of the culm, the silky hairs on the lower glume and the ciliate scales it resembles var. *hibernica* from Hants., Sussex and Kent, and Mr Praeger's *festuciformis* from Strangford Lough. Some specimens have the hairs and ciliation of *Foucaudii*. The spikelets

of *hibernica* are larger than the true *festuciformis* (10-15 mm. long as against 6-10); the flowers 5 mm. long as against 3-4 mm.; the central hollow of the culm about 1 mm.; the glumelles less unequal than in *festuciformis*. *Hibernica* differs from *Foucaudii* in having usually glabrous glumes and non-ciliate pales; more or less enrolled leaves; broader and often larger spikelets. Therefore *Foucaudii* may be worth separation as a variety. Rouy makes it a Race. One may add, that under the continental specimens sent out as *festuciformis* there is a very considerable range of variation, notably those from Sarepta, and those of Ahlberg from Sweden. These have long capillary panicle branches, but even in Fiori and Beguinot's cult. spec. (507 bis) from Val Figheri the plants are truly caespitose; the leaves narrow, convolute; the spikelets small (6-7 mm.), and the glumes not quite glabrous. In wild specimens from Tre Porti the spikelets are from 7-9 mm. This is indeed very close to my V791 from Paghham, except that the outer glumes are nearly sub-equal in the Italian plant. They measure 3 and 4 mm. against 1.75 and 3.5 mm. in the Paghham specimen. In a luxuriant plant of Praeger's the glumes measure 3.5 and 5 mm. On the whole the Irish plants show less divergence in the size of the glumes. Dr Rendle describes the lower glume of the Irish plant as  $1\frac{1}{2}$  to 2 lines long, the upper glume 2-2 $\frac{1}{2}$  lines. Some of my own gathering measured 2.5 and 3.5 mm. The spikelets of the Irish plant are less regular, coarser, and the florets less enrolled than continental *festuciformis*. Both Dr Rendle and Dr Stapf, I believe, now agree that true *festuciformis* has not been found in the British Isles. Therefore a problem in plant distribution, which presented great difficulties—the presence of an Adriatic plant in the eastern shore of North Ireland—does not at present exist. The varied forms of *maritima* require much further study. It is a question whether a number of them can be sufficiently isolated from their allies to be made separate varieties. A very large series of specimens collected in recent years seems to afford a few sub-varieties. The possible occurrence of two hybrids, one with *Borreri* and the other with *distans* are here described. In addition to these there is a northern form from the Forfarshire coast which may possibly be identical with the Swedish *suecica*, but this awaits further study. It may be added that continental authors by no means agree in their descriptions of *festuciformis*. For instance, Reichenbach (*Fl. Excurs.* ii., 45, 1833) says: "panicula oblonga

spiculis teretiusculis multifloris, bracteola ext. obtusa hispida, radice repente," but in *Icon. Fl. Germ. et Helv.* i., 48, 1850, he changes his description to "panicula aequali patente; ramis inferioribus subquinis, fructiferis arrectis; spiculis 5-9 floris; floribus lineari-oblongis obsolete 5-nervii subtricrenatis; culmo simplici; turionibus nullis; radice fibrosa." Archangeli (*Fl. Italica* 783) emphasises the stoloniferous growth of *maritima*, and says the glume is not half as long as the glumelle, whereas in *festuciformis* it is more than half as long. Rouy (*Fl. Fr.* xiii., 191, under *Atropis* as a Race) describes *festuciformis* as having no stolons or only upright barren shoots; spikelets shorter than in *Foucaudii*; flowers 2-3 mm. long; stem robust; leaves thick, conduplicate or enrolled, junciform; glumes rather unequal, elliptic, acute; the lower  $\frac{3}{4}$  or  $\frac{4}{5}$  as long as the contiguous glumelle; the upper roundish-oval or roundish trilobed at the apex; anthers about  $1\frac{1}{2}$  mm. (in *maritima*  $\frac{1}{2}$  mm). Ascherson and Graebner say the anthers of *festuciformis* are 1.75 to 2 mm. long, in *maritima* 1.75 to  $2\frac{1}{2}$  mm. long—a distinction of little value. The anthers of *maritima* vary considerably. I am unable to correlate their size with other characters.

2776. *G. MARITIMA* × *BORRERI* = × *G. BURDONI*. Growing with both the assumed parents at Pagham and, when fresh, looking a good intermediate. It has mostly flat glaucous leaves. The spikelets are broader than in *maritima*. The panicle branches are arranged so as to simulate *Borreri*, but it is a slenderer and taller plant. The glumes and spikelets of the upper branches approach the Kentish *Foucaudii*, of which it has the ciliate pales, which seem to occur in all the *maritima* forms.

2776. *G. MARITIMA* × *DISTANS*. Pagham, Sussex W., 1917. Ref. No. V742. This has the stout habit of *G. maritima*, var. *hibernica*. The leaves, however, are mostly flat, the panicle branches long, slender, the lowest 3-4 cm., naked for 1 to 1.2 cm. from the base, the branches straddling or spreading nearly at right angles. This is very near to the var. *deflexa*, differing chiefly in the flatter leaves, the long capillary lower panicle-branches and the more spreading panicle. To this hybrid may also be referred some plants gathered at Pagham in 1916 by the Rev. Preb. Burdon, which had an unusually large and open panicle and narrower spikelets, and also plants from Hayling Island, S. Hants.,

seen in 1917. These had many of the spikelets sterile, the panicle branches patent, ascending and flat leaves. They were growing with both parents, and had something of the facies of *suecica*.

2776. *G. MARITIMA* Wahl., sub-var. *AMETHYSTINA* (Meyer Chlor. Hann. 629), Ref. Nos. V 747, Pagham, July 1917; V 731 Chichester Harbour, Sussex W., July 1917. The latter forms a passage to var. *hibernica* in its larger size and more caespitose habit. G. C. DRUCE.

2776. *G. MARITIMA* Wahl., sub-var. *SUB-CAESPITOSA*. Ref. No. V 760. An intermediate between *maritima* and var. *hibernica*, having a loosely caespitose habit, but being usually of smaller stature than *hibernica*. In gravelly soil, Chichester Harbour, Sussex W., July 1917. G. C. DRUCE. Ref. No. V 782 from Pagham, Sussex W., scarcely differs, but is slightly nearer *hibernica*.

2776. *G. MARITIMA* Wahl., var. *DEFLEXA* (Syme E.B. xi, 103, under *Sclerochloa*). Ref. No. V 741 (*distantiformis*). This suggests a possible cross with *distans*, but I could see no positive evidence of the latter species, nor was *distans* itself noticed in the vicinity. Chichester Harbour, Sussex W., July 1917. This also occurred as the sub-var. *amethystina* (Meyer). G. C. DRUCE.

2776. *G. MARITIMA* Wahl., var. *HIBERNICA* (Druce under *festuciformis*). Ref. No. V 740 = *Atròpis Foucaudii* Hackel em. Rouy as a Race. *G. festuciformis* Praeger non Heyn. sensu stricto. Chichester Harbour, Sussex W., July 1917. G. C. DRUCE. This differs from Hackel's type *Foucaudii* from Kent, in the smaller spikelets, enrolled leaves, and caespitose growth without runners. Also Ref. No. V 735 from Pagham, Sussex W., July 1917, with smaller spikelets, and something of the look of *peisonis* from Corfu.

2849. *HORDEUM MURINUM* L., var. *INTERMEDIUM* Gunther Beck as forma. *H. leporinum* Link. *H. pseudo-murorum*. Tapp. Alien, E. Europe. On a newly made embankment, Southport, Lancs., 1911, J. A. WHELDON; Skinwork, Meanwood, Yorks., 1916, E. C. HORRELL.

2893. *POLYSTICHUM ACULEATUM* Roth, var. *PULCHERRIMUM* Wills. This beautiful alien fern was for a long time supposed to be barren. Eventually Mr C. T. Druery and Mr Green found a few spores. The majority of the resulting plants came true, but 30 per cent. were a

curious and beautiful mutant. As these matured, the majority were "quite of the parental," *i.e.* *pulcherrimum* type. A few were reversions towards the normal, but, singularly enough, rather towards *angulare* than *aculeatum*. This suggests that hybridisation may have been a factor in the original mutation. The rest were of great beauty, and formed the *gracillimum* Shield Ferns. See Druery in *Brit. Fern Gaz.* ii., 200, 1915.

2893. *P. ACULEÁTUM* × *SETIFERUM*. What are almost without doubt hybrids of these species have been found near Kintbury, Berks.; Lynton, Devon; Throwley Moor, Staffordshire; Chyverton, Cornwall. These have the pinnæ and stalk as in *aculeatum*, but the tothing and texture of *angulare* = *setiferum* Woynar.

2896. *DRYOPTERIS REMOTA* A. Br. See *Rep. B.E.C.* 260, 1907. Dr F. W. Stansfield queries this being true *remota*. He thinks it may be a form of *dilatata*. See *Brit. Fern Gaz.* iii., 1916.

2906. *CYSTOPTERIS FRAGILIS* Bernh., var. *SEMPERVIRENS* Moore. See *Rep. B.E.C.* 260, 1907. Lowe (*Native Ferns*) remarks, "Said to have been found at Tunbridge Wells and in Devonshire." Druery (*Brit. Fern Gaz.* 78, 1910) received it from Corrie Clanmor (?Ceannmor, S. Aberdeen), from Mr W. Young, of Kirkcaldy. Mr Druery sowed spores, and obtained a considerable number of plants. These proved their distinctness winter after winter by remaining not only perfectly evergreen, but practically growing all the year through. It is a robust grower.

2932 (2). *SELAGINELLA KRAUSSIANA* A. Br. See *Rep. B.E.C.* 434, 1916. In answer to my question about the occurrence of this plant in Donegal, Mr W. A. Lee says, "The possibility of the *Selaginella* having been planted would hardly be entertained, I think, by anyone who knows the situation referred to. It is quite remote from property, and, so far as my observation went, there were few evidences of green-house culture in the nearest town, Bundoran. If any botanist had been unscrupulous enough to plant the species, I think it would have appeared in greater quantity." This record should stimulate further investigation. The geographical distribution, which includes the Azores, where I have seen it, suggests that it might occur as a native species in Ireland. At present its isolated

occurrence in such small quantity seems insufficient to warrant its inclusion as an undoubted native species.

NOTES ON PUBLICATIONS, NEW BOOKS, ETC., 1916-7.

*(Owing to exigencies of space and the erratic receipt of foreign works this is necessarily incomplete.)*

FLORA OF THE COUNTY OF KERRY. REG. W. SCULLY, F.L.S. Six plates and map, pp. lxxxii, 406. Hodges, Figgis & Co., Dublin, 1916. In this portly volume is contained a very excellent and comprehensive account of the plants found in the most romantic county in Ireland, and one of the richest in plants peculiar to a single county. Nowhere in the British Islands is there a greater mingling of beauties than that which lies between Killarney and Glengariff. There are no more finely outlined mountains than the Reeks, and the sea coast along Kenmare Bay is extraordinarily beautiful. Such views as are to be seen from the Reeks or from Brandon Mountain live long in the memory. Nowhere are to be found finer contrasting prospects than those one sees in looking down the mountain slopes of Brandon, distant only a mile and a half from the sea, and then turning landwards towards the north-eastern side to view the rough, saxifrage-laden precipices, which have a grandeur peculiarly their own. It has been my good fortune to visit the county repeatedly, and in most brilliant weather, when even on Carrantuohill, the highest Irish summit, one looked in vain for a cloud. I have wandered in March among the bamboos and azaleas at Derreen, when the Reeks were snow-capped and looked like an alpine range. The county is of considerable extent, 1853 square miles, or 1,190,000 acres, of which no less than 191,000 is waste bog and mountain, and 32,800 under water. Kerry has seven mountains over 3000 feet (Carrantuohill is 3414). Eighty-eight are over 2000 and 190 over 1500 feet. It is over this extensive area, in many places exceedingly difficult of access, that Mr Scully has so indefatigably laboured, and this Flora is a monument to his industry and skill. He has given a very complete and accurate bibliography and history of the building up of the knowledge of its plants. The physical features of the county are excellently detailed, and there is a sketch of its geology and a description of its districts. Mr Scully claims for Kerry 840 species



or sub-species of the 1150 recorded for the whole of Ireland. So far as numbers go it is only slightly richer than Dublin, which is less than a fifth its size. One must bear in mind, however, that many of the eastern plants do not reach the western side of Ireland. Donegal, of about the same area, has a few more species, but a closer comparison with the Dublin Flora will show that of purely native species Kerry has the larger number. From its great humidity Kerry is specially rich in Cyperaceæ and Filices. Oddly enough, with such an extensive and varied seaboard, it has comparatively few maritime species, 60 only of the 80 Irish species being recorded. The deficiency is, the author thinks, probably due to the fierce Atlantic gales, which have a most destructive influence on maritime vegetation. The county offers many fascinating instances of plant distribution. Among the rare species are—*Fumaria officinalis*, *Hypericum perforatum*, *Ononis repens*, *Pimpinella Saxifraga*, *Anthriscus sylvestris*, *Linaria vulgaris*, *Carex gracilis*, and *Poa nemoralis*. Among other rarities are—*Ranunculus Lingua*, *Allium vineale*, *Potamogeton lucens* and *Carex disticha*; while *Thalictrum flavum*, *Ranunculus circinatus*, *Radicula amphibia*, *Viola hirta*, *Parnassia*, *Cynoglossum officinale*, *Euphorbia exigua*, *Orchis Morio*, *Glyceria distans* and *Hordeum* species have not as yet been found. Certain species are unknown elsewhere in Ireland—*Sibthorpia* and *Utricularia Bremii*, which the writer had the good fortune to add to its flora (found near the Gap of Dunloe); *Simethis planifolia* (*Pubilaria*), which grows near Bournemouth, whence in all probability it was brought with seeds of the maritime pine; and a variety *laevis* of *Agrostis canina*, which the writer found on Brandon Cliffs. It is, however, in the saxifrages that the Kerry Flora is so rich, and the puzzling maze of the *Geum* and *umbrosum* sections has received due treatment by Mr Scully. He gives several plates of the leaves of the varieties of these species, and shows that the Linnean *S. hirsuta* is a hybrid of the two, and that it frequently crosses with one or other parent. Prof. H. Dixon himself produced artificial hybrids and thus substantiates this statement. Mr Scully believes *S. Geum* is a diminishing species in Ireland. It is certainly much less plentiful about Killarney than it was in the seventies. Mr Scully is by no means a splitter: indeed he has grouped all the hypnoid saxifrages under *S. decipiens*, giving *groenlandica*, *Sternbergii*, and *sponhemica* as varieties. This, however, is much too conservative a view. There are certainly two or three

good species on the Brandon range. He quite rightly rejects *S. Andrewsii* as a Kerry plant. Doubtless it is of garden origin. For the first time in a British Flora the exotic *Escallonia macrantha* and *Fuchsia Riccartoni* appear. The latter is said to increase very rarely by seeding. Does it ever produce seedlings, and do they come true? The *Fuchsia* is said to be a hybrid raised at Riccarton, near Edinburgh (hence its name), one of its parents being *globosa*. Seedling forms would be greatly valued, and notice should be taken if any revert to the *globosa* type. *Orchis latifolia* and *O. incarnata* are said to be common and generally distributed. The former is recorded from all but one of the districts, the latter from all. They often occur in damp hollows in sand hills. Where they grow together intermediate forms have been gathered. Here again there is a rich field for the worker. The writer would gladly undertake the comparison of fresh specimens. Sufficient has been said to show that the presence of this Flora in the library of every British botanist is well nigh indispensable. Mr Scully is the last one to say the work is complete, but we are very grateful that he has removed the reproach that the county of Kerry had no published Flora. Other botanists will be induced to visit this charming region with such an excellent guide to its floral treasures, and one can confidently predict that other, and it may be very interesting plants, will in the not distant future be added to the list.

MONOGRAPHIE DU GENRE MELAMPYRUM par GUSTAVE BEAUVERD, Conservateur de l'Herbier Boissier. 25 figures, 3 graphiques and 3 cartes dans le texte, pp. 290-656, quarto. Mémoires de la Société de Physique et d'Histoire Naturelle de Genève, vol. 38, fasc. 6. 1916. Mémoire couronné du prix de Candolle par la dernière Société. A long expected monograph, which has occupied the attention for several years of the indefatigable curator of the Boissier Herbarium at Chambesy, and one which will add to his already great achievements in systematic botany. The species of *Melampyrum* are here very fully treated. To British botanists the investigations into the four species found in our own islands are necessarily of supreme interest, especially as one of them, *M. pratense*, is so polymorphic in character. It was the very great range of variability of *pratense* and *sylvaticum* in Switzerland which induced M. Beauverd to begin their study. In the Introduction full acknowledgment is paid to

those who have assisted him. Among them it is pleasing to see the names of his wife and daughter. The plan of the Monograph is as follows:—Chap. 1.—History. This includes anatomy, morphology, biology, physiology, teratology, systematic and botanical geography. Chap. 2.—Morphological Notes. Here a very complete list of authorities cited is given. There is one slight mistake. In the *Naturalist* for 1885 *hians* is described by me as a variety, not as a form. Chap. 3.—Biologic Notes. Chap. 4.—Properties and Uses. The blackening of *pratense* in drying is said here not to be caused by the presence of indican. Chap. 5.—Geographical Distribution. All the species are natives of the Old World except *M. lineare*, which occupies the woody region of cold and temperate North America, stretching right across Canada from Nova Scotia to British Columbia, and extending southwards as far as Carolina, Kentucky and Minnesota, *i.e.*, the country situate between 34° to 52° N. lat. and 65° to 130° W. long. *M. lineare* is also a polymorphic species, and like the rest of the genus hemi-parasitic; in fact it is the American homologue of the European *pratense* in its variability, but unlike that species it does not turn black in drying. Four species are represented in the immense region of Central Asia—*M. indicum*, *M. laxum*, *M. roseum*, and *M. arcuatum*. *M. indicum* Hook. and Thompson ascends in the Khasian Hills to 2000 metres. *M. laxum* Miquel is found in China, Japan and Corea. *M. roseum* Maxim. stretches across Asia into China, Manchuria, Corea and Japan. *M. arcuatum* Nakai is confined to Japan. In the Pontic-Caspian area there are four species in addition to *M. arvense*. These are *M. stenophyllum* Boiss., which stands between *pratense* and *nemorosum*, and has been confused with both; *M. caucasicum* Bunge, the Caucasus; *M. Alboffianum* Beauv., Trans-Caucasus, and *M. chlorostachyum* Beauv., Caspian area. The three last are allied to *M. arvense*. The European area has five species, which include the four found in Britain and *M. nemorosum*, which also spreads into Western Asia. The last is a very beautiful and variable species, and with its continental distribution might well have reached our shores. The very copious details of the four British species have been treated on pages 40-8 of the *Report*, by kind permission of our honorary member, M. Beauverd. The author in his treatment of the subject has included some very valuable cartes of the distribution of the species. Chap. 6 treats of the affinities of the genus, which

is, of course, with the Rhinanthus. He places *Melampyrum* after the recently described *Dispermotheca* (*Bartsia viscosa*), then *Odontites*, *Euphrasia*, *Bartsia*, *Bellardia*, *Parentucellia* and *Rhinanthus*. He puts *Tozzia* as a sub-tribe, and he leaves out of the series *Pedicularis*, which British authors have hitherto included in the true *Rhinanthus*. Chap. 7.—Classification, with Dissections of the Flowers. Revision of the Sub-genera. These are :—

Section A. Incompleta.

Sous-sect. 1, Carinata. Bractées repliées-carénées—*M. cristatum*.

Sous-sect. 2, Complanata. Bractées planes.

Group (a), Denudata. Corolle dépourvue de nectarostège—

*M. chlorostachyum* Beauv.

Group (b), Vestita. Corolle munie d'un nectarostège.

Laxa. Inflorescence lâche—*M. lineare*, *M. pratense*, *M. stenophyllum*.

Spicata. Inflorescence disposée en épi sub-cylindrique—

*M. Alboflorum* Beauv.

Section B. Completa.

Sous-sect. Complanata.

Group (a), Denudata (pas de Groupe b).

Spicata. Inflorescence en épi cylindrique—*M. arvense*,

*M. caucasicum* Bunge.

Laxiflora. Inflorescence lâche, disposée en racème dorsiventral

—*M. laxum*, *M. indicum*, *M. roseum*, *M. nemorosum*,

*M. arcuatum*, *M. sylvaticum*.

A full description of the fourteen species is then given, and most laborious and painstaking "Critères des divisions sub-spécifiques : leur hiérarchie." Hybridity is evidently very rare in the genus. The few suggested ones are fully discussed, as are questions of nomenclature. An alphabetical list of the 459 botanical works consulted in the preparation of the Monograph is appended, and the very complete Index extends to 13 pages. The very warmest thanks and the highest appreciation of this masterly piece of systematic work are due to M. Beauverd, who has not only given this excellent description and history, but has also enriched the genus with two good species and a large number of subordinate forms.

PROCEEDINGS OF THE BRISTOL NATURALISTS' SOCIETY, vol. 3, pt. 2, November 1912 (1911). Bristol Field Botany in 1912, Miss I. M. Roper. *Abutilon Avicennae*, *Trigonella gladiata*, *Lathyrus hirsutus*, Arno's Vale, 34; *Potentilla argentea*, Portishead, Somerset N.;

*Jasione montana*, Clevedon, Somerset N.; *Symphytum tuberosum* L., *Veronica hybrida*, near Bristol, Somerset N., are among the species noted. Vol. 4, t. 1, July 1914 (1913). Some Historical Associations of Flowers, the Presidential Address by Miss I. M. Roper. Fifty Years of Botany in Bristol by J. Walter White is a very valuable résumé of the work done by botanists on the flora of the very interesting area, which has been so thoroughly and charmingly discussed in Mr White's *Flora of Bristol*. Botanical Note by Mr J. White adds *Bromus interruptus* to the Bristol area and gives additional localities for *Antennaria dioica* and *Carex divisa*. Vol. 4, pt. 2, August 1915 (1914). Permanency in the growth of Plants by the President, Miss I. M. Roper. Bristol Botany in 1914, J. W. White, adds *Heliotropium europaeum* (alien), *Taraxacum palustre*, *Campanula patula*, and *Juncus tenuis* (Mrs Sandwith) Botany of the Steep Holme, Miss I. M. Roper.

THE BRITISH FERN GAZETTE. Published Quarterly. Edited by C. T. Druery (now by F. W. Stansfield, Oxford Road, Reading). The Organ of the British Pteridological Society. Sub. 5/- ann. Indispensable to the grower and collector of British ferns.

ASCHERSON und GRAEBNER, SYNOPSIS DER MITTEL-EUROPAISCHEN FLORA. Band vi.-vii., Lief. 92, February 27, 1917. *Euphorbia*, A. Thellung, pp. 421-479. In this the high standard of botanical and literary treatment is well maintained. *E. Peplis* is the only British species treated in this portion. It is described as having two forms—a red-stemmed *Erythrocaulis* Delpino Redic. Accad. Sc. Fis. e. mat. Napoli, 133, 1897, to which my plants from S. Devon may be referred, and the *Xanthocaulis* Delpino, l.c. They are based on the two plants mentioned by Tournefort and Magnol. Reference is also made to the occurrence of the alien, *E. prostrata*, in Hampshire.

ARMSTRONG, S. F. BRITISH GRASSES AND THEIR EMPLOYMENT IN AGRICULTURE, pp. viii., 199, tt. 175, Camb. Univ. Press, 1917; 6/-.

BAILEY, L. H. THE STANDARD CYCLOPEDIA OF HORTICULTURE, vol. vi. S-Z, pp. v., 3043 to 3639. Macmillan & Co., New York; 25/-.

BATESON, Prof. W. A. ROOT-CUTTING CHIMERAS AND SPORTS, Journal of Genetics, vi., December 1916.

BEGUINOT. FLORA PADOVANA, pt. iii. Dist. Geog., pp. 611-764, tt. xx. Padova, 1914.

BEWS, Prof. J. W. PLANT ECOLOGY OF THE DRAKENSBERG RANGE. In Ann. Natal Museum, iii., pt. 3.

BLATTER, E. FLORA OF ADEN, Rec. Bot. Surv. India, vii., n. 3, 1916, pp. 337-418. See *Rep. B.E.C.* 235, 1915, and 450, 1916. From Hydrocharitaceae to Finis. The Cryptogams of this arid spot are given and include 1 Fungus and 5 Lichens. This part completes the Flora. See *Rep. B.E.C., l.c.*

BONNIER, Prof. GASTON. NAME THIS FLOWER, pp. xii., 31, tt. 64. J. M. Dent & Co., London and Toronto, 1917; 6/4. Translated by Prof. G. Boulger.

BRENCHLEY, WINIFRED E., D.Sc. THE EFFECTS OF WEEDS UPON CEREAL CROPS, New Phyt., 53, 1917. These experiments proved that the weeds *Papaver Rhoeas*, *Spergula* and *Alopecurus myosuroides*, which were grown with wheat, had no toxic effects on the soil.

CARLETON, Prof. MARK A. THE SMALL GRAINS, pp. xxxii., 699. Macmillan & Co., London, 1916; 7/6. This gives an excellent and erudite account of the different kinds of wheat and other cereals—oats, rye, barley, buckwheat, rice, and of the areas under their cultivation in the United States.

CLEMENTS, Prof. F. E. PLANT SUCCESSION: AN ANALYSIS OF THE DEVELOPMENT OF VEGETATION, pp. xiii., 512, with 61 photo plates and 51 text figs. Carnegie Inst., Washington, 1916.

COUNTRY-SIDE LEAFLET. Edited by E. Kay Robinson, Warham, Glamorgan Road, Hampton Wick. Annual subscription, 1/6. British Orchids by H. Neville Brothers, age 14½.

DALLMAN, A. C. On *Ranunculus Ficaria*. See Lancashire and Cheshire Naturalist, 1916 and 1917. In this excellent paper Mr Dallman says he had upwards of 30,000 flowers examined in the spring of 1916. With the addition of those examined in 1913 that totals 50,000 flowers from sixteen counties. The great majority of the flowers had three calyx-leaves, the Sussex plants from Hurstmonceuz having 984 per thousand. The average for Scotland was

964 per thousand, for England 954. Four sepalled flowers are scarce, varying from 2 (Cheshire) to 64 (Worcestershire) per thousand. Flowers with five sepals varied from 5 to 18 per thousand, the last being obtained from Gourrock. 22,000 flowers only afforded three examples of six sepalled flowers. Eight petalled blossoms are the most frequent, varying from 7.918 to 8.636 per thousand. The average number of perianth leaves is about two. Mr Dallman says that the evidence so far obtained does not admit of environmental factors being considered sufficient to account for the variation in the floral leaves of *Ficaria*.

DAVIE, R. C., M.A., D.Sc. On the Leaf-trace in some Pinnate Leaves. Trans. Royal Soc. Edinb., lii, pt. 1, n. i., 1917. In addition to tropical ferns and other plants the British *Polypodium vulgare*, from very many Scottish localities, afforded confirmation of the results which had been observed in other plants. The factors which control the leaf-trace and its system of branching are:—(a) Systematic position; (b) the length of the leaf and the size of its appendages—Ferns and Cycads; (c) the order of the development of the pinnæ—Cycads and Dicotyledons; (d) the type of the vascular system found in the stem—Dicotyledons and Monocotyledons.

DAVIS, H. VALENTINE, B.Sc. FOOD GARDENING FOR BEGINNERS AND EXPERTS. A new, simple and scientific plan for growing food vegetables all the year round. Price, sixpence net. G. Bell & Co., London.

DRUCE, G. CLARIDGE. HAYWARD'S BOTANICAL POCKET-BOOK. Fifteenth edition, revised and enlarged, foolscap 8vo., limp cloth, 4/6; limp leather, wallet with pencil, etc., 6/-; velvet calf, 7/6. G. Bell & Co., London, 1917. This includes in an appendix most of the new varieties of British plants recorded in *Rep. B.E.C.* for the past four years.

TRANSACTIONS AND PROCEEDINGS OF THE BOTANICAL SOCIETY OF EDINBURGH, vol. xxvi, pt. iv., 1916. *Primula obconica* and its Microforms, Prof. I. B. Balfour, p. 301. Flora of Culbin Sands, Donald Patton and E. J. Stewart, p. 345. Notes on Some Scottish Plants, J. Fraser, p. 404. W. Arthur, King's Botanist, 1715-16,

Prof. I. B. Balfour, p. 375. *Juncus tenuis* in Britain, p. 408, and *Hydrilla verticillata*, A. Bennett, p. 422. Scottish Alpine Bot. Club Excursion, A. Cowan, p. 429. Vol. xxvii., pt. v., 1916. Plant Association, N. W. Yunnan, F. Kingdon Ward, p. 13. Notes on Flora of the Orkney Isles, A. Bennett, p. 54. Saxifrages of the Diplera section, Prof. I. B. Balfour, p. 65. *Rhododendron trichocladum* Franch. and its allies, and *R. lacteum* Fr., pp. 79, 97. A Hybrid Potamogeton *P. venustus*, new to the British Isles, A. Bennett, p. 104.

EVANS, A. H., M.A. Notes on Plants found in the District worked by the Berwickshire Naturalists' Club. See History, vol. xxiii., 217. A valuable paper, in which Mr Evans has brought together many records omitted from Mr Anderson's compilation already noted. Two plants on old evidence may well be excluded. One *Scheuchzeria*, "on the carriage drive at Badnell Vicarage," was no more likely to be found there than on the hat of the vicar's wife. *Juncus filiformis* from a hill-top is almost as problematical. Both, of course, Mr Evans rejects. *Mentha piperita* may be added for Roxburgh, *M. alopecuroides* for Selkirk, and *M. spicata* for Peebles, etc.

ELLIS, E. F. JOTTINGS OF A GENTLEMAN GARDENER. L. Reeve & Co.; 3/6.

ELLIS, J. D. HERBS USED IN MEDICINE, pp. 32, t. 16. Nat. Herb. Growing Ass., 1917; 3/-.

FARRER, REGINALD. ON THE LEAVES OF THE WORLD. 2 vols. 8vo. Vol. i., pp. 323; ii., 336. E. Arnold, London, 1917; 30/- net.

FRASER, J., and HEMSLEY, A. JOHNSON'S GARDENERS' DICTIONARY, 8vo., 923. Routledge; 12/-. The list of species, with a mass of detailed information, is alphabetically arranged in double columns under each genus. An extremely valuable and cheap publication.

FRITSCH, F. E., D.Sc., Ph.D., and SALISBURY, E. J., D.Sc. AN INTRODUCTION TO THE STUDY OF PLANTS, pp. viii., 397, with 8 plates and 223 text fig. Second edition. G. Bell & Co., London, 1917. One of the most comprehensive and useful books of its kind. To



those students who wish to obtain more than a superficial knowledge of the subject it may be strongly recommended.

A. FUCHS. Mitt. Bayer Bot. Ges. iii., 315, 1916. *Orchis purpureus*, var. *moravicus* × *O. tridentatus*, race *commutatus*. For this M. Schultze proposes the name × *O. Fuchsii*, but G. C. Druce has already published a species under that name.

GANONG, Prof. W. F. A TEXT-BOOK OF BOTANY FOR COLLEGES, pp. xi., 401. Macmillan & Co., 1916; 18/6. This deals with the Structures and Functions of Plants.

GARDENERS' CHRONICLE. This extremely useful periodical still keeps up a brave show despite the difficulties it has to encounter in these trying times. Among its contents for 1917 are Leaf-Glands in the Leaves of Peaches and Nectarines, p. 6. These glands are of two types, round and kidney-shaped. A remarkable correlation exists between the presence of glands and the detailed structure of the leaf. Glandless leaves have always serrate margins, and leaves with glands have crenate margins, but there are some, alas, of an intermediate character. Recent examinations by C. T. Gregory on a large scale show that the broad principle of serrate leaves being glandless is correct. These glands he contends are modified leaf-spines. Notes from a Galloway Garden, p. 13. Sir Herbert Maxwell relates that last year he found in pure shell sand, near Monreith, Wigton, a specimen of *Orchis pyramidalis*, a lime-loving species. There is no lime in the soil thereabouts, and the presence, Sir Herbert thinks, is due to wind and water-borne specimens from the chalk of Antrim or the lime-stone of Cumberland. He only knows of two instances of its occurrence in Scotland—one on the side of Luce Bay in the same county, the other in the Isle of Colonsay. The comminuted shell in the sea-sand contains lime sufficient to meet its need. In similar conditions the writer has found it in Alderney, and it has sporadically appeared on sea-sand in Jersey. In 1883 the writer found it near Castle Kennedy, and Scott-Elliot records it from Dumfries and Kirkcudbright. So that after all there is a possibility of its very minute seeds being wind-borne. In the Channel Isles it grew well above tidal influence, but of course the seeds would travel far above that level when carried with the spray. The Chilian *Lardizabala biternata*, says Sir Herbert, revels in our western humidity. The difficulty is

to keep it within bounds. These articles are continued through the year. The Cluster Oak of Savernake Forest with plate, A. Henry, p. 34. Mr Henry describes this as var. *crisata*, see p. 52. It forms a tree about 30 feet high and 5 feet 2 in. in girth at 5 feet from the ground. The one seedling obtained is like its parent. Mr Henry says the cut-leaved walnut, var. *laciniata*, also reproduced true. He thinks in such cases true sexual reproduction does not occur, and that such apogamic reproduction is not so rare in trees as is ordinarily believed. White Wood Strawberry, p. 88. Jane Austen in *Emma*, published in 1816, says "the best fruit in England—everybody's favourite . . . every sort—good—hautboy infinitely superior—no comparison—hautboys very scarce—Chili preferred—White Wood finest flavour of all." The question is asked, what is the White Wood? On p. 101 the answer is given that it is the white-fruited form of *F. vesca*, which was very popular in the early days of last century, and which, added to the garden fruit, much improved the flavour of the jam. It may be added that the writer's var. *bercheriensis* is a large-leaved, white-fruited form of *vesca* which was, after cultivation, considered by Count Saulms-Laubach to be originally a cultivated form that had reverted to some extent to the wild type. Mr Whitwell, who also grew it, said: "They certainly were of excellent flavour, as the village children had found out." Aldenham Garden in Winter, p. 93. Mesopotamia in January, F. K. Ward, p. 131. Insecticides, p. 139. Plantae Wilsoniadae, p. 144. Crusoe's Island, Juan Fernandez, and other numbers, J. Hutchinson, p. 199. A series of very readable articles. Mossy Saxifrages, p. 205. *Anemone Pulsatilla*, W. R. Dykes, with plate, p. 209. Alpines without a Rock Garden, p. 211. The writer suggests sowing seeds of the Cheddar Pink and other rarities on other peoples' garden walls—a practice which, if widely followed, would increase our adventitious flora, but greatly to be deprecated as apt to confuse scientific facts. Surely in war-time a better outlet for energy might be discovered. Letters from Japan, E. H. Wilson, p. 249. Double Flowers, p. 254. Pt. 2. *Adamsonia digitata* on the Ganges (misprinted *Adamsonia*), p. 22. The Lizard on a Morning in June, J. Hutchinson, p. 31, records the *Mesembryanthemum* from Caerthillian as *M. aequilaterale*. The yellow-flowered *M. edule* from the Cape, which was first identified as British by the writer, was also gathered there by Mr Hutchinson. He also found *M. acinaciforme* near Porthleven and Looe Pool, where the

writer saw it many years ago. It was, however, so evidently planted that it was not thought worth recording. Prof. Graebner definitely named a Cornish plant *acinaciforme* when on the International Phytogeographical Excursion in 1911. Vegetation of Koweit India p. 50. *Athyrium Filix-foemina*, var. *clarissimum*, p. 81. A good plate of this is shown (fig. 30). It is a beautiful variety, originally found by Mr B. Moule of North Devon in 1868, and is especially interesting from the phenomenon of apospory being discovered by Mr Druery on one of its fronds. White-fruited Whortleberry, p. 84. *Polygonum polystachyum*, fig. 34, p. 96. This has recently been found quasi-wild in Devon and Lincolnshire. Flora of the Chinese-Tibet Borderland, G. Forrest, p. 105. Trees at Tortworth Court, Gloucestershire, p. 115. The Colour of Flowers, p. 130. Weeds in Australia, H. W. Davey, p. 137. The worst weed in Victoria appears to be *Hypericum perforatum*. The Blackberry is a serious pest, as are *Rosa rugosa*, *Lycium horridum*, a Cape plant, often used for hedges, and *Echium violaceum*, known as Paterson's Curse. The latter follows the railway line. In 1914 the writer saw by the road-sides and in pastures between Adelaide and the Murray River millions of the dry stems of an *Echium*, which may have been this species. Pergolas, p. 175. Worthington G. Smith, memoir and portrait, p. 180.

GOULDING, E., D.Sc., F.I.C. COTTON AND VEGETABLE FIBRES, THEIR PRODUCTION AND UTILISATION, with a preface by Sir Wyndham R. Dunstan, pp. x., 230. An Imperial Institute Handbook. John Murray, London, 1917; 6/-. This forms an extremely valuable addition to the works, such as "Rubber" and "Cocoa," already issued under the auspices of the Imperial Institute. It gives in a very concise form an extraordinary amount of practical information as to the origin, character, cultivation and utilisation of Cotton and other vegetable fibres. It also gives their classification and their botanical and geographical sources. Of these Cotton is, of course, the most important, and, as is the case with plants that have been long in cultivation, there are great divergences of opinion as to the identification of the various cultivated forms. Linnaeus admitted 5 species, the Kew Index enumerates 45, Todaro 54, and Watt describes 42. The plant in cultivation responds to altered conditions. It readily hybridises, and has a great range of variation. Over 100

distinct races of Upland Cottons have been brought into existence in efforts to improve the stock. Cotton is the greatest manufacturing industry of the British Isles. Yarn to the amount of £96,000,000 and cotton piece goods to the value of £82,000,000 were produced in 1907, giving employment to over half a million people. The total exports in 1913 amounted to £125,600,951. The areas of Cotton under cultivation are mentioned, and its mode of cultivation, its diseases, and commercial varieties are described. The finest quality is the "Sea Island," which has its origin in Carolina, Georgia, and Florida, and which I have seen extensively grown in St. Vincent. Other fibres described are:—Flax (*Linum usitatissimum*), which gives its name to the Rue Cannebière at Marseilles, its methods of preparation and production—the chief source being Russia, which yearly produces three-quarters of a million tons, nearly ten times as much as all the other countries combined; Hemp (*Cannabis sativa*), of which again Russia produces 356,000 tons against about 150,000 from other sources; Sun Hemp from *Crotolaria juncea* is of Indian origin, while Ramie comes from an Urticaceous plant known as *Boehmeria nivea*, and is also Indian and Chinese; Jute, the substance which has given Dundee its commercial prosperity, is obtained from two species of *Corchorus*, belonging to the *Tiliaceae*, and its cultivation covers nearly 3½ million acres in India. Other sources of supply are Nigeria, Sierra Leone, and Gambia. The various substitutes are also detailed. Cordage fibres are dealt with, such as Manilla Hemp from *Musa textilis*; Sisal Hemp from an aloe, *Agave sisalana*; Mauritius Hemp from *Furcraea gigantea*; and New Zealand Hemp from *Phormium tenax*, a Liliaceous plant. The latter has recently been cultivated with good results in the west of Scotland. Coir-Coco-nut fibre and other palm products are detailed, and valuable technical information is given as to wood-pulp and other paper-making products.

HAGSTRÖM, J. O. CRITICAL RESEARCHES ON POTAMOGETON. pp. 281, tt. 119, 4to. Almqvist & Wiksells. Reprinted from Kungliga Svenska Vetensk. Handl., band. 55, n. 5, 1916.

HARSHBERGER, J. W. GERMINATION OF ACORNS. American Forestry xxii., 687, 1916. The author's method is to germinate green acorns before the shells begin to glaze and then to winter the young

oaks in a cold frame. The method was suggested by Guppy's discovery of viviparous acorns in England.

HIERN, W. P. Botany in Trans. Devonshire Assoc. xlviii., pp. 137-153, 1916. A very valuable contribution to the botany of the eight botanical districts into which the county is divided. It includes not only the Phanerogams but Cryptogams, and several galls are incidentally mentioned as new British species. Miss Larter contributes some Phenological notes. Two new Seaweeds are included, and a new variety of *Hypericum Desetangsi*. The latter was found by Mr A. Sharland. It is greatly to be desired that the excellent example set in this Report should be followed by the Natural History Societies of other counties, so that systematic records of the additions to the floras might be more easily referred to, and put on permanent record.

HITCHCOCK, A. S., and CHASE, AGNES. Contr. United States Nat. Herb. GRASSES OF THE WEST INDIES. Vol. 18, pt. 7, 1917. These include 110 genera and 455 species. One of the genera is *Saugetia*, named after Brother Léon, Joseph Sylvestre Sauget, of the College La Salle, one of the most active of Cuban botanists. *Ed. News.*

HOLMBERG, O. R. FORMS OF PUCCINELLIA (GLYCERIA) IN SCANDINAVIA. Bot. Notiser 251-4, 191, 1916. The author mentions *P. maritima* (Huds.) Parl., f. *explanata* (Lindeb.); var. *reptans* (Hartm.); *P. baltica* (Lindeb.), and a form,  $\times$  *P. Dusenii* Lindeb.; *P. rupestris* (With.) Fernald, an invalid name; *P. distans* Parl., f. *capillaris* = *pulvinata* Fr., f. *litoralis* Hackel;  $\times$  *elata* (*distans*  $\times$  *suecica*).

HORT, SIR ARTHUR. THEOPHRASTUS' ENQUIRY INTO PLANTS, AND MINOR WORKS ON ODOURS AND WEATHER SIGNS. 2 vols., pp. xxviii., 475; ix., pp. 499, 8vo. W. Heinemann, London; 5/- each.

THE IRISH NATURALIST, 1916 to May 1917. *Andromeda Polifolia* L. N. C. R. for Co. Antrim, W. J. C. Tomlinson. Author Index for 25 volumes by Alice Scarff, p. 173, a most valuable and welcome production. *Characeae* of Fanad, E. Donegal, Canon G. R. Bullock-Webster (see *Rep. B.E.C.* 511, 1916). *Lactuca muralis*, *Zostera marina*, var. *angustifolia*, and *Z. nana* in Co. Down, Rev. C. H.

Waddell. *Hypopitys* in Co. Leitrim, Mrs Praeger. *Elymus* and *Asparagus officinalis* on North Bull, Dublin, N. Colgan. Bryophytes of the Glen of the Downs, Co. Wicklow, D. M'Arde. *Selaginella Kraussiana*, Bundoran, W. A. Lee (see p. 63). We regret to notice that in the Irish revolt the back numbers and other property of *The Irish Naturalist* were destroyed.

JEFFREY, E. C. THE ANATOMY OF WOODY PLANTS. Chicago Univ. Press. pp. x., 478, 1917; 4 dollars.

JEKYLL, GERTRUDE. ANNUALS AND BIENNIALS; the Best Annual and Biennial Plants and their Use in the Garden, with Cultural Notes by E. H. Jenkins, pp. 174. Country Life Offices; 7/6. Of the 44 illustrations some are coloured, that of "*Nigella*, Miss Jekyll" forming a charming frontispiece. The notes on the selection and cultivation are extremely valuable. On this subject no one can speak with greater authority than Miss Jekyll, who adds to her knowledge of the subject the requisite quality of taste in a very high degree. There are so many hardy or semi-hardy plants belonging to the grade Miss Jekyll writes about that the process of selection is made easier by the use of this charming volume.

JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY, October 1916. Early mention of the Double Wallflower, E. Saunders. Flora of North-Western Yunnan, G. Forrest. Report of Work in Kan-Su and Tibet in 1914, R. Farrer. Medicinal Herbs, E. M. Holmes.

LAGERHEIM, G. Svensk Bot. Tidskr. x., p. 67-72, 1916. *Anemone nemorosa*, var. *cyanopsis*. Floribus sepalis ad basim macula coerulea preditis. Var. ? *micrantha* Lagerh, l.c. Floribus hermaphroditis parvis, sepalis nonnihil incurvis, in parte interiore subviridibus, subtus plus minusve viridi-rubris; floribus femineis minimis, sepalis gynaeceo subappressis rubris. The former seems to be only a weak variation of var. *caerulea*, the latter surely a monstrous form, not a variety. (Compare *Rep.* iv., 397 and *Annals of Botany* 525, 1916).

LONG, H. C. PLANTS POISONOUS TO LIVE STOCK, pp. vi., 119. Cambridge University Press; 6/.

LOTSY, J. P. EVOLUTION BY MEANS OF HYBRIDIZATION, 8vo., pp. x., 116. M. Nijhoff, The Hague, 1916; 6/.

MACVICAR, SYMERS M., in Trans. and Proc. Bot. Soc. of Edinburgh, 1910. The Distribution of Hepaticae in Scotland, pp. 336, in vol. xxv. A splendid compilation, including a historical survey from Sir Robert Sibbald onward. 83 species are found growing at three thousand feet and upward.

MAIDEN, J. H., and BETCHE, E. CENSUS OF NEW SOUTH WALES PLANTS. Mr G. J. Playfair adds a Supplement, in which 1000 species and varieties of Algae are enumerated. Gullick, Sydney, 1916.

MANSFIELD, Prof. W. HISTOLOGY OF MEDICINAL PLANTS. New York, Wiley & Sons; London, Chapman & Hall; 3/6.

MILLAIS, J. G. RHODODENDRONS. An account of all the species, including azaleas and the various hybrids. 4to., 14 collotype plates. Longmans, Green & Co.; £8 8/-. See cover of *Report*.

THE NATURALIST, 1917, edited by T. Sheppard, M.Sc., and T. W. Woodhead, Ph.D., M.Sc. April. Observations on *Ranunculus Ficaria*, Mary A. Johnstone, B.Sc., continued from p. 105. 1. Flowering forms are not the commonest in shade habitats. 2. The tuber-bearing form is common in such places. 3. The tuber-bearing form is not limited to shade. It often exists intermingled with, or close by the other, in even the most brilliantly lit spaces. 4. The closer community of the grass-land never harbours the tuber-bearer. 5. On being subjected to change of surroundings the plant seems to retain its tuber-bearing characteristic, even when it changes many others. May. *Orobanche reticulata* Wallr. Mr Arthur Bennett records it for N.-E. Yorks., 1881, G. Webster, as *O. minor*. He makes no reference to this *Report* where the plant was first recorded. At that date he had placed it with *O. rubra* Sm., but lately saw it could not be that species. It lacks the exact station. June. Economic Mycology—the Beneficial and Injurious Influences of Fungi. The Presidential Address to the Yorkshire Naturalists' Union, delivered at Selby, Dec. 2, 1916, p. 185. An exceedingly pleasing and useful essay. Its author has recently presented to the Botanical Department of the Leeds University a collection of Myxomycetes. Obituary of William Foggitt, with portrait, p. 205. July. Obituary of Samuel Margerison, p. 235. Poem, by F. A. Lees, with portrait, p. 270. Hedge Bedstraw among Stone Walls, F. A. Lees, p. 328.

Botanical section of the Yorkshire Naturalists' Union, p. 358. *Impatiens glandulifera*, as cited by Mr W. B. Haley, is only a quite recent introduction. "*Convolvulus americanus*" is making headway on the banks of the Calder. Obituary of Robert Braithwaite, with portrait, p. 361.

NATURE, 1917. This invaluable publication still maintains its high traditions. Published weekly at 6d, by Macmillan & Co., St. Martin's Street, London, W.C.

NICHOLSON, C. S. Botany of the District round London, in The Transactions of the London Natural History Society, 1915.

NORTH AMERICAN FLORA. Published by the New York Botanical Garden. This very important work, of which 34 volumes are in course of preparation, at last has a completed one. Vol. 21, pt. 1, November 27, 1916, pp. 1-95, is devoted to the Chenopodiaceae by Paul Carpenter Standley. In his treatment of the family Dr Standley keeps *Roubieva* as a distinct genus from *Chenopodium*. The latter is divided into seventeen sections. One of them, that of *Alba*, which contains our Common Goosefoot, is treated in a very different manner to that of our British Floras. *C. album* is split into three species—*C. album* proper (*candicans* Lam.), *C. paganum* (*C. album*, var. *viridescens*), and *C. lanceolatum* (*C. album*, var. *integerrimum*). *C. viride* L. replaces *C. opulifolium* Schrad., for which the plate in *Camb. Fl.* i., t. 159, is cited. *C. paganum* replaces *C. album*, var. *virescens*. The latter is an untenable name since St Amans' *viridescens* is three years earlier. *C. lanceolatum* Muhl. is given as a species, 2131 (10), replacing *C. album*, var. *integerrimum*, t. 159 in the *Camb. Fl.* This is also Dr Murr's opinion. *C. chilense* Schrad. (see *Rep. B.E.C.* 334, 1913) must be replaced by *C. vagans* Standley since there is an earlier *C. chilense* Pers. 1805. Under *C. ambrosioides* L. *C. suffruticosum* is put in synonymy. Thellung makes it a variety, a grade apparently unrecognised in this volume. Standley keeps the genus *Blitum* distinct under *B. virgatum*. *Virgatum* is cited of Jessen 1879, but there is an earlier authority for the combination, i.e., *Ambrosi Fl. Tyr.* ii., 179, 1857. 103 species of *Atriplices* are described. They form a great feature in the vegetation of the alkaline desert areas. The Siberian *Axyris*, recently a frequent adventive in Britain, is naturalised in Manitoba and Dakota. Our



British specimens may have come to us from American, not Sibirian sources. Only 9 Salsolas are described, but *S. annua* Sm. and *S. procumbens* Sm. are put as synonyms under *S. europaea*. Following the rule of priority the genus *Dondia* is used instead of the eight years younger *Suaeda*. The authority for *Dondia maritima* should be Ann. Scot. Nat. Hist. 42, 1896—twelve years earlier than the one quoted. *Salsola Kali*, var. *tenuifolia* Tausch = *S. Tragus* Reichb. is described as *S. pestifer* A. Nelson. In pt. 2, June 9, 1917, Amaranthaceae is treated by the same author. Forty-two species are described. Of these *A. hybridus*, *retroflexus*, *spinosus*, *graecizans*, and *deflexus* have been found adventive in Britain. Vol. 34 (pt. 1, 1914, pt. 2, 1915, pt. 3, 1916) treats of the Carduaceae Heleneae-Anthemideae by Per Axel Rydberg and Harvey Monroe Hall. Here it is shown that *Baeria carnosus* Greene of Dunn's *Alien Flora* should be called *Baeria platycarpa* A. Gray. *Anthemis tinctoria* is put in the genus *Cota* = *C. tinctoria* J. Gay, and *A. Cotula* becomes *Maruta Cotula* DC. *Matricaria inodora*, *maritima* and *Chamomilla* are with *M. suaveolens* all placed in the genus *Chamomilla* Gilib., *M. Chamomilla* becoming *C. Chamomilla*, for the authors do not give a duplicated name. *Chrysanthemum Parthenium* becomes *Matricaria Parthenium* and the Ox-eye Daisy is removed from *Chrysanthemum* and is *Leucanthemum Leucanthemum*. *Tanacetum* or *Chrysanthemum Balsamita* also has a doubled name, being *Balsamita Balsamita*. 119 species of *Artemisia* are described. Some of these form the well-known Sagebrush vegetation of the alkaline plains. *A. gnaphalodes* is kept distinct from *A. Ludoviciana*. Thellung makes one a variety of the other. These parts keep up the high standard of merit established in the early numbers. The work is distinguished by terse and lucid descriptions, excellent keys, copious synonymy, good paper and printing, and a most agreeable arrangement and variation of type, all of which make the publication not only one of the largest but one of the most useful Floras hitherto published.

OLIVER, W. R. B. Vegetation and Flora of Lord Howe's Island, in Trans. New Zealand Institute, xlix., 94-161, 1917.

PRAIN, SIR DAVID, Editor of the FLORA OF TROPICAL AFRICA. I. Reeve & Co., London, 1916; 8/-. Vol. vi. sect. ii., pt. 1. Ulmaceae, A. B. Rendle; Cannabinaceae, Moraceae, J. Hutchinson and A. B.

Rendle; vol. ix. pt. 1, 1917, Gramineae, O. Stapf. In *Man* for July 1917, the Geographical Distribution of Kava and Betel, Sir David Prain suggests that Betel is of Papuasian origin. Kava is said to occur spontaneously in the Society and Marquesas Islands, but it is not absolutely ascertained that it is really native there.

RIDGE, W. T. B., B.Sc. Report of the Botanical Section of the North Staffordshire Field Club. This is a most excellent production, giving a great mass of valuable information in a very compressed and readily consultable form. Since Garner's *Natural History of the County of Stafford* was published in 1844 and its *Supplement* in 1860, no fewer than fifty papers and addresses treating of Botany by thirty different authors have been read before the Society. On p. 188, 1917, Mr Ridge gives their titles. Scattered through the pages of the fifty volumes of the *Transactions* are 47 lists of plants. These are enumerated in p. 170. Garner gave 865 plants as found in Staffordshire, and of these Mr Ridge believes he recorded 470 for the first time. In the *Transactions* 148 additional plants are recorded, which were unmentioned by Garner, and most of these are new to the Flora. These refer to Angiosperms only. These additions are enumerated on pp. 173-178. *Erigeron alpinus* must be a misnomer. Of *Galium boreale*, *Galeopsis dubia*, and *Potamogeton filiformis*, one would like to see specimens. The records which are new to *Top. Bot.* are given under their respective plants in the succeeding pages.

ROGERS, R. W. Flora of Epping Forest in Trans. London Nat. Hist. Soc. (1915), 1916.

SALMON, C. E. Linnean Society, February 1, Sir David Prain, president, in the chair. Mr C. E. Salmon made a communication on "Some Plants that might occur in Britain." These he suggested were *Ranunculus ololeucos*, *Cerastium brachypetalum*, *Alsine dunensis*, *Spergula Morisoni*, *Veronica opaca*, *Rhinanthus hirsutus*, *Ruppia brachypus*, *Heleocharis mamillatus*, *Carex frigida* and *C. laevirostris*.

THE SELBORNE MAGAZINE, edited by Wilfrid Mark Webb, F.L.S., monthly, 1917. G. Philip & Son, 32 Fleet Street, London.

SCHINZ, Prof. HANS, in Berichten der Deutschen Botanischen Gesellschaft, 1917, has a very appreciative memoir of Daniel Oliver,

pp. 99-106, with a very complete list of Oliver's contributions to Science. These occupy four pages.

SCHONLAND, S. A Summary of the Distribution of Genera of South African Flowering Plants, Uitenhage and Port Elizabeth Divisions. See Royal Soc. of South Africa.

SCHROETER, Dr C. DER PILATUS, in SEINEN PFLANZENGEOGRAPHISCHEN UND WIRTSCHAFTLICHEN VERHALTNISSEN. Von der Eidgenössischen Technischen Hochschule in Zurich zur Erlangung der Würde eines Doktors der Naturwissenschaften geneigte Promotionsarbeit vorgelegt von Karl Amberg, Apotheker aus Schotz (Luzern), Referent Herr Professor Dr C. Schroeter, Korreferent Herr Professor Dr P. Jaccard. pp. 267, with numerous photographs, and a phyto-geographic map of Mount Pilatus and its surroundings. Lucerne, 1916. In this most valuable account of one of the best known Swiss mountains the authors have first given the history of botanical investigations, beginning with Conrad Gesner's *Descriptio montis Fracti sive Pilati, juxta Lucernam* of 1555, and then an account of the Geographie des Gebietes and Geology, the extraordinary curves of the strata being shown on a profile map. The formations represented are:—The Quaternary—Alluvium and Diluvium; the Tertiary—Priabonien, Auversien and Lutetien; the Mittlere Kreide (Mescretacisch)—Gault; and the Untere Kreide (Eocretacisch). The altitude of Pilatus is 2068 m. as compared with the Rigi 1787 m., Lucerne being 451 m. and Gersau 442 m. The temperature of these places for the twelve months is shown, and very interesting observations on Meteorology are included. The rhyme alluding to the condition of the clouds on Pilatus serving as a weather prophet is quoted:—

“ Si Pilatus pileatus, Aër erit defoecatus.  
Hed de Pilatus e Huet, Soisch's Wätter guet:  
Hed er e Däge, So Ged's gly Räge.”

Chapters are also devoted to the rainfall, snowfall and winds. There is an excellent list of the plants found on Pilatus, with their special habitats and altitudinal range. It shows that the Flora consists of about 923 species and 60 sub-species, including 17 Rubi, and 20 Hieracia, 10 hydrids, and about 15 alien species. Among the more interesting species to British botanists are *Scheuchzeria*, *Epipogon*, *Leucojum vernum* and *Senecio paludosus*. *Orchis latifolia*

and *Traunsteineri*, occur, but not *incarnata*. Then follow some very valuable ecological notes, such as one would expect from Schroeter, that prince among ecological observers.

SMALL, JAMES. Geotropism and the Weber-Fechner Law, in *Annals of Botany*, xxxi., 313, April 1917. Irritability of the Pollen-presentation mechanism in the Compositae, *l.c.*, pp. 21-268, 1917. Origin and Development of Compositae, in *New Phytologist*, vol. xvi., 157, 198, 1917.

SOMERVILLE, A. Relation of the Douglas Fir to Lime in Soil, in *Journal of Forestry*, xi., January 1917.

STANDLEY, PAUL C., in *Contributions from the United States National Herbarium*, vol. xviii., pt. 3. Studies of Tropical American Phanerogams. *Duggenia* Vahl of 1793 is used in preference to *Gonzalagunia* of Ruiz and Pavon, dating from 1794. In *Ind. Kew.* the still later *Gonzalea* Pers. of 1805 is adopted. In *Central U.S. Nat. Herb.*, vol. 20, pt. 1, 1917, Mexican and Central American Species of *Ficus*. The genus is a very large one. Engler allows 600 species, but this is much underestimated, as fresh tropical species are being continually described. Probably 1000 is nearer the correct number. Forty-one species are described from this area. Pt. 2 by the same author. See also under North American Flora—Chenopodiaceae.

TEETGEN, ADA B. PROFITABLE HERB GROWING AND COLLECTING. Preface by E. M. Holmes. pp. 180, tt. 13. *Offices of Country Life*, 1916. This is a practical and useful guide to the above industry, which had such a wonderful boom in 1916, when the most exaggerated ideas as to the importance and the profits to be derived from drug-growing in Britain prevailed. In answer to hundreds of communications it seemed desirable to suggest the growing of potatoes and onions as being likely to be of greater help to the nation than an indiscriminate planting of "Herbs" by people to whom the drugs themselves, their properties and methods of cultivation, were unknown. Doubtless there are a few of national importance and others in demand. The advice given by Miss Teetgen about them is on the whole clear, practical and useful. It must, however, be remembered that the demand for these herbs is after all limited, and that over-

production means a more than corresponding lowering of price. On such points the advice of the Herb-growing Association should be sought before investing capital in a somewhat speculative undertaking. Apart from suggestions about growing, Miss Teetgen's descriptions of the herbs and their properties are trustworthy. The plates are somewhat crude. On one of them is a slight misprint—*Inula Conyza* is spelled *bonyza*. One does not remember to have seen yellow-flowered *Digitalis purpurea*. There seems little reason to plant foxglove. A few parishes in the West of England would surely supply all the needs for the home market.

THELLUNG, A. Stratiobotanik in Vierteljahrschrift der Naturforschenden Gesellschaft in Zurich, September 9, 1917. Pflanzenwanderungen unter dem Einfluss des Menschen, in Engler's Bot. Jahrb. 37, 1915. A paper of great interest, treating of the influence of man in the distribution of plants by means of horticulture, wool-washing, etc. 375 species were thus introduced in the South of France, at Port Juvenal, etc., at Hamburg, Hanover, Dessau, by ship-ballast, by railways, canals, etc.

TOUMEY, Prof. J. W. SEEDING AND PLANTING. pp. xxxvi., 455. Chapman & Hall; New York, Wiley & Sons; 16/6.

THE VASCULUM, 1917. Editor, Rev. J. E. Hull, Ninebank Vicarage, Whitfield, S.O., Northumberland. Quarterly publication; 4/- yearly. March 1917. Vegetation of Sea Sand, North Durham, Harold Jeffreys. Botanical Notes from Upper Teesdale, T. A. Lofthouse. The Genera *Orchis* and *Gymnadenia* in Durham, J. Heslop-Harrison.

VIERHAPPER, F. Beitrage zur Kenntnis der Flora Kretas. Oestr. Bot. Zeit. lxvi., 150-180, 1916.

WATSON BOTANICAL EXCHANGE CLUB, 1916-17. Hon. Secy., G. Goode.

WELLS' NATURAL HISTORY AND ARCHAEOLOGICAL REPORT for 1916 includes some additional localities to the Flora of Somerset. The specific names wrongly begin with a capital letter. One new adventitious plant, *Vicia macrocarpa*, is included.

WIJK, H. L. GERTH VAN. A DICTIONARY OF PLANT NAMES, vol. ii., index, pp. xxxiii., 1696; 1ge. 4to., M. Nijhoff, Hague, 1916.

WILCOX, EARLEY VERNON, A.M., Ph.D. TROPICAL AGRICULTURE. Appleton & Co., New York and London; 10/6.

WILSON, E. H. THE CONIFERS AND TAXADS OF JAPAN. Arnold Arboretum, Camb., Mass., pp. i.-xi., 1-99, t. 59, December 30, 1916.

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#### OBITUARIES.

SARAH M. BAKER, D.Sc., aged 29, student of University College, London, graduating in 1909, taking her D.Sc. in 1913, Quain student for five years. A distinguished and most thorough worker in science, she contributed an important paper on the *Ecology and Biology of Brown Sea Weeds of the Salt Marsh* to the *Journ. Linn. Soc.* 325-380, 1916. At the time of her premature death she was investigating the bread-making value of flour substitutes. See *Nature* 329, 1917.

ROBERT BRAITHWAITE, M.D., F.L.S., &c., born at Ruswarp, near Whitby, Yorkshire, May 10, 1824, died in London, October 20, 1917. He studied for the medical profession, taking his M.R.C.S. at University College, London, in 1858, and his M.D. at St Andrews in 1865. He married Charlotte Elizabeth, daughter of N. B. Ward, F.R.S. He studied Mosses with great assiduity, and in 1880 issued the *Sphagnaceae or Peat Mosses of Europe and North America*, in which there is a history of the genus and descriptions of the species as well as 29 beautiful plates drawn by himself. In 1879 he began his monumental work, *The British Moss-Flora*, the first volume, *Acrocarpi*, pts. 1-10, appearing in 1887. It contained 225 species and 45 plates with 3000 figures. It has a copious synonymy, excellent descriptions and exquisitely drawn figures from his own pen. The second volume, *Acrocarpi*, pts. 11-16, is dated 1888-95, and volume iii. *Pleurocarpi*, pts. 17-23, 1896-1905. He also did many of the illustrations for Spruce's *Hepaticae of the Amazon and Andes*. He was admitted a Fellow of the Linnean Society in 1863, was Vice-President from 1889-91, became President of the Royal Microscopic Society in 1892, of the Quekett Club 1872-3, and of the Yorkshire Naturalists' Union in 1895. When at New York, the writer visited Bronx Park, and

there Mrs Elizabeth Britton, the eminent bryologist, showed him one of their most recent and highly-treasured acquisitions, the herbarium of Mosses which Dr Braithwaite had made. There it will be most carefully preserved. See Memoir in *Naturalist* 361, 1917, with portrait.

Rev. WALTER BUTT, died suddenly at Oakwood, Chepstow, July 14, 1917, aged 67. Our late member was for many years the mainstay of the Cotswold Naturalists' Field Club, of which he was President. As such he pushed forward and interested himself greatly in the preparation of a Flora of the county, which is being compiled by his son-in-law, the Rev. H. J. Riddelsdell.

CHARLES THOMAS DRUERY, born in 1843, died at Acton, August 1917. A most enthusiastic Fern collector and cultivator, who covered himself with glory by the discovery of Apospory (see *Journ. Linn. Soc.* xxi., 354-360) on *Athyrium Filix-foemina*, var. *clarissima*. He was one of the oldest members of the British Pteridological Society, and had served as Secretary and President. He received the Victorian Medal of Honour, being one of the first sixty so honoured. In 1891 he published *Choice British Ferns*; in 1903, *Book of British Ferns*; and in 1910, *British Ferns and their Varieties*. (See *Rep. B.E.C.* 40, 1911.) These works he himself illustrated. Among the beautiful varieties he produced were the *superbum* section of the Lady Fern and the *gracillimum* forms of *Polystichum aculeatum*. He founded the *British Fern Gazette*, and in it, September 1917, there is a Memoir of him by F. W. Stansfield, with portrait. See *Gard. Chron.* 74, 1917, with portrait.

Sir EDWARD EVANS, D.L., J.P., born at Tranmere, Cheshire, June 26, 1846, died at Spital Old Hall, Bromborough, Cheshire, October 10, 1917. Educated at Wallace Hall, Dumfriesshire, he early entered the firm of Evans, Sons & Co., wholesale chemists, and in 1912 was President of the British Pharmaceutical Conference. He was a strong politician, and became Chairman of the Executive of the National Liberal Federation. In July 1906 he received the honour of knighthood, and in December 1909 he was presented with his portrait by the Liberals of Liverpool. On this occasion Mr Asquith said: "Sir Edward Evans has so comported himself and so conducted his private life as never for a moment to forfeit the

esteem and respect even of his most bitter opponents." Sir F. E. Smith, Attorney General, a fellow townsman, in speaking of him said, that Liverpool was the poorer for the removal of a man of such honesty, courage and influence. Sir Edward had little time for the study of botany, but he was always a sympathiser with the part it played in the pharmacist's curriculum. His genial presence will be sadly missed from the gatherings of his clan.

WILLIAM FOGGITT, J.P., F.L.S., born at Yarm, February 2, 1835, died at Thirsk, May 10, aged 82. He was a well-known and greatly respected Yorkshire pharmacist, who, in his early years, collected 500 specimens of British plants. He was apprenticed to his father's business when he was 13, and became a great friend of John Gilbert Baker, with whom he continued his botanical rambles. His taste for natural science was inherited, four generations of his family having been botanists. Mr Baker and he founded the Thirsk Natural History Society. In 1864, after the disastrous fire at Mr Baker's house and premises, Mr Foggitt acted as Curator for the Botanical Exchange Club carried on at Thirsk till 1865. At this time Mr Baker left Thirsk for Kew, and the Club was afterwards carried on in London as the London Botanical Exchange Club. Mr Foggitt, for many years, gave weekly botanical lessons at Thirsk High School. He was elected a Fellow of the Linnean Society in 1903, was a Justice of the Peace for North Riding, an Hon. Member of the Scarborough Natural History Society, and a Life Member of our fore-runner, the London Botanical Society. See Memoir in *Naturalist* 206, 1917, with portrait. Mr Foggitt's large family of five sons and three daughters survive, and sincere sympathy is offered to our member, Mr T. J. Foggitt, on the loss of his father.

Lieut. ALAN GORDON HARPER, R.F.A., born at Bromley, Kent, January 5, 1889, killed instantaneously in action on the Western front, June 1, 1917. Educated at Dulwich, he gained an open scholarship at Magdalen College, Oxford, in 1908. In 1912 he took honours in Botany and afterwards the Diploma in Rural Economy. He became Demonstrator in that school at Oxford, having previously acted as assistant to the Professor of Botany at Bangor. He was afterwards Professor of Botany at Madras, and in his absence from England was awarded the degrees of M.A. and B.Sc., Oxon. He was



a delightful companion, with winning manners and keen intellect. These gifts stood him in special stead in Madras, where he got the best work out of his pupils. Many of them had a love of study for itself, and this led to mutual liking and confidence. His B.Sc. degree was earned by his work on *The Destructive Effects on Timber by the Saw-fly, Namatus Erichsoni* (see *Annals of Botany*, 1913). His other publications include *Protomorphic Shoots in the Genus Pinus*, *Experiments on Eccentric Growth in Ash* (with Professor Somerville), *Fusion of Needles in Pinus*, and *Studies in the Formation of Autumn Wood in Coniferae*. As soon as the war broke out his eager spirit chafed at the curb, and although there were great temptations to remain in India (not the least being the chance of a botanical excursion to the Himalayas) he had the diviner call, for he had not only the joy of life but the chivalrous instinct to offer that life on the altar of his country. He wrote home shortly after the war began, saying: "Danger is not a factor with which I or any man reckons; the world can get on all right with a botanical professor the less. And when the men come home and you cheer them from the windows you would give a good deal for me to have earned the same honour as they—and their dead. . . . If I were useless and untrained I would not feel so bad . . . and I hear that regiments get cut up because we are short of men—how do you think I should feel shooting duck or tiger in India? No, it is up to me to help to clear Belgium of its invaders. I feel that it is a matter of national honour to send the best men we have for a work like that. In the old days it was always the gentlemen who fought, especially in such a cause. Don't think I am forgetting my duty to you; but remember how many of our men will have to be married men and only sons. . . . I am not a bread-winner, nor a father. I shall be sad to have to give up my trip to the Himalayas. It will be the greatest sacrifice I have ever made, but it seems to be a choice between selfish pleasure and the honour of one who has been generously brought up. It is a gamble for very high stakes. On the one hand is enjoyment of comfort together, please God; on the other, honour and pride, such as you won't have a chance of feeling again. The comfort will bring you some sense of shame in the future, while the honour can, at the worst, mean that a son has died creditably." Early in 1915 he had obtained his commission. He fought in France, was wounded at Longueval, sent home, in a couple of months was back with a field

battery at Messines, and met his death, as his Commanding Officer says, "while carrying out his duty in the most gallant way under very trying conditions." Thus he died, as he would have wished, and, losing all, has "gained the civic crown of that eternal town, wherein he passed a rightful citizen of the bright commonwealth ablaze beyond our ken."

RUTH HOLDEN, born at Attleborough, Mass., 1890, graduated M.A. at Harvard in 1912, died at Moscow from meningitis, April 21, 1917. Post-graduate at Newnham, Cambridge. She was a distinguished botanical palaeontologist, who gave her life as a nurse for the Allies. See *Nature* 249, 1917.

SAMUEL MARGERISON, born at Calverley, 1857, died at Leeds, June 8, 1917, aged 60, buried in Calverley Church. Mr Margerison was a timber merchant, specialising in English Oak. He was Vice-President of the British Timber Trade Association, and was an expert forester. He assisted in the afforestation of the district in the Upper Washburn surrounding the Leeds Waterworks reservoirs of Fewston and Swinsty. His own trade, however, did not entirely occupy his time, for he was an excellent all-round naturalist, and his alpine garden was well stored with rarities. His beautiful home, the Grey Gables, at Calverley, which he designed himself and decorated with his own hand, was filled with oak-panelling, much of it historic. He also helped to design the Botanical Garden at Lister Park, Bradford. His antiquarian researches led him to publish three volumes of parish registers of Calverley. In Knipe Wood, Kettlewell, he found in 1909 a curious hybrid rose of the *spinosissima* group, with perhaps *R. dumetorum* as the other parent, which Major Wolley-Dod named after him, forma *Margerisoni*. (See *Rep. B.E.C.* 90, 1911.) He sent the writer sadly withered specimens which were distributed through the Club in that year. Mr Barclay considered the other parent of the rose to be *tonnentosa*. See Memoir by H. E. W. in *Naturalist* 236, 1917.

GEORGE EDWARD MASSEE, born at Scampston, E. Yorkshire, 1850, buried on February 21, 1917, at Richmond, Surrey. Massee was the son of a farmer on the estate of our member, Mr W. H. St Quintin. There they "failed to educate him at a private school," and he did ordinary routine work on a farm, and then went to the York School

of Art, where he gained the National Medal for the year. At York he received the benefit of instruction in botany from a relative on his mother's side, the renowned explorer of the Amazon, Dr Spruce, on whose suggestion Massee went to the West Indies and South America to study plants and collect Orchids. Of these he sent home many fine examples. In 1885 he returned to Scampston and did some of the beautiful plates for Spruce's *Hepaticae of the Amazon and Andes*. On his father's death he went to Kew, and in 1893 was appointed, on Dr M. C. Cooke's retirement, to the head of the Mycological Department. There he spent over twenty years elucidating one after another of the problems connected with fungoid diseases, book after book written in a clear and cogent style issuing from his pen. His output was enormous, numbering it is said 250 books and papers. Among these are 4 vols. of the *British Fungus Flora*; *A Monograph of the Myxogastres*; *Text Book of Plant Diseases*, 1899; *Diseases of Cultivated Plants and Trees*, 1910; *European Agaricaceae*, 1902; *British Fungi and Lichens*, 1911; and *British Mildews, Rusts, and Smuts*, 1913. In Oxford we owe him a debt of gratitude for identifying the printings of Fungi which are from the brush of Dillenius, and which form the types of those described by him in Ray's *Synopsis*. See *Naturalist, Gard. Chron.* 91, with portrait, and *Nature*, March 1, 1917.

JOHN PLATTS, born 1852, died suddenly at Oxford, April 23, 1917, aged 65 years. By his death our Society loses a very warm sympathiser, for, although not a collecting botanist, he had a high idea of the value of field botany as a training influence for those engaged in the medical profession. One of his last acts was to give a donation towards the *Report*. In his memory his sister had endowed a bed in the Royal Leicestershire Infirmary, and she has also kindly contributed towards our Benevolent Fund. He was almost the oldest friend of the writer, who was just setting out from his hotel to pay his customary call on him, when he succumbed to heart-failure. The number of sympathetic letters from all classes sent to the firm of wholesale druggists, Southall, Son & Barclay, with whom Mr Platts had been connected for 45 years, was a convincing proof of his sterling qualities and kindly disposition.

HARRY SANDERSON, born at Galashiels, March 2, 1871, killed in action on the Western front, April 23, 1917. He was the son of

Mr R. Sanderson of Knowe Park, Galashiels. He was formerly a partner in the firm of tweed manufacturers, P. & R. Sanderson, of Galashiels, and was a cousin of our member, Miss I. M. Hayward. He had a great love for horticulture, and had a beautiful garden full of rare alpinas at Eastmount, Galashiels. Many of these alpinas he had himself collected not only in the Italian Alps and Switzerland but also in Bosnia and Montenegro. It will be remembered that he succeeded in hybridising *Saxifraga granulata* with *cernua*. Although over military age and married, he enlisted as a private in Lord Lovat's Horse Artillery, and, rapidly rising to the rank of Captain, he commanded his battery in the battle of the Somme, where he was wounded. He was keenly interested in local matters, in which he took a prominent part. Our deep sympathy is extended to his widow, Mrs Sanderson. The Society loses a valued member, who was always willing to assist in experimental work. His portrait is given in *Gard. Chron.* 207, 1917, and an appreciation by Mr H. J. Elwes on p. 197.

WORTHINGTON G. SMITH, born March 23, 1835, died at Dunstable, October 27, 1917. He commenced life as an architect, but in 1858 abandoned that profession to pursue wood and lithographic engraving, arts in which he greatly excelled, the pages of the *Gardeners' Chronicle* being enriched for many years with his life-like drawings. His magnificent portrait of Miles Berkeley, which appeared in it (135, 1889), showed an extremely high order of portraiture, in which the innate nobility and massive intelligence of the great Fungologist were splendidly depicted. Smith himself was a keen lover of Fungi. He was a regular attendant at the meetings of the Woolhope Club, gave most racy accounts of the meetings, illuminated the menu cards with instances of his rollicking fun and good-humoured caricature, and was the life and soul of many pleasant excursions. He was also an antiquarian of no mean order. He contributed important articles to the *Victoria County History of Bedfordshire*, and wrote an excellent work, *Man, the Primeval Savage*. In 1884 he issued a companion volume to Berkeley's *Outlines of British Fungi*. In 1908 a Synopsis of British Basidiomycetes, entitled *Diseases of Field and Garden Crops*, was published by the Trustees of the British Museum. In 1865 he got the Royal Horticultural Society's Gold Medal, and in 1873 the Silver Medal from the Horticultural Society of Ireland. In

1874 the Woolhope Club presented him with a box of silver plate. In 1875 he was awarded the Gold Knightian Medal for his researches into the potato disease. In 1903 he was elected President of the British Mycological Society, and the same year the borough of Dunstable made him their first freeman. In 1907 he was awarded the gold Veitchian medal. In 1902 the writer was among those who pressed his claims upon the First Lord of the Treasury, and he was awarded a pension from the Civil List of £50, a sum which he had well earned, though science and art receive little state recognition. He designed the cover for the *Midland Naturalist*, which was issued in 1878, and gave a descriptive account of it. It included sketches of the Mammoth, the Red Deer, the Cromlech at Clynnog in Carnarvonshire, Scientific Instruments, the Bee, *Bombax terrestris*, the Wild Rose, the Cowslip, the Rhizopod, *Actinophrys Eichornii*, Ferns, Fungi, the Apteryx, Octopus and Ichthyosaurus. As he states, the design was drawn direct on a box-wood block, and engraved at once without a slip, false line or alteration. "Many readers," he goes on to say, "of the *Midland Naturalist* will, probably, be self-taught men, who busily follow industrial occupations every week-day. It may, therefore, interest such readers to know that the writer of these lines never had any teacher, either artistic or scientific, other than he always found supplied to him by close observation, careful reading, experience and constant perseverance." See *Gardeners' Chronicle*, p. 160, with a portrait and one of his own humorous sketches, and *Nature* 191, 1917.

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#### NEW COUNTY AND OTHER RECORDS.

ABBREVIATIONS.—*Fern Gaz.* = *The British Fern Gazette*, edited by F. W. Stansfield; *Gard. Chron.* = *The Gardeners' Chronicle*; *Hiern Rep.* = *Devon Soc. Science, &c., Report*; *Ir. Nat.* = *The Irish Naturalist*; *Nat.* = *The Naturalist*; *Ridge Rep.* = *Report of North Staffordshire Field Club*; *Stratton* = *Herbarium of F. Stratton in Hb. Druce*; *Woodall Spa* = Plants gathered by the Rev. F. Alston at Tower-le-Moor Fowl-farm near Woodhall Spa, Lincoln, det. by Dr Thellung or the compiler; † = Adventive; \* = New County Record (in the case of adventive plants this is only rarely added); ! placed after a plant name signifies that the compiler has seen the specimen; ! placed after

a locality that the compiler has seen it there; × placed before one or between two scientific names means that the plant is a hybrid; 52, etc., numbers following a county refers to the Watsonian vice-county; [ ] enclosing a record means that confirmatory evidence is needed.

3. *THALICTRUM FLAVUM* L., var. *RUFINERVE* (Lej. & Court.).  
Billingham, Durham, HARRISON.

16. *ADONIS ANNUA* L. Near Wilsford, S. Wilts (already on record), Hon. Mrs INGILBY.

20. *RANUNCULUS STEVENI* Andr. Bodorgan, Anglesey, DRUCE.

†31. *R. MURICATUS* L. Meanwood, Leeds, HORRELL.

37. *R. CIRCINATUS* Sibth. Thaeka Beck, Penrith, Cumberland, 1917, J. C. VARTRY-SMITH, in *lit.*

41 (2). *R. SPHAEROSPERMOS* Boiss. & Blanch. In a clear running stream near Mundham, W. Sussex, DRUCE and BURDON. Good typical specimens.

47. *R. FICARIA* L., var. *SINUATA* Horw. Near Southampton, S. Hants, VIGURS, in *lit.*

55. *NIGELLA DAMASCENA* L. Waste ground, Exeter, S. Devon, M. COBBE.

†63. *DELPHINIUM CONSOLIDA* L. Woodhall Spa, ALSTON.

68. *ACONITUM NAPPELLUS* L. By stream at Bushey, Corfe Castle, Dorset, 1916, GREEN.

†79. *PAPAVER SOMNIFERUM* L., var. *SETIGERUM* (DC.). Par, Cornwall, 1917, M. COBBE. The type at Isalt, Anglesey, and Llanfair-fechan, Carnarvon, DRUCE.

80. *P. RHOEAS* L., var. *STRIGOSUM* Boenn. Saunton, N. Devon, M. COBBE. The sap, however, is said to be yellow, so it is probably the var. *Chelidonoides* Kuntze. Var. *PRYORII* Druce. Par, Cornwall, M. COBBE.

84. *P. HYBRIDUM* L. Saunton, N. Devon, M. COBBE; Wilstone, S. Wilts., abundant, DRUCE. Already recorded for both 4 and 8.

†88. *MECONOPSIS CAMBRICA* Vig. Dunstone, Staffordshire, *Ridge Rep.*

†90. *GLAUCIUM CORNICULATUM* Curt. Woodhall Spa, ALSTON.

†102. *CAPNOIDES CLAVICULATA* (L.) Druce. The Glen, Peebles! Lady GLENCONNER. In some quantity and native.

107. *FUMARIA BORAEI* × *OFFICINALIS*. Near Wareham, along with *F. OFFICINALIS*, var. *WIRTGENI*, GREEN.

†116. *MATHIOLA INCANA* Br. Cliffs, Budleigh Salterton, S. Devon, quite naturalised, M. COBBE and DRUCE. Seen there also by GARDNER and GREEN.

124. *RADICULA SYLVESTRIS* Druce. Near Lyndhurst, S. Hants, DRUCE; Gower, Glamorgan, Miss VACHELL; Otterton, Devon, GARDNER and GREEN; Patshull, Staffs., 1917, ! Lady J. LEGGE'S SCOUTS. Sine pers. auth. in *Top. Bot.*

129. *BARBAREA VULGARIS* Br., var. *ARCUATA*. Wimborne, Dorset, 1916, GREEN.

†157. *ALYSSUM INCANUM* L. Guildford, Surrey, Lady VICTORIA RUSSELL; Woodhall Spa, ALSTON.

†158. *A. MARITIMUM* Lam. Woodhall Spa, ALSTON; Northampton Race Course, GOODE.

†177. *WILCKIA MARITIMA* Scop. (*MALCOMIA*). Scarborough Mere, 1916, HORRELL; Poole, Dorset, 1917, GREEN; Ardley, Oxon., 1910, DRUCE; Guildford, Surrey, KENNEDY.

†178. *W. AFRICANA* Muell. Kirkstall, York, 1916, HORRELL.

†183. *SISYMBRIUM SOPHIA* L. Par, Cornwall, 1910, DRUCE; 1917, M. COBBE; Ryde, Isle of Wight, 1867, STRATTON.

†184. *S. ALTISSIMUM* L. Ryde, Isle of Wight, 1867, STRATTON; Sudbury, Suffolk and Beddgelert, Carnarvon, DRUCE; Sandal, York,

and as a form with large petals, Kirkstall, York, HORRELL; Woodhall Spa, ALSTON; Exmouth Docks, S. Devon, M. COBBE.

†185. *S. ORIENTALE* L. Restington, W. Sussex, 1917, GAMBIER-PARRY; Kirkstall, York, 1916, HORRELL. Var. *SUBHASTATUM* (Willd.) Thell. Lynmouth, N. Devon, 1917, A. B. COBBE. Var. *STENOCARPUM* (R. & F.). Cothill, Berks., 1906, DRUCE.

†187. *S. LOESELII* L. Sandal, York, 1916, HORRELL.

189. *S. OFFICINALE* Scop., var. *LEIOCARPUM* DC. Exmouth, S. Devon, M. COBBE.

197. *ERYSIMUM CHEIRANTHOIDES* L. \*Railway, Newport, Isle of Wight, 1914, STRATTON; Exmouth, S. Devon, M. COBBE.

†200. *CONRINGIA ORIENTALIS* Dum. Par, Cornwall, 1910, DRUCE; 1917, A. B. COBBE; Biddesden, Wilts, DRUCE; Poole, Wareham, Swanage, GREEN.

†202. *CAMELINA SATIVA* Crantz. Exmouth Docks, S. Devon, M. COBBE; Swanage, GREEN. Var. *FOETIDA* (Fr.). Oliver's Battery, *Winchester College Rep.*, 1917; Henham Park, Suffolk, HORWOOD.

†203. *C. SYLVESTRIS* Fr. Dean Clough, Halifax, York, 1916, HORRELL.

†212. *BRASSICA ELONGATA* Ehrh., var. *PERSICA* (B. & H.). Par, Cornwall, and Exmouth Docks, S. Devon, M. COBBE.

†218. *B. JUNCEA* Coss. Par, Cornwall, and Exmouth Docks, M. COBBE; Aldrington, Sussex, HILTON (as *balearica*) in *Hb. Druce*; Maidstone, Kent; Slough, Bucks., 1904; Biddesden, Wilts.; Portmadoc, Carnarvon; Botley, Oxon., DRUCE; Woodhall Spa, ALSTON; Galashiels, Selkirk, I. M. HAYWARD and DRUCE.

†224. *B. INCANA* F. SCHÜLTZ. Near the Gasworks, Ilfracombe, N. Devon, M. COBBE; still at Portmadoc, Carnarvon, 1917, DRUCE.

†228. *ERUCA SATIVA* Mill. Par Harbour, Cornwall, M. Cobbe; Sibford, Oxon., LAMB.



232. *BURSA PASTORIS* Weber, var. *DENSIFOLIA* (Mott). Holyhead, Anglesey, and Glen, Peebles, DRUCE.

†237 (2). *LEPIDIUM CHALEPENSE* L., var. *AURICULATUM* (Boiss.). Par Sands, Cornwall, RILSTONE.

†239. *L. PERFOLIATUM* L. Par, Cornwall, M. COBBE.

†240 (2). *L. NEGLECTUM* Thell. Swanage Camp Meadow, Dorset, 1917, GREEN, in *lit.*

\*246. *L. SMITHII* Hook., var. *ALATOSTYLUM* (Townsend). Stoborough, Dorset, 1915, GREEN.

†247. *L. VIRGINICUM* L. Exeter, S. Devon, A. B. COBBE; Selkirk, 1917, I. M. HAYWARD and DRUCE.

†247 (4). *L. DENSIFLORUM* Schrad. Par, Cornwall, M. COBBE; Atherstone, Warwick, Miss BOURNE; Woodhall Spa, ALSTON; Welbeck, Notts., GOULDING, vide sp.; Halifax, York, HORRELL.

†247 (17). *L. SCHINZII* Thell. Near Melrose, Roxburgh, FRASER; Meanwood, Leeds, HORRELL.

250. *THALSPI PERFOLIATUM* L. Near Prestwood, Bucks., H. T. WHITE, in *lit.* Spec. not seen.

†258. *VOGELIA PANICULATA* Hornem. Par, Cornwall and Exmouth, S. Devon, A. B. COBBE; Welbeck, Notts., GOULDING, vide sp.; Wilsford, Wilts., DRUCE; Elland, Halifax, and Leeds, Yorks., HORRELL.

†260. *MYAGRUM PERFOLIATUM* L. Morley, Yorks., F. ASHWELL.

†261. *SORIA SYRIACA* Desv. Kirkstall, York, F. PULLAN.

†262. *BUNIAS ERUCAGO* L. Guildford, Surrey, R. M. KENNEDY.

†266. *RAPISTRUM PERENNE* All. Woodhall Spa, ALSTON.

†267. *R. ORIENTALE* Crantz. Southampton, S. Hants., F. RAYNER; Sandal, York, HORRELL.

†268. *R. RUGOSUM* All. Weston super-Mare, N. Somerset, Miss TODD; Buryport, Carmarthen, DRUCE.

269. *R. LINNEANUM* B. & R. Ventnor, Isle of Wight, STRATTON; Aldrington, Sussex, HILTON. Both in *Hb. Druce*.

†273. *ERUCARIA MYAGROIDES* Halac. Ruskington, Lincoln, WOODRUFFE-PEACOCK, *vide sp.*

†277. *RAPHANUS SATIVUS* L. Swanage Camp, Dorset, GREEN.

293. *VIOLA SYLVESTRIS* Kit., var. *PUNCTATA* Druce. Little Pan Copse, Isle of Wight, STRATTON. *F. ROSEA*, Compton Abdale, E. Gloster, GREENWOOD.

295. *V. RUPESTRIS* Schmidt, var. *GLABRESCENS*. Cotswolds, Gloucestershire, 33 and 34, *Nature* 192, 1917, et Rev. H. J. RIDDELSDELL, in *lit.*

296. *V. CANINA* L. Only two localities given in *Fl. Dorset*. Common on downs above Dancing Ledge, also near Wool, DRUCE. Var. *PUSILLA*, Easton Broad, Suffolk, HORWOOD; Coleshill, Warwick, as *FLAVICORNIS*, BAGNALL in *Hb. Druce*; Dawlish Warren, S. Devon, GREEN and GARDNER. Var. *SABULOSA*, North Bull, Dublin, 1871, DYER, in *Hb. Druce*.

298. ~~×~~ *V. SEPINCOLA* Jord. Odiham, N. Hants., C. E. PALMER, in *Hb. Druce*.

299. *V. HIRTA* L., var. *HIRSUTA* Lange. Codicote, Herts, 1820, BLAKE, in *Hb. Druce*. *F. LACTIFLORA*. Bibury, E. Gloster, GREENWOOD. *F. IMBERIS* Greg. Sychtyn, Salop, 1869, JONES, in *Hb. Druce*.

300. *V. CALCAREA* Greg. Ballard Down, Dorset, GREEN.

301 (2). *V. EPIPSILA* Ledeb. Black Down Culm, DAVEY; N. Devon, 1872, STRATTON; and Black Mount, Belfast, 1866, G. DONALDSON, in *Hb. Druce*; Beddgelert, Aberglaslyn, and Cwm Meillionen, Carnarvon, with var. *GLABRESCENS*, DRUCE.

303. *V. LLOYDII* Jord. The scarce yellow-flowered form, Ambarrow, Berks., 1916, MONCKTON.

308. *POLYGALA SERPYLLACEA* Weihe, var. *VINCOIDES* Chodat. Colwell Heath, Isle of Wight, 1879, STRATTON.

310. *P. OXYPTERA* Reichb. (? *P. DUBIA* Bellynek). Near Dancing Ledge, Dorset, 1917, DRUCE and GREEN; Sutton Heath, Northants; CHESTER.

\*318. *DIANTHUS DELTOIDES* L. Glen, Peebles, Lady GLENCONNER. This year a portion of grass in the park, which is usually mown, was allowed to grow, and amongst it there appeared beautiful specimens of the *Dianthus*, doubtless native.

†320. *D. BARBATUS* L. Naturalised on railway bank, Mardock, Herts., 1917, HIGGENS.

†331. *SAPONARIA VACCARIA* L. Swanage, Dorset, GREEN; Atherstone, Warwick, Miss BOURNE; Winscombe, Somerset, LAMB.

†339. *SILENE CONOIDEA* L. Kirkstall, York, 1916, HORRELL.

340. *S. NOCTIFLORA* L. Wimborne and Swanage, Dorset, GREEN; Otterton, Devon, GARDNER and GREEN.

†341. *S. DICHOTOMA* Ehrh. Cirencester, E. Gloster, GREENWOOD.

341 (2). *S. CRETICA* L. On clover at Godlingstone, Dorset, 1916, GREEN.

†342. *S. GALLICA* L. Saunton, N. Devon, M. COBBE.

†345. *S. PENDULA* L. Par Harbour, Cornwall, and Exmouth Docks, S. Devon, M. COBBE.

†347. *S. ARMERIA* L. Botley, Oxon, GAMBIER-PARRY.

354. *S. NUTANS* L. Ballard Head Cliff, Dorset, GREEN.

†367 (2). *CERASTIUM TOMENTOSUM* L. Waste ground, Poole, Dorset, GREEN.

372. *C. PUMILUM* Curt. Given without locality in *Fl. Dorset*. Mr C. B. Green found it in the Quarries, Swanage, in 1912, and I saw it in two places—one near Langton Matravers, the other above Dancing Ledge, in 1917.

380. *STELLARIA NEGLECTA* Weihe. Near Druce, Dorset, 1917, DRUCE. Var. *DECIPIENS* Marsh. Side of Loch Fithie, Forfar, 1916, DRUCE.

\*382. *S. DILLENIANA* Moench, var. *PALUSTRIS* Druce. Patshull, Staffs., Lady J. LEGGE'S SCOUTS!

\*406. *SAGINA APETALA* Ard. The Glen, Peebles, DRUCE.

\*406 (2). *S. REUTERI* Lange. Storrington, Sussex, Miss TODD.

411. *SPERGULARIA RUPESTRIS* Lebel. Cliffs, S. of Lulworth Cove, Dorset, GREEN.

412. *S. MEDIA* Presl, var. *GLANDULOSA* Druce. Blythburgh, E. Suffolk, HORWOOD.

†419. *CLAYTONIA PERFOLIATA* Donn. Schoolhouse Garden, Uppingham, 1882, Bishop MITCHINSON.

423. *ELATINE HYDROPIPER* L. Mortimer, Berks., Rev. E. C. CRUTWELL. A most interesting record, as it is to be feared that military manœuvres have destroyed it at Sandhurst.

†426. *HYPERICUM HIRCINUM* L. Hythe, 1880, Bishop MITCHINSON, in *Hb. Druce*. This supplies a definite locality for Kent.

433. *H. UNDULATUM* Schousb. Precelly Mountains, Pembroke, 1917, Arnett.

437. *H. HUMIFUSUM* L., near var. *AMBIGUUM* Gill, but sepals are less glandular and the flowers seem smaller, teste PUGSLEY. The Lizard, Cornwall, Lady DAVY. The var. is already recorded for Cornwall.

442. *ALTHAEA OFFICINALIS* L. Still at Muddiford, S. Hants., GARDNER and GREEN.

†447. *LAVATERA THURINGIACA* L.! Hayle, Cornwall, 1917, RILSTONE.

†452 (2). *MALVA NICABENSIS* All.! Guildford, KENNEDY, vide sp.; Meanwood, Leeds; Mirfield, Yorks., HORRELL.

†454. *M. PUSILLA* With. Wytham, Berks, DRUCE; Bradford, CRYER; Kirkstall, Tingley, York, HORRELL; Woodhall Spa, ALSTON; Goathorn, Swanage, Dorset, GREEN; Pye Hall Farm, E. Suffolk, HORWOOD.

†456. *M. PARVIFLORA* L. Ware, Herts, DRUCE; Guildford, KENNEDY, vide sp.; Meanwood, Leeds, HORRELL.

469. *LINUM PERENNE* L. = *L. ANGLICUM* Mill. This is bracketed for Kirkcudbright in *Top. Bot.* In *Fl. Dumfries* it is said to be an escape (whence?). S. Arnott (*Gard. Chron.* ii., 192, 1917) says: "In a certain bay on the Kirkcudbright coast there is a beautiful colony, giving the portion of the coast on which it grows a feature reminding one of the haze of blue shown in many a woodland and meadow by the flowers of the blue bell. It has formed one of the prominent features in some of the pictures of a famous Scotch artist." In this bay where rabbits abound they do not touch the flax, yet when transplanted to the Cumbrian coast it is greedily devoured.

†479. *GERANIUM PHAEUM* L. Patshull, Staffs., Lady J. LEGGE'S SCOUTS!

†479 (2). *G. ENDRESSII* Gay. Landkey, Devon, *Hiern Rep.*

488. *G. PURPUREUM* Forst. Swanage, Dorset, GREEN, whence Sherard recorded it.

†490 (2). *ERODIUM BOTRYS* Bert.! var. In a mangold field, Edenbridge, Kent, with other species, TALBOT.

†494. *E. MOSCHATUM* Ait.! Edenbridge, Kent, with above, TALBOT.

†499. *E. CYGNORUM* Nees.! Edenbridge, Kent, with above, TALBOT, vide sp.

†506. *OXALIS STRICTA* L. Wick Hill, Finchampstead, Berks., 1917, MONCKTON.

†510. *IMPATIENS GLANDULIFERA* Royle. On the banks of the Taw in great plenty for some miles below South Molton Road Station, N. Devon, ! M. COBBE.

†519 (2). *RHAMNUS ALATERNUS* L. Hedge, Pan Down, Isle of Wight, 1893, STRATTON.

†520. *STAPHYLEA PINNATA* L. and †525. *ACER PLATANOIDES* L. are both reported from Leyburn, York, in the *Nat.*

- †529. *LUPINUS ANGUSTIFOLIUS* L. Cultivated near Wrentham, Suffolk, HORWOOD.
- †531. *LABURNUM ANAGYROIDES* Med. Seeding freely at 800 feet at Glen, Peebles, where it was planted by the late Sir CHARLES TENNANT.
543. *ONONIS REPENS* L., var. *HORRIDA* Lange, and f. *ALBA*. St. Helens Spit, Isle of Wight, GARDNER and GREEN.
547. *TRIGONELLA M. ORNITHOPODIOIDES* (L.), new to district 3. Par, Cornwall, M. COBBE.
- †548. *T. FOENUM-GRÆCUM* L. Welbeck, Notts., GOULDING, vide sp.
- †549. *T. GLADIATA* Stev. Bristol, W. Gloster, EVANS, ex I. M. ROPER.
- †550. *T. POLYCRATA* L. Wakefield and Dean Clough, Halifax, 1916, HORRELL.
- †553. *T. AZUREA* C. A. Meyer. Aglerigg, York, PULLAN.
- †562. *MEDICAGO FALCATA* L., var. *TENUIFOLIOLATA* Vuyck. Wall-top by canal, Exeter, S. Devon, M. COBBE; Woodhall Spa, ALSTON; fowl-run, Naphill, Bucks., DRUCE; Elland, York, HORRELL.
563. *M. SYLVESTRIS* Fries. Kingston-on-Sea, Sussex, with *Falcata* and *sativa*, WEBSTER.
- †567. *M. SCUTELLATA* Mill. Dean Clough, Halifax, 1916, HORRELL.
- †574. *M. TUBERCULATA* Willd. Dean Clough, Halifax, HORRELL.
- †579. *M. APICULATA* Willd. St. Philip's, Bristol, DRUCE and M. COBBE; Guildford, Surrey, KENNEDY.
580. *M. ARABICA* Huds. Abingdon, Berks.; Portmadoc, Carnarvon, new to 3, DRUCE.
581. *M. MINIMA* Desr., var. *RECTA* Burnat. Rye, Sussex, WALLIS, ex SALMON.

†582. *M. LACINIATA* Mill. Bradford, York, CRYER; Meanwood, Leeds, 1916, HORRELL.

†590. *MELILOTUS SICULA* (Turra) Ind. Kew. = *M. MESSANENSIS* Desv. Guildford, Surrey, KENNEDY, vide sp.

†595. *M. ALBA* Desr. Guildford, KENNEDY; Exmouth, S. Devon, M. COBBE; *Winchester Rep.* 1917; Woodhall Spa, ALSTON.

†597. *M. INDICA* All. Exmouth, S. Devon, M. COBBE; Swanage and Studland, Dorset, 1917, GREEN; Guildford, Surrey, KENNEDY; Wrentham, W. Suffolk, HORWOOD; Portmadoc, Carnarvon, DRUCE.

599. *TRIFOLIUM PRATENSE* L., var. *PARVIFLORUM* Bab. Near Par, Cornwall, M. COBBE; Worthing, Sussex, Miss TODD.

†605. *T. LAPPACEUM* L. Dean Clough, Halifax; Elland and Sandal, York, HORRELL.

611. *T. ARVENSE* L., var. *STRICTIUS* Koch. Frodsham, Cheshire, 1866, J. F. ROBINSON; Ruckley, Salop, 1838, BIDWELL, both in *Hb. Druce*.

614. *T. MARITIMUM* Huds. North side of Poole Harbour, Dorset, 1914 (recorded from that area by Pulteney, but thought to be extinct), GREEN.

†615 (2). *T. DIFFUSUM* Willd. Roadside between Studland and Corfe Castle, Dorset, GREEN. Det. Kew.

†616. *T. ECHINATUM* M. Bieb. (*SUPINUM* Savi). Kirkstall, York, PULLAN.

†623. *T. TOMENTOSUM* L. Abingdon, Berks., GAMBIER-PARRY, vide sp.

†625. *T. SPUMOSUM* L. St. Philip's, Bristol, A. B. Cobbe; Dean Clough, Halifax, 1916, HORRELL.

646. *LOTUS ULIGINOSUS* Schukhr, var. *GLABER* Bréb. Lytchett, 1904, DRUCE; Parkstone Ridge, etc., Dorset, 1917, GREEN.

†651. *GALEGA OFFICINALIS* L. Finchampstead Ridge, Berks., 1917, MONCKTON.

†666. *CORONILLA VARIA* L. Newmarket, Cambridge, ADAIR; Woodhall Spa, ALSTON; Loanhead, Edinburgh, FRASER, *l.c.*

†667. *C. SCORPIOIDES* Koch. Bristol, W. Gloster, Mrs SANDWITH; Welbeck, Notts., GOULDING; Elland, York, ! HORRELL.

†678. *VICIA TENUIFOLIA* Roth. In a hedge by a corn-field near Hunston, Sussex! BURDON (there for some time, and quite naturalised); Falmouth Docks, Cornwall, A. B. COBBE.

†683. *V. VARIA* Host. ! Aldrington, Sussex, HILTON; Scarborough Mere, York, HORRELL.

†684. *V. PSEUDO-CRACCA* Bert. Dean Clough, Halifax; Elland, York, HORRELL.

687. *V. BITHYNICA* L. Near Canterbury, Kent (new to dist. 7), ASHETON.

688. *V. SEPIUM* L., var. nov. *INSIGNIS* (floribus majoribus et rubrioribus). Wangford, W. Suffolk, HORWOOD, in *lit.*

†690. *V. NARBONENSIS* L. ! Dean Clough, Halifax; Elland, York, HORRELL.

†692. *V. HYBRIDA* L. Dean Clough, Halifax, HORRELL.

†694. *V. PANNONICA* Crantz. Pye Hall Farm, E. Suffolk, HORWOOD.

\*698. *V. ANGUSTIFOLIA* (L.) Reichb. Glen, Peebles, DRUCE.

\*705. *V. TETRASPERMA* Moench. Dirleton, Haddington, FRASER, in *Rep. Bot. Soc. Edin.*, 405, 1918.

†706. *V. GRACILIS* Lois. ! Among corn, Sibford, Oxford, LAMB; Panfield Cliffs, Seacombe Cliffs, Worth, Gadcliffe, Dorset, GREEN. The correct name, teste Thellung, is *V. tenuissimum* (Pers.).

710. *LATHYRUS SYLVESTRIS* L., var. *LATIFOLIUS* Peterm. Copse above Kerne, Isle of Wight, 1872, STRATTON, in *Hb. Druce*.

†721. *L. CICERA* L. Par Harbour, Cornwall, A. B. COBBE.



†722. *L. SATIVUS* L. Corn-siftings, Bristol, W. Gloster, I. M. ROPER.

726. *L. APHACA* L. Corn-field, Cirencester, E. Gloster, GREENWOOD. Lacks personal authority in *Top. Bot.*

†736. *PRUNUS PADUS* L. Wool, DRUCE; Stoborough, Wareham, GREEN. Doubtless planted.

†745 (3). *SPIRAEA DOUGLASHI* Hook. ! Rough ground, old clay pits, Creech, Dorset, 1917, GREEN; Ashton-le-Mersey, Cheshire, 1916, J. S. GALE.

†745 (4). *S. BUMALDI* Hort. A garden escape, Beddgelert, Carnarvon, 1917, DRUCE.

749. *RUBUS FISSUS* Lindl. and 750. *R. NESSENSIS* And. Benacre, E. Suffolk, HORWOOD.

776. *R. MERCICUS* Bagn. Near Milton, S. Hants., 1917, CUMMING.

784. *R. THYRSOIDEUS* Wimm. South Cave, E. Suffolk, HORWOOD.

\*822. *R. LEYANUS* Rogers. Near Milton, S. Hants., CUMMING.

883. *GEUM RIVALE* L. A curious monstrosity, in which a single flower, with many series of petals of a deep crimson colour, is sessile on the top of the stem among a circle of bract-like leaves, was found by Mr W. H. St. Quintin on Tees-side. It is similar to, but much taller than the Caenlochan plant alluded to in *Rep. B.E.C.* 483, 1916.

†885. *FRAGARIA MOSCHATA* Duchesne. Near Symond's Yat, Hereford, 1917, Miss TODD. The plant from Haslemere, Surrey (*Rep. B.E.C.* 483), is *F. virginiana*.

†895. *POTENTILLA ARGENTEA* L. Woodhall Spa, ALSTON.

896. *P. INTERMEDIA* L. Woodhall Spa, ALSTON; Northampton, GOODE; Wellington College Station, Berks., MONCKTON.

903. *P. ERECTA* Hampe, var. *SCIAPHILA* (Zimm.) Druce. Holyhead, Anglesey, 1917, DRUCE.

906. *P. NORVEGICA* L. Northampton Race Course, GOODE.
- \*909. *ALCHEMILLA MINOR* Huds. Glen, Peebles, DRUCE; Patshull, Staffs., Lady J. LEGGE'S SCOUTS.
- \*909. *A. ALPESTRIS* Schmidt. Glen, Peebles, DRUCE.
914. *AGRIMONIA ODORATA* Mill. Near Wilsford, Wilts., abundant, DRUCE and S. TENNANT; Biddesden, Wilts., and Appleshaw, N. Hants., Hon. Mrs G. BARING and DRUCE; Arne Woodland, etc., Dorset, GREEN.
923. *ROSA GALLICOIDES* Déségl. Chesterton Wood, Warwick, as *R. systyla*, H. BROMWICH in *Hb. Druce*, teste WOLLEY-DOD; Solihull, Warwick, 1871, J. BAGNALL.
- \*927 (3). *R. STENOCARPA* Déségl. Symond's Yat, W. Gloster, Miss TODD.
932. *R. HEMITRICA* Rip. Richmond, York, 1870, J. WARD, as *arvatica*.
- \*932. *R. RAMEALIS* Puget. Naphill, Bucks., 1917, DRUCE. The best British example as yet seen by Wolley-Dod.
- \*937. *R. APRICORUM* Rip. Glen, Peebles, DRUCE. It seems quite native in the county.
- \*941. *R. PSEUDO-RUBIGINOSA* Ley. Glen, Peebles, DRUCE.
- \*943. *R. VILLOSA* L., var. *CAERULEA* (Woods). Bodorgan, Anglesey, DRUCE.
945. *R. CORONATA* Crép. Chesterton, Warwick, 1867, H. BROMWICH in *Hb. Druce*.
957. *PYRUS AUCUPARIA* Ehrh., var. *FLAVA* Druce. Glen, Peebles, DRUCE.
963. *P. TORMINALIS* Ehrh. Near Oxwich, Glamorgan, 1917, Miss VACHELL. No personal authority in *Top. Bot.*
- †964 (2). *P. CYDONIA* L. Farley Wood, Winchester, S. Hants., 1878, STRATTON in *Hb. Druce*.

966. *CRATAEGUS MONOGYNA* Jacq., var. *SPLENDENS* Druce. Plants near this—Thegdon Bois, S. Essex, GROVES; Southampton Common, S. Hants., 1917, VIGURS. Var. *PTERIDIFOLIA* Loudon. Asthaly, Oxon, 1917, DRUCE. Var. *QUERCIFOLIA* Booth. Biddesden, S. Wilts.; N. Hants.; Traquair, Peebles; Portmadoc, Carnarvon, DRUCE.

†970 (2). *C. CRUS-GALLI* L. Plentiful in hedges about Moreton, Dorset, 1917, Lieut. T. H. LEACH.

†972. *COTONEASTER MICROPHYLLA* Wallich. Babbicombe, S. Devon, 1914, STRATTON; Brading Down, Isle of Wight, thoroughly naturalised, R. M. CARDEW in *lit.*

\*1000. *PARNASSIA PALUSTRIS* L. Glen, Peebles, 1917, Lady GLENCONNER.

1010. *SEDUM PURPUREUM* Link. Hunters Inn, S. Devon, M. COBBE.

†1012. *S. REFLEXUM* L., var. *ALBESCENS* (Haw.) Near Lilliput Pier, Dorset, 1916, GREEN.

†1016. *S. ALBUM* L. Peebles, DRUCE.

\*1047. *EPILOBIUM HIRSUTUM* × *PALUSTRE*. Alphington, S. Devon, 1916, HIERN.

\*1052. *E. ROSEUM* Schreb. Galashiels, Selkirk, 1917, I. M. HAYWARD and DRUCE.

1054. *E. MONTANUM* × *ROSEUM*. Baildon, York, 1917, CRYER.

1059. *LUDVIGIA APETALA* Walt. Still in the New Forest, S. Hants., 1917, DRUCE.

†1061. *OENOTHERA BIENNIS* L., var. *SUAVEOLENS* (Desf.). Railway, Northampton, 1875, DRUCE.

†1064. *OE. LAMARCKIANA* Ser. Ilfracombe, and plentiful by the railway between Lynton and Woody Bay Station, N. Devon, 1917, A. B. COBBE; near Lilliput Pier, and North Haven, Poole Harbour, Dorset, 1916, GREEN.

†1065. *OE. ODORATA* Jacq. Dawlish Warren, S. Devon, M. COBBE.

†1071. *FUCHSIA RICCARTONI* Hort. In a wood, well established, Lynton, N. Devon, REDGRAVE.

†1074. *MENTZELIA ALBICAULIS* Dougl. Bristol, W. Gloster, Mrs SANDWICH, teste THELLUNG.

†1082. *ÁSTRANTIA MAJOR* L., var. *INVOLUCRATA* Koch. Wood, Linlithgowshire, J. H. MARTIN.

†1090. *BUPLEURUM ROTUNDIFOLIUM* L. Waste ground, Ellacombe, S. Devon, 1914, STRATTON.

†1091. *B. LANCIFOLIUM* Hornem. 1813 (*PROTRACTUM* H. & L. 1820). Tywardreath, Cornwall, A. B. COBBE; Dean Clough, Halifax, 1916, HORRELL; roadside, near Patshull, Staffs., Lady J. LEGGE'S SCOUTS!

†1095. *B. CROCEUM* Fenzl. Groby, Leicester, 1916, R. EVERARD, ex HORWOOD.

1114. *PIMPINELLA SAXIFRAGA* L., var. *POTERIIFOLIA* Wallr. Isalt, Anglesey, 1917, and as forma *NANA* mihi. Plants about 2 inches high. The type on the Clogwyn, Carnarvonshire, at 2300 feet. DRUCE.

†1125. *SCANDIX IBERICA* M. Bieb. Botley, Oxon; St Philip's, Bristol, 1916, DRUCE.

1126. *ANTHRISCUS SYLVESTRIS* Hoffm., var. *ANGUSTISECTA* Druce. Traquair, Peebles; Galashiels, Selkirk; near the Tweed, Galashiels, Roxburgh, DRUCE. Var. *LATISECTA* Druce. Madeley, Staffs.; H. DALTRY and DRUCE; Wool and Worth, Dorset; Lyndhurst, S. Hants.; Biddesden, N. Hants.; Wilsford, S. Wilts.; Bradfield, Berks.; Bradenham, Bucks.; Stansteadbury, Herts.; Kirkby-le-Soken, Essex; near Rye House, S. Essex; Whittlebury, Northants., DRUCE. Mr F. N. Williams directs my attention to the altitude (585 metres) at which this species grows in the Galtee mountains, Tipperary, and to the statement (Baker and Tate *Fl. Durham* 182) that Mr Baker had found a form with deep green, nearly naked leaves with narrow divisions on the limestone scars in Harwood Dale, Durham. This is probably the var. *angustisecta*.

†1128. *A. CEREFOLIUM* Hoffm. ! Between Truro and Malpas, Cornwall, A. B. COBBE.

1150. *PEUCEDANUM OFFICINALE* L. In good quantity on the Naze near Kirby-le-Soken, N. Essex. Long ago recorded from the Naze Estuary. In most British Floras, e.g. Babington, Boswell-Syme and Hooker, the habitat is given as "Salt Marshes." This is not quite accurate. *Peucedanum* shows its handsome tufts of dark green, finely divided leaves on the sloping sea walls, or on the edges and slopes of clay banks near the sea and its estuaries. It does not grow in the wet marshes.

†1153. *HERACLEUM VILLOSUM* Fisch. Abingdon, Berks., DRUCE.

†1157. *CORIANDRUM SATIVUM* L. Ware, Herts., 1917, DRUCE.

†1159. *ANIDRUM TESTICULATUM* Kuntze. Still at Bristol, 1917, Mrs SANDWICH; Sandal, Leeds and Bradford, York, HORRELL.

†1165. *CAUCALIS LEPTOPHYLLA* L. Sandall and Kirkstall, York, HORRELL, vide sp.

†1171. *C. LATIFOLIA* L. Par Harbour, Cornwall, A. B. COBBE.

1172. *HEDERA HELIX* L., var. *BOREALIS* Druce. Fordwell, Oxon, DRUCE.

†1177. *SAMBUCUS RACEMOSUS* L. Glen, Peebles, seeding, DRUCE.

\*1179. *S. EBULUS* L. Hedge near Blackmore Gate, N. Devon, M. COBBE.

†1189. *LEYCESTERIA FORMOSA* Wallich. On a high cliff by a road-side near Lynton, N. Devon, REDGRAVE.

[1192. *GALIUM BOREALE* L. Cheddleton, Staffs., *Ridge Rep.* 1917.]

1194. *G. ERECTUM* Huds. Wilsford, S. Wilts., DRUCE.

\*1196. *G. PUMILUM* Murray. Cwm Meillionen, Carnarvon, 1917 (seen there also by SALMON); Glen, Peebles, with *Helianthemum Chamaecistus*, the glabrous form in both cases, DRUCE; in a rough field on the down near Ferring, W. Sussex, Miss TODD. Already

recorded for 13. The above name should replace *G. sylvestre* or *G. asperum*.

1198. *G. PALUSTRE* L., var. *LANCEOLATUM* Uechtr. New Forest, S. Hants.; near Mundham, W. Sussex, DRUCE; Balerno, Fife, J. H. MARTIN. This also seems to agree with var. *umbrosum* Aschers. Fl. Brand. 276, var. *majus* Schur Enum. 280, but the older name is *lanceolatum*, which differs from *elongatum* Presl by the rough angles to the stem.

†1210. *ASPERULA ARVENSIS* L. Hove, Sussex, 1917, Miss TODD.

1237. *SCABIOSA SUCCISA* L., var. *GLABRATA* Schultes. Moel Hebog, Carnarvon, DRUCE.

†1242. *GRINDELIA SQUARROSA* L. Long Ashton, N. Somerset, 1917, I. M. ROPER.

†1244. *SOLIDAGO LANCEOLATA* L. ! A small colony remote from houses on roadside near Perranporth, Cornwall, there for the last 12 years, RILSTONE; waste ground, Swanage, Dorset, 1917, GREEN.

1248. *BELLIS PERENNIS* L., *lusus PROLIFERA*. Swanage, Dorset, GREEN. This is the "Hen and Chicken" form.

†1255. *ASTER NOVI-BELGII*. Elland, York, HORRELL.

†1257 (2). *A. LANCEOLATUS* Willd. Ashley, near Milton, S. Hants, 1917, CUMMING.

†1262. *ERIGERON CANADENSE* L. Swanage Camp, Dorset, 1917, GREEN; Portmadoc, Carnarvon, DRUCE; Woodhall Spa, ALSTON.

†1281. *INULA BRITANNICA* L. Woodhall Spa, ALSTON. An unusual alien on corn refuse. This may explain its occurrence in Leicestershire.

†1284. *I. VISCOSA* Ait. Still at Portmadoc, Carnarvon, 1917, DRUCE.

†1287. *ODONTOSPERMUM AQUATICUM* Sch.-Bip. ! Ovenden, York, A. BATES, ex HORRELL.

- †1289. *IVA XANTHIFOLIA* Nuttall! Elland, York, 1916, HORRELL.
- †1291. *AMBROSIA ARTEMISIFOLIA* L! Studland, Corfe Castle, Swanage, 1915, GREEN; garden ground, Reading, Berks., 1917, STANSFIELD, vide sp.
- †1292. *A. TRIFIDA* L. Swanage Camp, Dorset, 1917, GREEN; Bristol, I. M. ROPER; Ravensthorpe, York, BURRELL; Pye Hall Farm, E. Suffolk, HORWOOD. Thellung passed the N. Somerset specimen as correct. See *Rep. B.E.C.* 491, 1916.
- †1295. *XANTHIUM SPINOSUM* L. Exmouth Docks, M. COBBE; Abingdon, Berks., N. LINDSAY; Northampton Race Course after camp, 1917, GOODE; Portmadoc, Carnarvon, DRUCE; Pye Hall Farm, E. Suffolk, HORWOOD.
- †1302. *HELIANTHUS RIGIDUS* Desf. Near Birmingham, Warwickshire, DRUCE; Gathampton, Oxon, GAMBIER-PARRY.
- †1303 (3). *H. DEBILIS* Nutt. ! Woodhall Spa, ALSTON.
- †1306. *GUIZOTIA OLEIFERA* DC. (?syn. with *G. ABYSSINICA*.) Bristol, 1917, I. M. ROPER.
- †1308. *COREOPSIS TINCTORIA* Nuttall ! Naphill fowl run, Bucks., CLARKE.
- †1312. *GALINSOGA PARVIFLORA* Cav. ! Guildford, Surrey, KENNEDY; Welbeck, Notts., 1917, GOULDING.
- †1315. *HEMIZONIA PUNGENS* T. & G. Par, Cornwall, RILSTONE.
- †1317. *H. KELLOGGII* Greene. Ware, Herts., DRUCE; Pye Hall Farm, Suffolk, HORWOOD, vide sp.; Elland, York, HORRELL, vide sp.
- †1323. *ANACYCLUS CLAVATUS* Pers. Sandall, York, HORRELL, teste THELLUNG.
- †1331. *ACHILLEA NOBILIS* L. ! Southampton, 1917, RAYNER; Woodhall Spa, ALSTON.
1339. *ANTHEMIS NOBILIS* L. Broughton, Gifford Common, N. Wilts., rare in the county, NOEL SANDWICH.

†1340. *A. COTA* L. (*A. ALTISSIMA* L.). Hull, 1914, WATERFALL, teste THELLUNG; Botley, Oxon, DRUCE; Kirkstall, York, HORRELL.

†1341. *A. AUSTRIACA* Jacq. Hull, WATERFALL.

†1344. *A. RUTHENICA* Bieb. Hull, WATERFALL.

†1348. *A. MIXTA* L. ! Hove, Sussex, 1917, Miss TODD.

†1362. *MATRICARIA SUAVEOLENS* Buch. Common now in Dorset, GREEN; Clynderwen to Narberth, Pembroke, ARNETT; Bodorgan, Anglesey, DRUCE.

†1363 (2). *M. DISCIFORMIS* DC. Elland, York; Dean Clough, Halifax, HORRELL, vide sp.

1367. *ARTEMISIA ABSINTHIUM* L. Woodhall Spa, ALSTON.

1373. *A. VULGARIS* L., var. *COARCTATA* Fors. Beddgelert, Carnarvon; Bordorgan, Anglesey; Malvern, Worcester, DRUCE; Bere Regis, Swanage, Dorset, GREEN; Frosten Den, E. Suffolk, HORWOOD.

†1380. *A. BIENNIS* Willd. Swanage, Dorset, 1916, GREEN; Silloth, Cumberland, WALLIS, ex SALMON, vide sp.; Elland, York, HORRELL.

†1396. *SENECIO SQUALIDUS* L. Par Harbour and along the line near St Blazey, Cornwall; Exmouth Harbour, S. Devon, M. COBBE; Leamington, Warwick; Portland, Dorset, 1900, DRUCE; railway near Sandsfoot Castle, Dorset, 1916, GREEN.

\*1399. *S. VISCOSUS* L. Railway near Maenclichog, Pembroke, ARNETT, vide sp.; Denham, Bucks., and Hampstead, Middlesex (already recorded), REDGRAVE.

1401. *S. VULGARIS* L., var. *RADIATUS* Koch. Teignmouth Docks, S. Devon, A. B. COBBE.

†1402. *S. CINERARIA* DC. Woolacombe, N. Devon, H. BUTLER; Budleigh Salterton, S. Devon, M. COBBE.

†1402. × *S. ALBESCENS* B. and C. Saunton, N. Devon, M. COBBE; Swanage, Dorset, known there for many years, GREEN.



†1410. *CALENDULA OFFICINALIS* L. Iffley, Oxon.; Conway, Carnarvon, DRUCE; Southwold Cliffs, E. Suffolk, established, HORWOOD.

†1412. *CRYPTOSTEMMA CALENDULA* (L.) Druce! Bradford, York, 1917, CRYER; Galashiels, Selkirk, 1917, Lanal, I. M. HAYWARD.

\*1420. *ARCTIUM NEMOROSUM* Lej. Patshull, Staffs., Lady J. LEGGE'S SCOUTS; Glen, Peebles, DRUCE.

~~\*1424. *CARDUUS ACANTHOIDES* × *NUTANS*. Ulwell Downs, Dorset, GREEN.~~

1434. *CIRSIIUM PALUSTRE* Scop., var. *FEROX* Druce. Cwm Meillonon, Carnarvon; Glen, Peebles, DRUCE.

1439. *ONOPORDON ACANTHIUM* L. Cliffs at Saunton, N. Devon, M. COBBE. Var. *VIRIDE* Mich. Near this, near Bristol, I. M. ROPER.

†1443. *MARIANA LACTEA* Hill. Pye Hall Farm, Wrentham, Suffolk, HORWOOD; Northampton Race Course, GOODE.

1456. *CENTAUREA SCABIOSA* L., var. *ANGUSIENSIS* Williams. St. Mary Church, S. Devon, Miss LARTER, ex *Hiern Rep.*

†1462. *C. SOLSTITIALIS* L. Kirkstall, York, 1916, HORRELL.

†1463. *C. MELITENSIS* L. Par, Cornwall; Exmouth, S. Devon, M. COBBE; waste ground, Poole, Dorset, GREEN; Pye Hall Farm, Suffolk, HORWOOD; Dean Clough, Halifax, HORRELL.

†1465. *C. CALCITRAPA* L. Wrentham, Suffolk, HORWOOD.

†1467. *C. PALLESCENS* Delile. Dean Clough, Halifax, HORRELL.

†1470. *C. SALMANTICA* L. Sandal, York, HORRELL.

†1477. *CARTHAMUS TINCTORIUS* L. Tywardreath, Cornwall, A. B. COBBE; Abingdon, Berks.; Portmadoc, Carnarvon, DRUCE.

\*1480. *CICHORIUM INTYBUS* L. Glen, Peebles, 1909, onward! Lady GLENCONNER.

†1485. RHAGADIOLUS STELLATUS Gaertn. (EDULIS). Dean Clough, York, HORRELL.

1494. CREPIS BIENNIS L. Little Salkeld, Cumberland, W. MASON, vide sp.

†1512. HIERACIUM AURANTIACUM L. Church Knowle, Dorset, GREEN; Patshull, Staffs., Lady J. LEGGE'S SCOUTS.

\*1536. H. HYPARCTICUM Elfstr. Allt Coire Dhubh, Easternness, MARSHALL, in *lit.* For other records of his see *Journ. Bot.* 131, 1917.

1572. H. SERRATIFRONS Ahnq. Site of Coxe's Wood, Crowthorn, Berks., MONCKTON. Var. LEPISTOIDES Johannst. Reading, 1915, DRUCE; Crowthorn, Berks.; MONCKTON.

\*1588. H. SURREJANUM F. J. H. Finchampstead Ridges, Berks.; Wellington College, Berks., MONCKTON.

\*1601. H. PINNATIFIDUM Lönnr., var. VIVARIUM Lönnr. S. Sebastian, Wokingham, Berks., 1916, MONCKTON.

\*1609. H. SCIAPHILUM Uechtr. Patshull, Staffs., Lady J. LEGGE'S SCOUTS!

1629. H. TRIDENTATUM Fr., var. ACRIFOLIUM Dahlst. Poole, Carey Heath, etc., Dorset, GREEN.

1630. H. RIGIDUM Hartm., var. TRICHOCAULON Dahlst. Parkstone, Dorset, GREEN; Wellington College, Berks., 1917, MONCKTON.

1638. H. UMBELLATUM L., var. LINARIIFOLIUM Wallr. New Mills Heath, Kempstone, Dorset, GREEN and ELLMAN. Var. CORONOPIFOLIUM Fr. New Mills Heath, Wareham railway bank, Dorset, GREEN.

1640. HYPOCHAERIS RADICATA L., var. LEIOCEPHALA Regel. Easton Broad Heath, W. Suffolk, HORWOOD. The description of var. *hispida* in *Hayward's Bot. Pocket Book* needs correcting. It is the outside of the phyllaries which have hispid hairs, a distinguishing feature from the above variety in which they are glabrous.

1645 (2). *TARAXACUM LAEVIGATUM* DC. Swanage, Dorset, May 1917; \* Wilstone, S. Wilts.; \*Glen, Peebles, DRUCE.

1645 (3). *T. OBLIQUUM* Dahlst. \* Wilstone, Wilts.; \* Swanage, Dorset; Oxford; \* Bangor, Carnarvon, DRUCE.

1646. *T. PALUSTRE* DC. Yate Common, W. Gloster, 1914, BUCKNALL.

1646 (2). *T. SPECTABILE* Dahlst. Beddgelert, Carnarvon; \*Glen, Peebles, DRUCE.

\*1651. *LACTUCA MURALIS* Fries. Between Rostrevor and Woodhouse, Co. Down, WADDELL, in *Ir. Nat.* 1917.

1656. *SONCHUS ARVENSIS* L., var. *LAEVIPES* Koch. Gwynnant, Carnarvon, in quantity, DRUCE.

\*1657. *S. ASPER* × *OLERACEUS*. What is almost certainly this hybrid was seen in rich garden soil at Lord Glenconner's, Wilsford Manor, in July 1917. *S. asper* and *oleraceus* were both growing there and in considerable variety, but a few plants with intermediate flower and leaf characters were observed, and the fruits in these cases were not ripened.

1658. *S. OLERACEUS* L., var. *LACERUS* Wallr. Brixham, S. Devon, Lady DAVY and DRUCE. Var. *INTEGRIFOLIA* Wallr. Wilsford, S. Wilts, DRUCE.

1666. *JASIONE MONTANA* L. Near Clevedon, N. Somerset, WILLIAMS, ex I. M. ROPER. Var. *LITORALIS* Fries. Studland Bay, Dorset, 1917, GREEN.

†1674. *CAMPANULA RAPUNCULOIDES* L. Swaffham Prior, W. Norfolk, ADAIR, in *lit.*; \* Steephill Cove, Isle of Wight, 1917, GARDNER and GREEN.

~~1678. *C. PATULA* L. Near Horton, W. Gloster, HARFORD, ex WHITE.~~

1685. *VACCINIUM MYRTILLUS* L. Has turned up this year in N. Lincoln. Not seen since 1780, WOODRUFFE-PEACOCK, in *lit.*

\*1685. *V. MYRTILLUS* L. × *VITIS-IDAEA* = × *V. INTERMEDIUM*.  
One enormous plant, Lonsdale, N. E. Yorks, HESLOP-HARRISON,  
in *lit.*

\*1686. *V. VITIS-IDAEA* L. In good quantity above East Quantock  
Head, S. Somerset, 1917, KNOWLES, ex MARSHALL, in *lit.*

\*1690. *ARCTOSTAPHYLOS UVA-URSI* Spreng. Lonsdale in Cleve-  
land, N. E. Yorks, HESLOP-HARRISON.

1692. *ANDROMEDA POLIFOLIA* L. Bog in Co. Antrim, TOMLINSON  
in *Ir. Nat.*, 1916.

1693. *CALLUNA VULGARIS* Hull, var. *SPECIOSA* Druce. Holyhead  
Mt., Anglesey, DRUCE.

1697. *ERICA CILIARIS* L. × *TETRALIX*. Studland, Sleepe and  
Wytech Heaths, Dorset, GREEN.

†1706. *RHODODENDRON PONTICUM* L. Seeding freely at Glen,  
Peebles, DRUCE.

\*1714. *LIMONIUM HUMILE* Mill. Teesmouth, Durham, HESLOP-  
HARRISON, in *lit.*

1715. *L. LYCHNIDIFOLIUM* Kuntze. In another locality in Jersey,  
ATTENBOROUGH.

1721. *STATICE LINEARIFOLIA* Lat. Kirby-le-Soken, N. Essex;  
Holyhead, Anglesey; Carnarvon, DRUCE.

1722. *S. MARITIMA* Mill. Hayling Island, S. Hants., DRUCE.

1742. *ANAGALLIS FEMINA* Mill. Hambledon, S. Hants., H.  
BUTLER; Exmouth, S. Devon, M. COBBE.

†1748. *FRAXINUS EXCELSIOR* L., var. *DIVERSIFOLIA* Ait. Scrivelsby  
Park, N. Lincoln, ALSTON.

1757. *CENTAURIUM PULCHELLUM* Druce. Braunton Burrows, N.  
Devon, M. COBBE. Var. *TENUIFLORUM* (Link) Druce. East of Little-  
sea, Dorset, 1917, GREEN.

\*1762. *GENTIANA VERNA* L. Above Alston, Cumberland, G. BOLAM, ex HESLOP-HARRISON.

1763. *G. AMARELLA* L. Near Loch Moraig, E. Perth, BARCLAY.

1764. *G. GERMANICA* Willd. Streatley, Berks., 1917, thus verifying Pamplin's record, GAMBIER-PARRY.

1765. *G. CAMPESTRIS* L., var. *BALTICA* (Murb.). Treardur, Aberfraw, Anglesey, DRUCE.

†1781. *HELIOTROPIMUM EUROPAEUM* L. Bristol, W. Gloster, 1914, WHITE.

†1787. *LAPPULA ECHINATA* Gilib. Swanage, Dorset, GREEN; Pye Hall Farm, E. Suffolk, HORWOOD; Hambledon, S. Hants., H. BUTLER; Woodhall Spa, ALSTON.

†1789 (2). *BENTHAMIA (AMSINCKIA) ANGUSTIFOLIA* (Lehm.) Druce. Par, Cornwall, A. B. COBBE.

1789 (3). *B. LYCOPSIODES* Lindl. Naphill, Bucks.; Biddesden, Wilsford, S. Wilts., DRUCE; Salisbury, GODDARD; Gloster Dock, Miss TODD; Cirencester, E. Gloster, GREENWOOD; Chepstow, Monmouth, LAMB; Winscombe, N. Somerset, Miss TODD; Romsey, S. Hants., RAYNER; Elland, York, HORRELL.

\*1790. *SYMPHYTUM OFFICINALE* L. Lyneside below West Linton, Peebles, FRASER, *l.c.*

†1791. *S. TUBEROSUM* L. Falland House, N. Somerset, 1912, I. M. ROPER.

†1792. *S. PEREGRINUM* Ledeb. Between Truro and Malpas, Cornwall, M. COBBE; Wool, Dorset, DRUCE.

†1793. *S. ORIENTALE* L. Spylaw Park, Edinburgh; Dysart Woods, Aberdour; Raith, Fife, FRASER, *l.c.*

†1798. *ANCHUSA SEMPERVIRENS* L. Near Lulworth, Dorset, GREEN.

†1800. *A. OFFICINALIS* L. Acton, Oakamoor, Chartley, Denstone, Staffs., *Ridge Rep.*; Alresford, N. Hants., *Winton Rep.*

†1800 (3). *A. PROCERA* Bess. Kirkstall, York, HORRELL; Woodhall Spa, ALSTON.

†1810. *ASPERUGO PROCUMBENS* L. Oakamoor, Rocester, Stafford, *Ridge Rep.*

1820. *MYOSOTIS COLLINA* Hoffm., var. *MITTENII* Baker. Bindon Hill, Dorset, 1912, GREEN.

1822. *LITHOSPERMUM OFFICINALE* L., var. *PSEUDO-LATIFOLIUM* Salm. Rapsgate, E. Gloster, GREENWOOD.

†1835. *CONVOLVULUS TRICOLOR* L. Fowl run, Abbotsleigh, N. Somerset, I. M. ROPER.

†1839. *CUSCUTA EPITHYMUM* Murr. Upper Hardres, Kent, ASSHETON.

†1848. *SOLANUM ROSTRATUM* Dunal. Northampton Race Course, 1917, GOODE, teste THELLUNG.

†1851 (3). *PHYSALIS IXOCARPA* Brot. Abingdon, Berks., N. LINDSAY and DRUCE.

†1852. *NICANDRA PHYSALOIDES* L. ! Exmouth Docks, S. Devon, A. B. COBBE.

†1855. *DATURA STRAMONIUM* L. Wilsford Manor, Wilts. ! Lady GLENCONNER; Patshull, Staffs., Lady J. LEGGE's SCOUTS. Var. *TATULA* (L.) Selkirk, I. M. HAYWARD and DRUCE.

1866. *VERBASCUM LYCHNITIS* L. Gravel pit, Worms Hill, Surrey, Lady VICTORIA RUSSELL; Ware, Herts., Miss TROWER and DRUCE.

†1870. *V. PHOENICEUM* L. Par Harbour, Cornwall, A. B. COBBE.

1873. *LINARIA VULGARIS* Mill., var. *LATIFOLIA* Bab. Blackawton, S. Devon, Miss LARTER.

†1877. *L. PURPUREA* Mill. Chepstow, Monmouth, Miss TODD; quite wild on cliff at Lynmouth, N. Devon, REDGRAVE; Brixham, DRUCE; (waste ground) Exeter, S. Devon, M. COBBE; above Swanage, Dorset, GREEN.

1878. *L. REPENS* Mill. Bettws-y-Coed, Carnarvon, 1871, COMBER, in *Hb. Druce*; Great Haywood, Staffs., *Ridge Rep.* 1871.

\*1884. *L. SPURIA* Mill. Alton, Staffs., *Ridge Rep.*

\*1885. *L. ELATINE* Mill. Stoke, Staffs., *Ridge Rep.*

\*1893. *SCROPHULARIA ALATA* Gilib. Benacre Broad, E. Suffolk, HORWOOD.

†1898. *MIMULUS GUTTATUS* DC. Glen, Peebles, far up the Quair Burn. Perhaps introduced there by Sir C. Tennant. It is a very beautiful form, with the spots of a cinnabar-red rather than brown. DRUCE.

†1899. *M. MOSCHATUS* Dougl. Banks of river, near Lynmouth, N. Devon, REDGRAVE.

\*1906. *VERONICA HYBRIDA* L. Avonbank, near Bristol, N. Somerset, I. M. ROPER.

\*1912. *V. AQUATICA* Bern. Appleshaw, N. Hants., DRUCE; Cove, E. Suffolk, HORWOOD.

†1927. *V. PEREGRINA* L. On the Fal, Cornwall (already recorded from Truro), GREEN.

1931. *EUPHRASIA STRICTA* Host. Barpham Down, W. Sussex, LITTLE.

1933 (2). *E. FENNICA* Kihlm. Above Myrtleberry Cleave, Lynton, N. Devon, BARTON.

1936. *E. OCCIDENTALIS* Wetts. St. Ives, Cornwall, ex PEARSALL; Woolacombe, N. Devon, HURST.

\*1940 (2). *E. MINIMA* Fr. Catbells, above Derwentwater, Cumberland, PEARSALL; Bigland, N. Lancs., 69b, PEARSALL; Glen, Peebles, DRUCE. Var. *ARBUSCULA*. Sail, N. Lancs., 69b, PEARSALL.

\*1943. *E. KERNERI* Wetts. Monzell, N. Lancs., 69b, PEARSALL; Ailsworth, Northants., 1910; The Glen, Peebles, DRUCE.

1960. *MELAMPYRUM PRATENSE* L., var. *HIANS* Druce. Beddgelert, Carnarvon, DRUCE.

1966. *OROBANCHE MAJOR* L. Near Upper Hardres (dis. 7), Kent, ASSHETON.

1970. *O. AMETHYSTEA* Thuill. On *Daucus gummifer*. Winspit quarries, Dorset, GREEN and SHERRING.

†1988. *MENTHA ROTUNDIFOLIA* Huds. Chicken run, Woodhall Spa, ALSTON; possibly crossed with *longifolia*, as it is not our type; vide sp. Corfe Castle, Swanage, Dorset, GREEN.

†\*1989. *M. ALOPECUROIDES* Hull. By the Tweed, Galashiels, Selkirk, 1917, I. M. HAYWARD and DRUCE; by the Water Works at Ilfracombe, N. Devon, HURST.

1990. *M. LONGIFOLIA* Huds. Appleshaw, N. Hants., Hon. Mrs BARING and DRUCE. Only two localities given in *Fl. Hants.* \* Var. *SAPIDA* Briq. Stow Bedon, W. Norfolk, REYNOLDS; Baildon, York, CRYER, vide sp.

†1991. *M. SPICATA* L., approaching *CRISPA*. Glen, Peebles, DRUCE; Swanage, Dorset, GREEN.

†\*1992. *M. CRISPA* L. Swanage, Dorset, 1916, GREEN; Pangbourne, Berks., F. J. SMITH. The specimen suggests a strain of *rotundifolia*, but the flavour is pure spear-mint.

1993. *M. PIPERITA* L. Swanage, Dorset, GREEN; abundant along the Quair Burn and above the Glen for some distance, Peebles; \*Galashiels, Roxburgh, DRUCE.

1997. × *M. GENTILIS* L. Swanage, Dorset, 1914, GREEN; Tweedside, Roxburgh; Traquair, Peebles, DRUCE. Var. *HACKENBRUCHII* Briq. Derby, FORDHAM.

1999. × *M. RUBRA* Huds. Hamworthy Junction, Dorset, 1916, GREEN.

2011. *SATUREIA CALAMINTHA* Scheele, var. *BRIGGSII* Druce. Tenby, Pembroke, ARNETT.



†2017. *MELISSA OFFICINALIS* L. Bodorgan, Anglesey; Gwynnant, Carnarvon, DRUCE; Wareside, Herts., HIGGINS, to replace *Satureia Calamintha*. See *Rep. B.E.C.* 498, 1916.

†2020. *SALVIA AETHIOPIS* L. Woodhall Spa, ALSTON.

\*2023. *S. PRATENSIS* L. Near Hatherop, E. Gloster, GREENWOOD.

†2024. *S. SYLVESTRIS* L. Ware, Herts., DRUCE.

†2025. *S. NEMOROSA* L. Par Harbour, Cornwall, A. B. COBBE and RILSTONE; Woodhall Spa, ALSTON.

2026. *S. VERBENACA* L., with large flowers. Between Shoreham and Hove, Sussex, 1917, Miss TODD. The leaves are quite those of ordinary *Verbenaca*, having no resemblance to those of *Marquandii*, nor are the flowers similar, and they are of a much darker blue.

†2031. *S. VERTICILLATA* L. Wangford, W. Suffolk, HORWOOD; Chilterns, Oxford, 1917, DRUCE; Woodhall Spa, 1917, ALSTON; Slateford, etc., Edinburgh; Burntisland, etc., Fife, FRASER, *l.c.*

†2039. *DRACOCEPHALUM PARVIFLORUM* Nutt. Par, Cornwall, RILSTONE.

†2041. *LALLEMANTIA IBERICA* M. Bieb. Kirkstall, York, HORRELL.

\*2042. *SCUTELLARIA GALERICULATA* × *MINOR*. Sandy spit, Arne Moors, near Ridge, Dorset; Stoborough, Dorset, GREEN.

2044. *PRUNELLA VULGARIS* L., var. *NEMORALIS* Beg. Wychwood, Oxon; Naphill, Bucks.; Great Yews, S. Wilts., DRUCE.

†2048. *SIDERITIS MONTANA* L. Elland, York, HORRELL.

2049. *MARRUBIUM VULGARE* L. Galashiels, Selkirk, a wool alien. Less hoary than the common plant, the upper leaf surface being dull green. Probably brought in with Australian wool, to which continent it was introduced from Europe.

†2050. *M. ALYSSON* L. Bristol, W. Gloster, Mrs SANDWICH.

†2052. *STACHYS GERMANICA* L. Casual at Kingswood, Bristol, 1917, Mrs SANDWICH.

†2055. *S. LANATA* Jacq. Site of old garden, Tenby, Pembroke, ARNETT.

2056. *S. SYLVATICA* L. Near Cirencester, GREENWOOD. See *Rep. B.E.C.* 114, 1911, and Kunth *Handb. Pollination* 119. In several of these specimens there is dialysis of the carpels in which the bilobed carpels are changed into a nearly one-celled capsule. The corolla, too, is strangely modified, some of the flowers appearing almost regular.

\*2056. × *S. AMBIGUA* Sm. Beddgelert, Carnarvon; Bodorgan, Isallt, Anglesey, DRUCE; Wangford, E. Suffolk, HORWOOD; Patshull, Staffs., Lady J. LEGGE'S SCOUTS!

†2059. *S. ANNUA* L. Par, Cornwall, RILSTONE; Halifax, York, HORRELL; Covehithe, E. Suffolk, HORWOOD.

2060. *S. OFFICINALIS* Trev., var. *NANA* Druce. Flowers Barrow, Corfe Castle, Dorset, 1916, GREEN.

2061. *GALEOPSIS SPECIOSA* Mill. Patshull, Staffs., as established there as anywhere, Lady J. LEGGE'S SCOUTS.

2062. *G. TETRAHIT* L., var. *NIGRICANS* Bréb. Beddgelert, etc., Carnarvon; Bodorgan, Isallt, Anglesey, DRUCE.

[2063. *G. DUBIA* Leers. Stoke, Staffs., *Ridge Rep.* 1917. Needs confirmation.]

†2065. *LEONURUS CARDIACA* L. Still at Portishead, N. Somerset, Miss TODD; Woodhall Spa, as var. *hirsutus*, ALSTON.

2072. *LAMIUM HYBRIDUM* Vill. Rare in Anglesey. Luxuriant as a garden weed at Isallt, 1917, DRUCE.

2077. *BALLOTA NIGRA* L., var. *MEMBRANACEA* Druce. Newham, Minsterworth, W. Gloster, Miss TODD.

†2078. *PHLOMIS FRUTICOSA* L. Tormoham, S. Devon, in a cataract of bloom, Miss LARTER in *Hiern Rep.*

†2089. *PLANTAGO INDICA* L. (*ARENARIA*). Billingshurst, W. Sussex, WEBSTER.

2092. *P. LANCEOLATA* L., var. *DUBIA* Lilj. Les Sommeilleuses, Guernsey, July 1914, BARTON. Det. E. J. BAKER.

2099. *P. MAJOR* L., var. *AGRESTIS* Fries. Avebury Down and Calne, N. Wilts., 1915, BARTON.

2103. *HERNIARIA GLABRA* L. Horstead, E. Norfolk, J. F. BUXTON; \*Great Selkirk, Cumberland, 1911, H. BRITTON. Still there, VABTRY-SMITH. ? adventive.

†2106. *H. CINEREA* DC. Meanwood, Leeds, S.W. Yorks., HORRELL.

†2110. *AMARANTHUS RETROFLEXUS* L. Naphill, Bucks., CLARKE & DRUCE; Corfe Castle, Swanage, Dorset, GREEN; Woodhall Spa, ALSTON.

†2112. *A. ALBUS* L. Waste ground, York, T. J. FOGGITT, teste A. THELLUNG.

†2114. *A. CHLOROSTACHYS* Willd., var. *ARISTULATUS* Thell. Abingdon, Berks., N. LINDSAY & DRUCE.

†2116 (5). *A. THUNBERGII* Moq. Abingdon, Berks., N. LINDSAY & DRUCE; Gala, Selkirk, 1917, in plenty, I. M. HAYWARD & DRUCE.

2117. *CHENOPODIUM RUBRUM* L., var. *BLITOIDES* Wallr. Slapton Lees, A. B. COBBE.

2120. *C. HYBRIDUM* L. Billingshurst, Sussex, WEBSTER.

†2121. *C. URBICUM* L. Woodhall Spa, ALSTON.

2122. *C. MURALE* L. Bradford, York, CRYER; Abingdon, Berks., N. LINDSAY. Var. *MICROPHYLLUM* Rouy. Ware, Herts., DRUCE; Woodhall Spa, ALSTON.

†2123. *C. OPULIFOLIUM* Schrad. Henham Peak, E. Suffolk, HORWOOD, in *lit.*

2124. *C. ALBUM* L., var. *BORBASIFORME* (Murr.). Bradford, York, CRYER.

2124. *C. ALBUM* × *STRIATUM*. Swanage Camp, Dorset, GREEN; Botley, Oxon, DRUCE.

†2124 (2). *C. LANCEOLATUM* Muhl. St Philip's, Bristol, 1916; Abingdon, Berks., 1917; Bangor, Carnarvon; Holyhead, Anglesey, DRUCE; Pye Hall Farm, E. Suffolk, HORWOOD.

\*2124 (4). *C. BERLANDIERI* Moq. Lynton, N. Devon, A. B. COBBE. The specimen is young.

†2125. *C. LEPTOPHYLLUM* Nutt. Swanage Camp, Dorset, GREEN; Henham Peak, E. Suffolk, HORWOOD; Woodhall Spa, ALSTON; Bradford, York, CRYER; Billingshurst, W. Sussex, WEBSTER.

†2127. *C. GLAUCUM* L. Bristol, 1917, Mrs SANDWICH.

2128. *C. VULVARIA* L. Exmouth, S. Devon, A. B. COBBE.

†2130. *C. AMBROSIODES* L. Bradford, York, CRYER, vide sp.

†2131. *C. BOTRYS* L. Bradford, York, CRYER.

†2131 (2). *C. STRIATUM* (Kras.) Botley, Oxon; Abingdon, Berks., DRUCE.

†2131 (3). *C. HIRCINUM* Schrad. Abingdon, Berks., DRUCE; Pye Hall Farm, E. Suffolk, HORWOOD; Meanwood, Leeds, HORRELL; Bradford, York, CRYER, as a very small-leaved form and var. *SUBTRILOBUM* Issl.

2131 (3). *C. HIRCINUM* × *ALBUM*! Meanwood, Leeds, HORRELL.

†2133. *C. CAPITATUM* Asch. Serivelsby, Lincoln, ALSTON, vide sp.

2134. *C. VIRGATUM* Amb. In garden ground, Bath, N. Somerset, T. H. GREEN; near Patshull, Staffs., Lady J. LEGGE'S SCOUTS.

†2135 (5). *MONOLEPIS NUTTALLI* Engelm. Bristol, 1917, I. M. ROPER. *Forma MINOR* Thell. See next *Report*.

†2142. *ATRIPLEX HALIMUS* L. North side of Poole Harbour, Dorset, GREEN.

2149. *A. GLABRIUSCULA* Edmonst. Monifieth, Forfar, 1845 W. GARDINER as *A. rosea* L.

†2153 (10). *AXYRIS AMARANTOIDES* L. Naphill, Bucks., DRUCE; Pye Hall Farm, E. Suffolk, HORWOOD; Billingshurst, W. Sussex, 1916,

WEBSTER; Northampton Race Course, 1916, GOODE; Portmadoc, Carnarvon, 1917, DRUCE.

\*2156. SALICORNIA PERENNIS Mill. Teesmouth, Durham, HESLOP-HARRISON, with S. DOLICHOSTACHYA, S. RAMOSISSIMA, and S. DISARTICULATA. \*Var. LIGNOSA Woods. St Helens Spit, Isle of Wight, GREEN.

2160. S. RAMOSISSIMA Woods. Arne Saltings, Dorset, GREEN. There are specimens collected, circa 1706, by Stonestreet from Poole in *Herb. Dubois*.

2161 (2). S. DOLICHOSTACHYA × HERBACEA, f. STRICTA. Newton and Yarmouth, Isle of Wight, 1916; Barmouth Junction, Merioneth, 1915, BARTON. Det. E. J. SALISBURY.

2161 (3). S. DISARTICULATA MOSS. Poole, Dorset, 1917, GREEN & BUCKNALL. Det. E. J. SALISBURY.

2161 (3). S. DISARTICULATA × GRACILLIMA. Newtown, Isle of Wight, September 1916, BARTON. Det. E. J. SALISBURY.

2164. DONDIA MARITIMA Druce, var. MACROCARPA Moq. Poole Harbour, Dorset, GREEN. Var. PROCUMBENS Druce. St Helens Spit, Isle of Wight, GARDNER and GREEN.

†2168. SALSOLA KALI L. Northampton Race Course, 1916, GOODE.

†2168 (2). S. TRAGUS L. Bristol, W. Gloster, I. M. ROPER.

\*2171. POLYGONUM BISTORTA L. Traquair, Peebles, DRUCE.

2176. P. TOMENTOSUM Schrank. \*Saunton, N. Devon; Exeter, Exmouth, S. Devon, M. COBBE.

~~\*2177. P. HYDROPIPER × MITE. Symond's Yat, W. Gloster, 1911, Miss VACHELL, with both parents, vide sp.~~

2178. P. MITE Schrank, forma ALBA, with above, Miss VACHELL; Oakamoor, Hilderstone, Staffs., *Ridge Rep.* 1917.

†2183. P. PATULUM M. Bieb. (Bellardi). Bradford, York, CRYER.

2184. P. AEQUALE Lindm. Bodorgan, Anglesey; Bangor, Carnarvon, DRUCE.

- †2185 (3). *P. PLEBIUM* R. Br. Sandal, York, 1916, HORRELL.
- †2191. *P. CUSPIDATUM* S. and Z. Exeter, S. Devon, M. COBBE;  
\* Abingdon, Berks., DRUCE.
- \*2195. *RUMEX MAXIMUS* Schreb. Swanage, Littlesea, Dorset,  
1915, GREEN; Wilsford, S. Wilts., DRUCE.
- ~~2198.~~ *R. CRISPUS* × *OBTUSIFOLIUS*. Wyke, W. Sussex, DRUCE.  
× *NEMOROSUS* = *R. SAGORSKI* Hausskn. Wyke, W. Sussex, DRUCE.
- ~~\*2200.~~ *R. OBTUSIFOLIUS* × *NEMOROSUS* = *R. DUFFTII*. Chichester,  
W. Sussex, DRUCE.
- †\*2201. *R. SANGUINEUS* L., vera. Bangor, Carnarvon, 1917, DRUCE.
- ~~2203.~~ *R. CONGLOMERATUS* × *PULCHER* = *R. MURETI* Hausskn.  
Chichester, W. Sussex, 1917, DRUCE. The combination, *R. glomeratus*  
× *pulcher*, is invalid; *conglomeratus* is the older name.
2204. *R. RUPESTRIS* Le Gall. Ringstead Bay, Dorset, GREEN,  
teste LINTON.
- †2208. *R. BUCEPHALOPHORUS* L. Ware, Herts., DRUCE.
- †2210 (3). *R. DENTATUS* L. Meanwood, Leeds, HORRELL.
- †2210 (6). *R. SALICIFOLIUS* Weinm. Swanage Camp, Dorset,  
GREEN.
2212. *ASARUM EUROPAEUM* L. Still plentiful in the Wiltshire  
locality, H. J. GODDARD, in *lit.*
2215. *DAPHNE MEZEREUM* L. Wood between Oakley and  
Hannington, N. Hants., in flower, April 21, 1917, DUKINFIELD H.  
SCOTT, in *lit.*
2218. *THESIUM HUMIFUSUM* DC. On genuine old down near  
Upper Hardres (dis. 7), Kent, Mrs ASSHETON. A very rare plant in  
Kent, the only recorded locality being that of Bishopburn, where the  
Rev. E. Ellman found it many years ago. The above locality is near  
to that place.

†2229. *EUPHORBIA ESULA* L. Falmouth Docks, Cornwall, M. COBBE; Wyke, Sussex, BURDON & DRUCE, a form with subtending lateral branches as long as the inflorescence, and with the leaves longly linear. Its varietal name has to be ascertained. Waste land, West Norwood, Surrey, REDGRAVE. Var. *PSEUDO-CYPARISSIAS* (Jord.). Casual, Kent, Dr M. WILSON, *Proc. Bot. Soc. Edin.*, xii., 1915.

2236. *E. EXIGUA* L., var. *RETUSA* DC. Swanage, Dorset, GREEN; Wangford, Suffolk, HORWOOD.

\*2237. *E. LATHYRUS* L. Near Nicholson Wood, near Oxwich, far from houses and near the beach, Glamorgan, Miss VACHELL, who says there is an old record for *E. Cyparissias* from these woods in Dillwyn's *Materials* of 1848. It may be that this was the plant observed.

2243. *MERCURIALIS ANNUA* L. Portmadoc, Carnarvon. This supports Robinson's *Cat.* DRUCE.

†\*2245. *ULMUS GLABRA* Mill. Bangor, Carnarvon; Traquair, Peebles, DRUCE. Var. *MINOR.* Henham Peak, E. Suffolk, HORWOOD.

2245. *U. HOLLANDICA* Mill. Chichester, W. Sussex; Wilstone, S. Wilts.; South Cove, Suffolk, HORWOOD.

2246. *U. PLOTII* Druce. Bourn, S. Lincoln, DRUCE.

2246. *U. CAMPESTRIS* L. Fruiting freely at Moraston, Hereford, 1917, E. ARMITAGE.

†2246. *U. WHEATLEYI* Hort. Bangor, Carnarvon, DRUCE; Henham Peak, E. Suffolk, HORWOOD.

†2248. *CANNABIS SATIVA* L. Wilsford, S. Wilts., DRUCE; Wrentham, Suffolk, HORWOOD.

2250. *URTICA DIOICA* L., var. *ANGUSTIFOLIA* W. & G. The Glen, Peebles, DRUCE.

2259. *CARPINUS BETULA* L. Cockley Brake, near Farthinghoe, Northants., abundant, R. S. CREED, in *lit.*

†2263. *QUERCUS CERRIS* L. Spontaneous at Benacre, E. Suffolk, HORWOOD.

- †2264. Q. ILEX L. Henham Peak, E. Suffolk, HORWOOD.
- \*2267. SALIX PENTANDRA L. By the Quair near Glen, Peebles, DRUCE.
- \*2271. × S. RUBRA Huds. Galashiels, Selkirk, DRUCE.
- \*2280. S. PHYLICIFOLIA L. Glen, Peebles, DRUCE.
- †2288. POPULUS ALBA L. Selkirk, planted of course as always in Britain, DRUCE.
- †2291. P. NIGRA L. Traquair, Peebles, DRUCE.
- †2293. P. DELTOIDES Marsh. Innerleithen, Peebles, DRUCE; Wangford, Suffolk, HORWOOD.
2308. SPIRANTHES SPIRALIS C. Koch. Said to be scarce in Anglesey, but abundant at Isallt, near Holyhead in 1917, Hon. Mrs BARING!
- \*2310. GOODYERA REPENS Br. Dipton Wood, near Corbridge, S. of Tyne, Northumberland, 1917, N. TEMPERLEY.
2315. HELLEBORINE PALUSTRIS Schrank, var. ERICTORUM (A. & G.) Druce. Dunes, Whiteford Point, Glamorgan; Kidwelly, Carmarthen, in great abundance and beauty, DRUCE.
2316. H. LATIFOLIA Druce. Bicknoll, N. Wilts., Miss TODD.
2317. H. MEDIA Fries. Oakamoor, Staffs., *Ridge Rep.* Var. ATROVIRIDIS (Linton) Druce. Effingham, Surrey, GEAKE, vide sp.
2318. H. PURPURATA Druce. Edge of pine wood, Longleat, Lady EMMA THYNNE.
2325. ORCHIS LATIFOLIA × MACULATA = O. BRAUNII Hal. Coast of Durham, HESLOP-HARRISON, in *Vasculum*, 7, 1917.
2326. O. PRAETERMISSA × FUCHSII Albrighton, Salop, Lady JOAN LEGGE, vide sp.
2326. O. INCARNATA × MACULATA = × O. AMBIGUA Kerner. Billingham, Durham, HESLOP-HARRISON, *l.c.*



2327. *O. MACULATA* L., vera. South Cove, E. Suffolk, HORWOOD.
- \*2327 (3). *O. O'KELLYI* Druce. Berwick-in-Elmet, York, 1915, D. WRIGHT; 1917, Rev. R. H. HARVEY.
2330. *O. PYRAMIDALIS* L. On sea-sand, Monreith, Wigton, Sir HERBERT MAXWELL, in *Gard. Chron.*
2331. *O. HIRCINA* Crantz. Wangford, Suffolk, HORWOOD; \*Birdlip, W. Gloster, Miss C. V. BUTLER. Two excellent records, the latter widely extending its British range; in Suffolk, not recorded since 1847.
- \*2335. *OPHRYS TROLLII* Heg. Bank of canal near Rugby, Warwick, Miss CUMMING; near Lewes, Sussex, BEDFORD, in *lit.*
2338. *HABENARIA GYMNADENIA* × *ORCHIS MACULATA*. Near Birkenhead, Cheshire, E. F. PAYNE, vide sp.; Fermoy, Cork, with both parents, 1916, Lieut. T. H. LEACH.
2340. *H. VIRIDIS* Br., var. *BRACTEATA* Gray. Malvern, Worcester; Yarnton, Oxford, DRUCE.
2343. *H. BIFOLIA* Br. Weston-in-Gordano, N. Somerset, rare in the v.-c., Mrs SANDWITH.
2356. *CROCUS NUDIFLORUS* Sm. Patshull, Staffs., Lady JOAN LEGGE'S SCOUTS!
- †\*2357. *C. ALBIFLORUS* Kit. Meadow west of Creech Grange, Corfe Castle, Dorset, quite naturalised, GREEN.
- †2360. *SISYRINCHIUM ANGUSTIFOLIUM* Mill. In a fallow field near Charterhouse, Surrey, scattered fairly wide over the field (some 14 acres), and holding its own in competition with the native plants. Found by JOHN, son of our member, Prof. W. A. BATESON, Aug. 1917, teste O. H. LATTER, in *lit.*
- †2363 (10). *TRITONIA CROCOSMIFLORA* Nichols. Abingdon, Berks., DRUCE; South Cove, E. Suffolk, HORWOOD.
- ††2364. *NARCISSUS PSEUDO-NARCISSUS* L. Land at Rysa, Hoy, Orkney, J. WALKER, in *lit.*

2373. *N. POETICUS* L. Abundant on a cliff, and looking native in an isolated part of St Martin's Parish, Jersey, ATTENBOROUGH.

2378. *LEUCOJUM VERNUM* L. Woodland, Creech Grange, Dorset, planted doubtless, GREEN.

†2383. *ASPARAGUS OFFICINALIS* L., var. *ALTEILIS* L. North Bull, Dublin, N. COLGAN, in *Ir. Nat.* 1917; in quantity, Par Sands, Cornwall, M. COBBE.

2385. *POLYGONATUM MULTIFLORUM* All. Berwick Trench, Oxon., RANDOLPH *MS.* 1790.

2386. *P. ODORATUM* (Mill.) Druce (*OFFICINALE*). Still near Tenby in Pembroke, ARNETT.

†2390. *ASPHODELUS FISTULOSUS* L. Hotton Heath, Dorset, Hon. F. HENLEY; Sibford, Oxford, LAMB.

2405. *ALLIUM SCHOENOPRASUM* L. Par Sands, and adjacent railway bank, Cornwall, M. COBBE.

2411. *SCILLA NON-SCRIPTA* L. & H., var. *BRACTEATA* Druce. Salcombe, S. Devon, H. B. GUPPY.

\*2427. *JUNCUS ACUTUS* L. East side of Arne Promontory, Dorset, Lieut. MARQUAND.

†\*2441. *J. TENUIS* Willd. Old road by Military Camp, Sands of Barry, Forfar, Mrs WEDGWOOD, ex CORSTORPHINE; Lilliput Common, Poole Harbour, Dorset, GREEN.

2449. *JUNCOIDES SYLVATICUM* (Huds.). Reydon Wood, E. Suffolk, HORWOOD.

2454. *J. MULTIFLORUM* Druce, var. *PALLESCENS* (Hoppe) Druce. Hope Mansel, Hereford, Miss TODD.

†2459. *PHOENIX DACTYLIFERA* L. Abingdon, Berks., DRUCE.

2460. *TYPHA LATIFOLIA* L. × *ANGUSTIFOLIA*. \*Near Ridge Farm, Dorset, with both parents, GREEN.

\*2462. SPARGANIUM NEGLECTUM Beeby. Marshes, Chester, WATERFALL.

+\*2478. ELISMA NATANS Buch. Canal near Ashby, Leicester, Father READER, in *lit.* An increasing adventive along our waterways of the northern midlands.

\*2499. POTAMOGETON DECIPIENS Nolte, var. LONGIFOLIUS HAGSTR. (P. UPSALIENSIS). Near Bindon, Dorset. Mr Green directed me to the locality where he says he first discovered it and from which specimens are distributed this year under a queried name, *alpinus* × *lucens*. ARTHUR BENNETT names it as above.

\*2504. P. COMPRESSUM L. Tees-mouth, Durham, HESLOP-HARRISON, in *lit.*

\*2510. P. TRICHOIDES C. & S., var. TRIMMERI Casp. Near Gloucester, in an old brick-pit, Miss TODD. Named by ARTHUR BENNETT.

\*2517. ZANNICHELLIA GIBBEROSA Reichb. Wyke, W. Sussex, DRUCE.

\*2519. Z. MARITIMA Nolte. Kirby-le-Soken, N. Essex, DRUCE; Godlingstone, Swanage, Dorset (as PEDUNCULATA), GREEN.

\*2520. ZOSTERA MARINA L., var. ANGUSTIFOLIA Hornem. Strangford Lough, Co. Down, WADDELL, in *Ir. Nat.*

\*2521. Z. NANA Roth. Near Grey Abbey, Co. Down, 1917, WADDELL, in *Ir. Nat.*

\*2523. NAJAS FLEXILIS R. & S. Kindrum, Donegal, BULLOCK-WEBSTER, in *Ir. Nat.* 1916.

2548. ERIOPHORUM ANGUSTIFOLIUM Roth, var. ELATIUS Koch. Littlesea, Dorset, GREEN. Var. MINUS Koch. Rough Walks, E. Suffolk, HORWOOD.

\*2550. E. VAGINATUM L. Between Wool and Bere Regis and Wareham, Dorset, Lieut. C. MARQUAND. A good addition by the son of the author of the *Flora of Guernsey*.

2561. CAREX VESICARIA × INFLATA. Margin of bog north of Langton Waller, Dorset, GREEN, vide sp.

2569. *C. STRIGOSA* Huds. Talbot Wood, Swanage, Dorset, GREEN, the second station in the county.

2575. *C. FULVA* Host. Near Mundham, Sussex, W. BURDON & DRUCE, rare in the v.-c.

2576. *C. FLAVA* L., var. *LEPIDOCARPA* Tausch. Swanage, etc., Dorset, GREEN.

\*2577. *C. OEDERI* Retz., var. *ELATIOR* And. Norden Heath, Dorset, GREEN.

\*2585. *C. MONTANA* L. Bagshot Heath, Berks. ! 1917, HIGGENS, vide sp. An important record, linking up the Bucks. habitat, where it was found by Miss Armitage. Surely it will be found on the adjacent heaths in Surrey, Herts., and Middlesex.

2586. *C. TOMENTOSA* L. Near Withington, E. Gloster., a new station, GREENWOOD.

2587. *C. PILULIFERA* L., var. *LONGIBRACTEATA* Lange. Studland Bay, Dorset, GREEN.

2593. *C. LIMOSA* L. Hartland Moor, Dorset, in several places, GREEN.

2601. *C. GRACILIS* Curt., var. *PROLIXA* (Fries). Stoborough, Dorset, GREEN.

2607. *C. ELONGATA* L. Heydon Wood, E. Suffolk, HORWOOD.

2608. *C. LEPORINA* L., var. *ARGYROGLOCHIN* Koch. Withington Wood, E. Gloster, GREENWOOD.

2614. *C. LEERSII* Schultz. Studland, Dorset, GREEN; Newton Creek, STRATTON; Cirencester, E. Gloster, GREENWOOD.

\*2615. *C. PAIRAEI* Schultz. Lynmouth, N. Devon, REDGRAVE; Wimborne, Keyworth, Dorset, GREEN. The latter in a wet meadow, so that the characters which distinguish it from *muricata* are not the outcome of dry arid soil.

†2632. *PANICUM CRUS-GALLI* L. Exmouth Docks, S. Devon, M. COBBE; Camp Meadow, Corfe Castle, Swanage, as var. *BREVISETUM*

Doell and var. LONGIARISTATUM Lej., Dorset, GREEN; Bournemouth, S. Hants., GODDARD; Northampton Race Course, GOODE.

†2634. P. CILIARE Retz. Jersey, GUITON, in *lit.*

†2637. P. CAPILLARE L. Swanage Camp, Dorset, GREEN.

†2639. SETARIA VIRIDIS Beauv. Poole, Swanage, Dorset, GREEN; Woodhall Spa, Lincoln, ALSTON; Exmouth, S. Devon, M. COBBE.

†2640. S. GLAUCA Beauv. Corfe Castle, Swanage, Dorset, GREEN; Northampton, 1916, GOODE; Portmadoc, Carnarvon, DRUCE.

†2641. S. VERTICILLATA Beauv. Eastville, Bristol, 1917, Mrs SANDWICH.

†2646. TRAGUS RACEMOSUS Scop. Meanwood, York, HORRELL.

†2653. PHALARIS MINOR L. Sandal, York, HORRELL.

†2654. P. PARADOXA L. Ware, Herts., DRUCE; Halifax, York, HORRELL.

†2658. ANTHOXANTHUM ARISTATUM Boiss. (PUELLII). In the grounds of Holland House, Middlesex, FRASER, in *Gard. Chron.* 119, 1917; \*waste ground, Poole, Dorset, GREEN.

†2679. PHEUM GRAECUM B. & H. Waste ground, Swanage, Dorset, GREEN, teste Kew.

2684. AGROSTIS ALBA L., var. STOLONIFERA (L.). Littlesea, Poole, 1915, GREEN; near Weymouth, Dorset, 1899, DRUCE. Var. COARCTATA (Hoffm.). Swanage, GREEN.

2685. A. TENUIS Sibth., var. PUMILA (L.). Glen, Peebles, DRUCE.

†2689. A. SCABRA Willd. Ashley-le-Mersey, Cheshire, J. S. GALE.

†2690. POLYPOGON MONSPELIENSE Desf. Salisbury, Wilts., GODDARD.

2697. DEYEUXIA BOREALIS Druce. Near Killin, Perth, 1917, FRASER. A most valuable rediscovery to the county, since the marsh where I first found it in Britain was filled up with sawdust

and the plant destroyed. The present locality is within a mile of the original place.

2698. *GASTRIDIMUM VENTRICOSUM* (Gouan) Thell. Abundant on roadside between Honiton and Kilmington, Devon (already recorded for county), Mrs SANDWICH.

2711. *DESCHAMPSIA SETACEA* Hack. Under the name, *Aira Scabra-setacea*, this is recorded by Knapp *Grasses of Britain* t. xxxii., 1804, as having been found by Mr G. Don in pits of water on Forfar Heath (see Don *Memoir* 139 and 185). Knapp adds, "Mr G. Don, whose intrinsic merits are too little known, and whose friendship we must ever esteem." This seems to be the first Scottish record.

2713. *HOLCUS MOLLIS* L., var. *BIARISTATUS* Parr. East of Killin Pier, M. Perth, 1917, FRASER.

\*2717. *AVENA FATUA* × *SATIVA*. St Philip's Marsh, Bristol, 1916, DRUCE. Var. *GLABRATA*. Pye Hall Farm, Suffolk, HORWOOD.

2725. *ARRHENATHERUM TUBEROSUM* (Gilib.) Druce. Abbotsbury, 1899, DRUCE; Studland, Dorset, etc., GREEN.

†\*2727. *CAPRIOLA DACTYLON* Kuntze. Portmadoc, Carnarvon, 1917, DRUCE.

\*2733. *PHRAGMITES VULGARIS* Druce, var. *FLAVESCENS* (Cust.). Littlestone, Dorset, GREEN.

†2737. *CYNOSURUS ECHINATUS* L. Pye Hall Farm, Suffolk, HORWOOD; Par, Cornwall, M. COBBE; Northampton Race Course, GOODE.

2741. *KOELERIA GRACILIS* Pers., var. *BRITANNICA* (Dom.). Swanage, Corfe Castle, Dorset, GREEN; Budleigh Salterton, Devon, GREEN & GARDNER.

†2743. *K. VALLESIANA* A. & G. Abundant among esparto grass, casual, Musselburgh, Edin., FRASER, *l.c.*

2745. *MOLINIA VARIA* Schrank, var. *ROBUSTA* Prah. Beddgelert, Carnarvon, very characteristic, DRUCE. Var. *VIRIDIFLORA*. Benacre, E. Suffolk, HORWOOD, in *lit.*

- †2754. SCHLEROCLOA DURA Beauv. Near Leeds, 1916, HORRELL.
- †2755. BRIZA MAXIMA L. Swanage, Dorset, GREEN.
- \*2758. POA CHAIXII Vill. Very abundant at The Inch, Liberton, Edinburgh; Pittencrieff, Fife, FRASER, *l.c.*; Patshull, Staffs., DRUCE.
- †2760. P. PALUSTRIS L. \*Par, Cornwall, M. COBBE.
- \*2766. P. ALPINA L. Aran, Merioneth, STRATTON, in *Herb. Druce*.
2776. GLYCERIA MARITIMA Wahl., var. RIPARIA Towns. Southwold, E. Suffolk, HORWOOD, in *lit.*
- \*2783. FESTUCA SYLVATICA Vill. L. Lancashire, 1917, PEARSALL.
- †2784. F. HETEROPHYLLA Lam. \*In the turf, Alstonfield Vicarage. Said to have been brought from a meadow, Hereford, July 1889, W. H. PURCHAS in *Hb. Druce* as *Festuca* sp.
2786. F. DUMETORUM L. Southwold, E. Suffolk, HORWOOD, in *lit.*
2788. F. MEMBRANACEA Druce. Hayling Island, S. Hants., without personal authority in *Top. Bot.*, DRUCE.
- †2794. BROMUS RIGENS L. (MAXIMUS). West of Boscombe, S. Hants., 1917, GODDARD; Kirkstall, York, HORRELL.
- \*2798. B. MADRITENSIS L. Near Ebborley, N. Devon, A. TRETHERY; Saunton, N. Devon, M. COBBE.
- †2802. B. INERMIS Leyss. Northampton, GOODE.
- †2803. B. UNIOLOIDES H. B. K. Swanage, &c., Dorset, GREEN.
2811. B. HORDEACEUS L., var. LEPTOSTACHYS (Pers.). Wilsford, S. Wilts., DRUCE. Var. LLOYDIANUS. Portland, Chesil, Dorset, GREEN.
- †2822. LOLIUM REMOTUM Schrank. Pye Hall Farm, E. Suffolk, HORWOOD, in *lit.*
2824. L. PERENNE L., var. SPHAEROSTACHYUM Masters. Tywardreath, Cornwall, M. COBBE.

2827. × AGROPYRON HACKELII Druce. Hayling Isle, S. Hants, with both parents, *junceum* and *repens*, DRUCE; Weymouth, 1899, DRUCE; Poole Harbour, Studland, &c., Dorset, GREEN.

2828. A. PUNGENS × REPENS. Southwold, E. Suffolk, HORWOOD, *in lit.*

†2833 (2). A. PATULUM Trin. Kew, Surrey, 1878, NICHOLSON, in *Hb. Druce.*

†2851. HORDEUM JUBATUM L. Exmouth Docks, S. Devon, M. COBBE; Corfe Castle, Swanage, Dorset, GREEN; Northampton Race Course, Goode; Bristol, I. M. ROPER.

\*2855. ELYMUS ARENARIUS L. Alien? North Bull, Dublin, N. COLGAN, in *Ir. Nat.* 1917.

2864. PINUS SYLVESTRIS L. Fine trees at Traquair, Peebles, DRUCE.

2866. EUISETUM MAXIMUM Lam., var. SEROTINUM Braun. Hirston Quarries, Dorset, GREEN.

2867. E. ARVENSE L., var. NEMOROSUM Braun. Corfe Castle, GREEN; Morden, Dorset, 1916, DRUCE.

2871. E. PALUSTRE L., var. POLYSTACHYUM Weig. Clay pits, Corfe Castle, Dorset, GREEN.

†2877. ADIANTUM CAPILLUS-VENERIS L. Garden wall, Creech Grange, Dorset, GREEN.

2879. PHYLLITIS SCOLOPENDRIUM Newm., var. CRISPUM. Coombe Copse, Swanage, Dorset, GREEN.

2885. ASPLENIUM ADIANTUM-NIGRUM L., var. OBTUSUM (Kit.). Creech Hill Wood, Dorset, GREEN.

2889. ATHYRIUM FILIX-FOEMINA Roth, var. CONVEXUM (Newm.). Beddgelert, Carnarvon; Isallt, Anglesey, DRUCE. Var. INCISUM Wats. Near Bangor, Carnarvon, DRUCE.

2898. DRYOPTERIS SPINULOSA Kuntze. Moor, Ellerbeck, Goathland, York, LITTLE. A remarkable form, like *uliginosa* in outline, but with very different pinnae. STANSFIELD refers it to above.



2904. *CYSTOPTERIS MONTANA* Bernh. Bidean-nan-Beinne, Glencoe, 1917, Rev. E. S. BENWELL; \*Skye, W. R. ROBERTS, in *Fern Gazette* 152, 1912.

\*2909. *PHEGOPTERIS DRYOPTERIS* Fée. Tatley Abbey Wood, Carmarthen, Rev. W. J. MEGGISON, 1860 in *Hb. Druce*; Glen, Peebles, DRUCE.

†2923 (2). *AZOLLA FILICULOIDES* Willd. In the lake at Rempstone Hall, Dorset, 1916, GREEN.

†2932 (2). *SELAGINELLA KRAUSSIANA* A. Br. Camborne, Cornwall, an escape, W. TRESIDDER; Bundoran, E. Donegal, *Ir. Nat.* 1917.

\*2933. *NITELLA FLEXILIS* Ag., var. *NIDIFICA* Wallm. Wexford, MARSHALL, in *Ir. Nat.* 1917.

\*2934. *N. OPACA* Ag. Harwell, Notts, 1915-17, Mrs SANDWICH; Glen, Peebles, DRUCE; Gateshaw, Roxburgh, 1871, IM THURN (as *flexilis*) in *Hb. Druce*.

2944. *TOLYPELLA INTRICATA* (Br.). Yate, W. Gloster, Mrs SANDWICH.

2951. *CHARA HISPIDA* L., near var. *HORRIDA* Br. Freshwater, Isle of Wight, 1867, R. TUCKER, in *Hb. Druce*.

2955. *C. ASPERA* Willd., var. *SUBINERMIS* Kuetz. Loch Leven, Fife, 1870, STRATON, *l.c.*

2958. *C. FRAGILIS* Desv., var. *BARBATA* Gant. Norden clay pits, Dorset, 1916, GREEN.

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*AJUGA GENEVENSIS* L. Our member, Miss FRY, found this species in Berkshire on June 13, 1918, and has conducted me to the habitat where this beautiful species is apparently indigenous. Full description of this important discovery will be given in the next *Report*.

## CHANNEL ISLAND PLANTS.

J. GAY.

## JERSEY.

In the Library of Kew Gardens there are preserved several volumes of MSS. by that very excellent and critical French botanist who was sparing in his publications, but whose specimens are so often accompanied by copious notes. These volumes are a proof, if any were wanting, of his painstaking industry. A selection of them would, if published, add much to botanical knowledge. Mr F. N. Williams directed my attention to these volumes and to the fact that they included a list of Jersey plants. We are indebted to Sir David Prain for permission to publish this extract, which, it was thought, would be welcome to members. The current names are added in brackets. The botanical bibliography of Jersey is not an extensive one. Sherard visited it before 1680, for in Ray's *Synopsis* of that date the following Jersey plants are given, on Sherard's authority:—*Helianthemum guttatum*, *Geranium purpureum*, *Gnaphalium luteo-album*, *Echium plantagineum*, *Scrophularia Scorodonia*, *Sibthorpia europaea*, *Bartsia viscosa*, *Cynosurus echinatus*, and a grass, *Gramen Arundinaceum acerosa gluma*, which, he says, is "different from Parkinson's. . . . Mr Bobart will have it to be the *Gramen paniculatum folio variegato* C.B., only not stripped." This is *Phalaris arundinacea*, which is not now found in the island. A *Chara* is also recorded, but its identity can only be guessed at. Babington published his *Primitiæ Floræ Sarnicæ* in 1839, but M. Gay made his visit in the summer of 1832, so that his records have precedence. As they are not lengthy they are inserted here. Corrected names are put in brackets. The Quenvais. — *Ammophila arundinacea*, *Glaucium flavum*, *Mathiola sinuata*, *Senebiera didyma*, *Helianthemum guttatum*, *Dianthus proliifer*, *Silene conica*, *S. anglica*, *S. nitans*, *Linum angustifolium*, *Erodium cicutarium*, *E. moschatum*, *Lotus angustissimus*, *Mespilus germanica*, *Polycarpon tetraphyllum*, *Cotyledon Umbilicus*, *Sedum anglicum*, *Petroselinum sativum*, *Crithmum maritimum*, *Foeniculum officinale*, *Centranthus ruber*, *Hypochoeris glabra*, *Carlina acaulis*, *Gnaphalium luteo-album*, *Calystegia Soldanella*, *Echium violaceum* [*plantagineum*], *Borago*, *Solanum nigrum*, var. *rubrum*, *Scrophularia Scorodonia*, *Sibthorpia*, *Mentha rotundifolia*,

*Marrubium*, *Statice plantaginea*, *Euphorbia portlandica*, *E. Paralias*, *Neottia spiralis* [*Spiranthes*], *Iris foetidissima*, *Scilla autumnalis*, *Allium sphaerocephalum*, *Juncus acutus*, *Cyperus longus*, *Scirpus Savii*, *Elymus*, *Asplenium marinum*, *A. lanceolatum*. St. Helier and St. Aubyn, Aug. 6, 1832.—*Sedum anglicum* (fruit), *Triticum Rotbolla* [*Desmazeria loliacea*], *Bryum capillare*. St. Pierre.—*Lepidium occidentale* Gay [*L. Smithii*], *Scrophularia Scorodonia*. Between St. Pierre and St. Ouen.—*Asplenium lanceolatum*. Cap Grosnez.—*Euphorbia portlandica*, *Plantago maritima*, var. *leptophylla* M. and K., *Cochlearia danica*, *Hypericum elodes*, *Daucus hispidus* DC. [gummifer], *Scirpus fluitans*, *S. Savii*, *Plantago major*, var. *minima* Duby. La Crevasse.—*Mentha hirsuta* var. Entre L'Etac and Louville.—*Aspidium Filix-foemina*. La Grève de Lecq.—*Arenaria peploides*. Entre Grève de Lecq and St. Mary.—*Calluna Erica*. St. Jean and Trinity.—*Sibthorpia*. Trinity.—*Anchusa sempervirens*. Saumarez.—*Daphne Laureola*. La Plage.—*Mathiola sinuata*, *Raphanus maritimus*, *Bromus rigidus*. St. Clement.—*Senecio Jacobaea*, *Silene gallica*, var. *anglica*, *Arabis Thaliana*, *Aspidium angulare*. Aug. 8, St. Helier sur la Plage.—*Echium plantagineum*, *Brassica Cheiranthus*, *Atriplex laciniata*, *A. littoralis*, var. *macrocarpa*. Aug. 13, Aux vaux de Méléches près St. Helier.—*Lepidium occidentale*, *Senebiera pinnatifida*, *Anchusa sempervirens*, *Stachys ambigua*, *Blechnum Spicant*, *Aspidium Filix-foemina* and var. *giganteum* (also at Coutances, 1831, Bory lui donne le nom *Aspidium acrostichoides*). Sur la route de St. Helier and St. Aubyn.—*Koniga maritima*, *Mentha sylvestris*. St. Aubyn.—*Senebiera pinnatifida*, *Oenanthe crocata*, *Scolopendrium*, *Tormentilla reptans*, *Geranium striatum*, *Triticum sylvaticum* Mönch [*Brachypodium*], *Briza minor*, *Silene gallica*, *Chrysanthemum segetum*. Quenvais.—*Triticum intermedium* Gaud. Fl. Helv. i., 363 = *T. glaucum* M. and K. Deutch. Fl. i., 705 [*Agropyron* sp.], *Linum angustifolium*, *Epilobium parviflorum*, *Armeria plantaginea*, *Aira canescens*, *Koeleria cristata*, *Rosa spinosissima*, *Erodium cicutarium*, var. *album*, *Dianthus prolifer*. St. Brelade.—*Scirpus Savii*, *Peplis Portula*, *Myosotis caespitosa*, *Cyperus fuscus*, *Lychnis dioica*. Aug. 14, Jersey Plants données à St. Helier par La Gasca.—*Poa scabra* Ehrh. [trivialis], *Phleum arenarium*, *Cynosurus echinatus*, *Primula grandifolia* [*P. vulgaris*], *Veronica hederifolia*, *Myosotis versicolor*, *M. hispida* [collina], *Trifolium minus*, *T. filiforme*, *T. suffocatum*, *Trigonella ornithopodioides*, *Geranium striatum*, *Lepidium occidentale* [Smithii].

Mt. Orgeuil.—*Smyrniium*, *Plantago major*, var. *minima* (with a description). *Armeria maritima*, common in Jersey and Guernsey. *Mentha hirsuta*, a remarkable variety of this species at La Crevasse, between Le Tac et Liouville. St. Aubyn, on *Ulex europaeus*, *Cuscuta Epithymum*.

## GUERNSEY.

Aug. 8, St. Martin and dans le voisinage.—*Lychnis sylvestris*, *Chrysanthemum Leucanthemum corymbosum*, *Hieracium Pilosella*, var. *Peleterianum*, *Jasione perennis*, *Raphanus maritimus*, *Euphorbia portlandica*, *Asplenium lanceolatum*, *Lepidium occidentale*. Aug. 10, Cobo.—*Lepidium latifolium*, *Scrophularia aquatica*, var. *Balbisii*, *Cyperus longus*, *Lavatera arborea* (cult.). Entre Cobo and l'Eglise du Vale.—*Diploxaxis muralis*, *Pyrethrum inqorum*, var. *maritimum*, *Mathiola sinuata*, *Raphanus maritimus*, var. *albus*, *Juncus acutus*, *Ruppia rostellata*, *Lagurus ovatus*, *Phleum arenarium*, *Arenaria peploides*, *Convolvulus Soldanella*, *Herniaria glabra*, *Scilla autumnalis*, *Rosa spinosissima*, *Senecio erraticus* Bert., *Stachys arvensis*, *Fumaria media* Lois., *Veronica agrestis*, *Briza minor*, *Polycarpon*, *Oxalis corniculata*. Orobanche in *Hederae radibus parasitica* Espèce fort curieuse qui m'est inconnue et qui ne peut être l'Orob. *Hederae*. Je l'ai trouvée au Vale Guernsey quelques échantillons seulement étaient en bon état de floraisons, les autres en fruit. *Jasione perennis*, St. Martin, Guernsey, rochers maritimes, Le vrai *montana* se trouve toute à côté là où il y a terre. [This requires verification. True *perennis* is usually an inland species.]

*Senecio erraticus* Bert. Vale, Aug. 10, 1832. Il est fort rare à Guernsey (and vainly sought for in Jersey).

*Chrysanthemum Leucanthemum*, var. *multiflorum-corymbosum*. Variété fort remarquable par son port et que j'ai lieu de croire particulière à la zone maritime occidentale; elle est très commun à Jersey et à Guernsey.

*Chrysanthemum* = *Ocellaria propinqua*. Grosnez, 1832.

The La Gasca mentioned by M. Gay is the Spanish botanist who was born in Arragon on October 4, 1776. He published in 1816 *Elenchus Pl. quae in Hort. Matritensi* and *Genera et Species*. Owing to political troubles, in which he lost his fortune, his library, his MSS. of the Flora of Spain, which had cost him twenty years' labour (see Hooker's *Bot. Misc.* i., 49-78), and his *Monograph of the Cerealia*, he took refuge in London in 1824 (teste Colmeiro), where he lived till

1831. There he discovered and made known under its modern name *Polygonum mite*, which had previously been published by Dillenius in Ray's *Syn.* 145, 1726, and of which a Chelsea specimen is still preserved at Oxford (see *Dillenian Herb.* 54). In 1827 he issued a *Hortus Siccus Londinensis*, of which eighty specimens are in the writer's possession. It contains perhaps the earliest known British specimen of *Euphrasia stricta*. In 1831, on account of his health, he had to leave London (there are no stairs so steep as those trodden by an exile's feet), and he took up his residence in Jersey, remaining there from 1831-34, where M. Gay met him and to whom he gave the foregoing notes. In 1839, on his return to England, he compiled a list of Jersey plants, dated October 1834, which appeared in the *Report of the Jersey Agricultural and Horticultural Society* for 1839. In it there are many errors, but it has scarcely received adequate attention. His story is a most pathetic one. He died in his native land in Barcelona on June 23, 1839. He was certainly the first to add *Orchis laxiflora* and *Bromus rigens (maximus)* to the flora of Jersey. In 1836 Mr W. C. Christy visited the Channel Islands and published his results in the *Mag. Nat. Hist.*, ser. 2, i., 25, 1837, and in the autumn of the same year Mr Joseph Woods, the author of the *Tourist's Flora*, spent a few days there (*Hook. Bot. Comp.* ii, 278). His list is a good one, and the additions include *Scirpus americanus*, *Festuca sabulicola*, *Brassica Cheiranthos*. His *Echium violaceum* is doubtless *E. plantagineum*. In 1839 Mr W. C. Trevelyan records *Echium italicum* and *Statice plantaginea* (*Linnaea* xiii., 55, 1839). Was the former a mistake for *plantagineum*? Professor Babington's *Primitiae Florae Sarnicae* appeared in 1839. In 1853 M. J. Piquet published a list of Jersey species in *Phytologist* iv., 1093, 1853. In 1894 E. Duprey, in the *Bulletins Annuels de la Société Jersiaise*, gave a list of the plants of Mount Orgeuil, and a list of Phanerogams and Ferns, by M. J. Piquet, appeared in the same publication in 1896. For Guernsey the first plant mentioned is *Juncus capitatus*, published in Symon's *Synopsis* of 1798. In 1815 in Berry's *History of Guernsey* is a list of plants which had been compiled by Joseph Gosselein in 1788. These were inserted by his grandson, Thomas William Gosselein, and numbered 528 species, 55 of these being Mosses, Hepatics, and Lichens. It is a very valuable and trustworthy compilation, which received a quite inadequate recognition on the part of the young Cambridge botanist in his *Primitiae*. It is interesting to note

that our member, Miss Trower, is a descendant of Mr Gosselin, and that the very excellent *Flora of Guernsey* by E. D. Marquand and the compact and useful *Flora of Jersey* by L. V. Lester-Garland are both compiled by members of our Club.

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JOHN RADCLIFFE, BISHOP OF LONDON, AS A  
BOTANIST.

This distinguished ecclesiastic, the son of the President of Corpus Christi College, was born at Oxford on July 6, 1749. He eventually became Professor of Divinity there, an appointment which in 1783 carried with it the Rectory of Ewelme in that county, and which he relinquished in 1799 on becoming Bishop of Oxford. In 1807, he was translated to Bangor. Two years later he was confirmed Bishop of London, the See of which he filled till his sudden death from apoplexy on July 1828 at Much Hadham, in Hertfordshire, where he was visiting his son, the Rector. In 1917 Sir W. Osler, Bart., F.R.S., the Regius Professor of Medicine at Oxford, who is Keeper of the Ewelme Hospital, purchased in London an interleaved copy of Sibthorp's *Flora Oxoniensis*, which had a large number (over four hundred) references to plants growing at or near Ewelme. There was, however, no mention of the writer's name. He sent it me to see if the authorship could be traced. Local allusions suggested that he was resident at Ewelme, and might have been the Rector. The date enabled me to see who was Rector of Ewelme at that time, and a couple of visits to Ewelme, through the kindness of the present Rector, who allowed me to inspect some undoubted writing of Radcliffe's preserved there, showed that the writings were identical. This proved what had hitherto been unsuspected, that the Prelate had an excellent knowledge of Botany, and was acquainted with the writings of Scopoli and other botanists. The list adds one species, *Polygonatum multiflorum*, to the county flora. His directions were so precise that I was able to find it there last July. This book of Sir W. Osler's therefore allows us to claim Bishop Radcliffe as a botanist, and one who made a valuable contribution to the local Flora. The complete list is published in the annual *Report of the Ashmolean Natural History Society of Oxfordshire* for 1917.

FERDINAND BAUER AND HIS LANDSCAPE  
DRAWINGS.

Allusion was made in the last *Report*, p. 518, to the acquisition by Mr C. C. Lacaite of a copy of Sibthorp's *Flora Graeca*, the thousand magnificent plant figures in it being painted by Ferdinand Bauer, who also supplied a small water-colour view to each volume. These are (1) Mons Parnassus, 1806; (2) Mons Athos, 1813; (3) Mons Olympus, 1819; (4) Byzantium, 1823; (5) Hellespont, 1826; (6) Athens, 1827; (7) Corinth, 1830; (8) Mons Athos from the sea, 1833; (9) Phycus, 1837; (10) Delphi, 1840—the dates being the years of publication of the volumes. The original superb drawings of the plants, together with the plants themselves, are one of the glories of Oxford, and are preserved at the Library of the Botanic Garden. Many years ago two drawings came into my possession which proved to be the originals of the frontispieces, Nos. 8 and 9, but nothing further is known as to the whereabouts of the remaining eight. No evidence existed so far as I am aware that Bauer had painted any views of Greece. This last year, however, by good fortune, there came into my hands by purchase a portfolio of 131 sepia-paintings drawn by him. The actual drawings measure  $17\frac{1}{2}$  by  $11\frac{1}{2}$  inches, on boards  $20\frac{1}{2}$  by  $14\frac{3}{4}$  inches. They are all numbered and are in the sequence of their journey, and are signed "Ferd. Bauer, del." On the whole they are of the high order of excellence which his floral pictures would lead one to expect. That such an important collection should come to Oxford, where his flower paintings are already preserved, is a matter for congratulation. This artist, Ferdinand Bauer, was born at Feldsberg, in Austria, in 1760, his father being Court painter to the Prince of Lichtenstein. From a boy he was a painter of flowers and birds, and when 15 was employed by Father Boccus, the Superior of the Convent at Feldsberg, to paint flowers, and 16 volumes in folio are still preserved in the Lichtenstein Palace at Vienna. Sibthorp on his journey to Greece in 1786 passed through that city, and when there examined the unique MS. of Dioscorides. Nicolas Jacquin, botanist to Emperor Joseph II. of Austria, not only gave Sibthorp one of the three copies of the plates of Dioscorides, and that the most complete one, which is now in the Botanic Gardens Library, but he introduced him to Boccus, where at Feldsberg he first

met Bauer. Being struck with his ability, he engaged him as his artist and companion on the Eastern journey. On their return to England in 1787 Bauer devoted himself to finishing the drawings for the *Flora Graeca*. Sibthorp made another journey to the East in 1794, and died shortly after his return in 1796. Bauer, who on his journey with Sibthorp discovered several plants himself, was especially diligent in collecting in Cyprus. In 1801 he was appointed draughtsman to the expedition to *Terra Australis*, commanded by Capt. Flinders, at a salary of £300 a year, with rations for himself and servant—terms which show the estimation in which he was then held. The Admiralty, moreover, allowed the artist to retain all drawings not required for publication and the specimens. During this expedition Bauer painted 700 complete drawings. In company with Robert Brown, Bauer spent some time in Australia, eight months being on Norfolk Island, where he collected the material for Endlicher's *Flora* of that district. In February 1802 Flinders named a cliffy head in his honour as Cape Bauer. In 1813 he began his illustrations of the *Flora of New Holland*, a work which did not prove remunerative. He was also employed by Bourke Lambert to illustrate the monumental work on the *Genus Pinax*, which began in 1810. In 1814 he returned to Austria with drawings of 2000 specimens of plants, his herbarium, and collection of skins. There he bought a small house at Hitzing, near Schönbrunn. In 1819 he again visited England, but soon returned to Vienna, where he died in 1826.

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#### THE HERBARIUM OF MR CHARLES BAILEY.

By a deed of gift executed in June 1917, Mr Charles Bailey, our Secretary from 1878 to 1902, presented to the University of Manchester the enormous Herbarium which he has been accumulating since 1861, and which is one of the most complete British and European collections ever made by a private individual. To the *Manchester Memoirs*, vol. lvi., n. 5, 1917, Mr Bailey contributes most valuable details respecting its arrangements, contents, and sources. From this paper the following details are abstracted; and one only regrets that space does not allow the whole of it to be printed, since the methods of indexing and arranging the great continental gatherings are of great practical importance. Mr Bailey has not only



presented the herbarium but, with characteristic generosity, has given his library which contains not far short of 8000 volumes, his magnificent collection of microscopic slides and £500 to complete the mounting of the specimens. One must bear in mind that this enormous collection was made during the leisure hours of a very busy life (for a long time Mr Bailey was a partner in Ralli Bros., Manchester) and while he was the Secretary of this Club, to which he afforded very considerable pecuniary assistance as well as secretarial help. As he well says: "Every herbarium represents part of its founder. It will show his weakness and his strength, his preferences, idiosyncrasies and fads. It will disclose his accuracy or otherwise in the records which it includes; his acumen, or the lack of it, in appreciating the facts and ways of nature. It embalms the friendships of his life, the botanical stimulus which he has received, the countries which he has visited. It tells of hairbreadth escapes by land and water; it reminds him of threatened arrests for trespassing or poaching. Its accumulations testify to the life-giving and life-sustaining pursuits with which its collections have been brought together. It has undoubtedly introduced him to a long roll of the most worthy and lovable of his fellow-creatures. The foundations of a good herbarium rest upon a thorough grounding in the main facts of structural and physiological botany. . . . Some particulars therefore of this . . . Herbarium will be of interest to future users. It consists of four portions:—(a) British Plants, (b) Native European and Mediterranean Species, &c., (c) Mosses and Lower Cryptogams, (d) American and Extra European Plants. These are kept upon uniform sheets measuring  $17\frac{1}{2}$  by  $11\frac{1}{2}$  inches. The sheets are enclosed in . . . boxes measuring externally 18 by 12 inches, the lids being as deep as the boxes" [this has the great advantage of keeping out dust and insects]. "The British portion is arranged according to the sequence of species adopted in Druce's *List of British Plants*. Each box is labelled with Druce's numbers (Oxford Jan. 1908) and with the numbers in the 10th edit. of the *London Catalogue*. The continental portion follows the sequence of Nyman's *Conspectus Florae Europaeae* and its Supplements. . . . The British species and named varieties and forms in Druce's *List* and the sequence of the sheets under each species follows the order of counties or vice-counties adopted by H. C. Watson in his *Topographical Botany*, while the Irish localities follow the divisions of the Irish

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flora adopted in . . . the *Cybele Hibernica*. The plates of Sowerby's *English Botany*, Fryer's *Potamogetons* and Hanbury's *Hieracia*, &c., are included. In the Continental portion of the herbarium the species stand in the exact order of Nyman's *Conspectus*, and their position is shown by the numbers stated on the outside of the boxes. . . . A copy of the *Conspectus* is marked with corresponding numbers of the boxes and of their contents." Species or genera not included in the *Conspectus* are intercalated in the position assigned to them in Durand's *Index* to Bentham & Hooker's *Genera Plantarum*. It may be added that Mr Bailey has cut up four of the best European Floras, so that the descriptions of the plants pasted on each box are at once available for consultation. It is somewhat curious that quite independently the writer also has arranged the very large European collection in the Oxford Herbarium in the same manner, and that the sequence of the species (not the genera) in the *Conspectus* is also followed. It is hoped that the younger Universities, or, indeed, the keepers of any other collections, will hesitate before they throw over the sequence of Bentham & Hooker's *Genera* for the sake of adopting Engler's arrangement, which so many younger teachers have been running for all or more than its worth.

"Besides the sequence of species, a sequence of the geographical areas has been observed throughout the entire herbarium," both for British and foreign species. This is very fully and clearly explained by Mr Bailey, who has divided the European countries into 29 groups. He also gives on six pages the sources of collection, most of the classic exsiccata being represented. His British collection is contained in 760 boxes, and numbers 88,822 sheets; the Continental is contained in 2,417 boxes, holding 208,597 sheets; the Exotic species occupy 21,239 sheets. Mr Bailey has also been generous enough to give to Queen's College, Belfast, 6000 sheets of Continental plants.

This magnificent gift to Manchester University, supplemented as it is by the enormous, chiefly extra-European Herbarium, numbering over 225,000 sheets, given by our member, Dr J. Cosmo Melvill, will put the Manchester Herbarium in the front rank. Its possession can scarcely fail to stimulate the love and interest in systematic Botany. Under the careful superintendence of Professor Weiss we can be sure that it will be most carefully housed, preserved, and made of good use.

## MISCELLANEOUS NOTES.

THE NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY. REPORT 1916-17. On p. 4 the acquisition of the Ruskin Reserve at Cothill, Berkshire, is recorded. The land has been transferred by the Ashmolean Natural History Society of Oxford, and the property is in future to be managed by a Committee consisting of Professor Poulton, F.R.S., and Mr G. Claridge Druce, as life members, and Messrs Eccles, H. J. Evans, F. A. Bellamy, the President and Secretary of the Ashmolean Society, and the Rev. H. Jourdain. The area has a rich flora and fauna.

BLAKENEY POINT. Report 1915-16. This gives a list of the sources of twenty different pebbles. Photographs of the Glaux Low in 1913 and 1916 are given. Here a new Alga, *Carteria Oliveri*, has been discovered.

## BOOKS IN PREPARATION.

We regret to hear that Arnold Lees' YORKSHIRE FLORA and the FLORA OF SALOP are for the time held up owing to the lack of financial support. The writer's FLORA OF BUCKINGHAMSHIRE and NORTHAMPTONSHIRE and the second edition of the FLORA OF OXFORDSHIRE cannot at present be printed, so that additions are still valued.

In the press and shortly to appear THE ADVENTITIOUS FLORA OF TWEEDSIDE by Miss I. M. HAYWARD and G. C. DRUCE. This will contain the description of about 350 wool-aliens from that area, and a list of all the adventitious species of the area. It will be illustrated with about 80 plates.

## CORRECTIONS, &amp;c.

Report 1916—

- p. 408. Line 19. For "Bucknor," read "Bicknor."
- p. 408. Line 23. For "Glamorgan," read "Brecon."
- p. 470. Line 18. For "MECANOPSIS," read "MECONOPSIS."
- p. 476. Line 20. For "Whitehorn," read "Whiteford."
- p. 483. Line 13. For "Partington," read "Parrington."
- p. 483. Line 14. Higgens' *Fragaria moschata* from Surrey is *virginiana*, as is probably the Hertford specimen.

*Report 1916—*

- p. 498. Line 22. "For "SATUREIA CALAMINTHA," read "MELISSA OFFICINALIS."
- p. 501. Line 11. POLYGONUM MITE should be deleted, as the specimens are not correctly named.
- p. 504. Line 22. For "SCORODPRASUM," read "SCORODOPRASUM."
- p. 513. Line 23. For "*decapitatus*," read "*decapetalus*."
- p. 513. Line 31. For "*Carthamnus*," read "*Carthamus*."
- p. 519. Line 5. For "Grahamstown," read "Johannesburg."
- p. 520. Line 31. For "GALIUM PUSILLUM," read "GALIUM PUMILUM."

*Report 1913—*

- p. 343. Line 32. For CHAETURUS FASCICULATUS read POA PRATENSIS L., var. VIVIPARA.

## PERSONAL NOTES.

Mrs ADAMS, F.L.S., 14 Vernon Road, Edgbaston, and Miss TROWER, Stansteadbury, Ware, Herts., are painting British plants. Would members who are willing to assist in supplying specimens kindly let them know? The latter specially needs British *Rubi*.

F. J. HANBURY, Esq., Brockhurst, East Grinstead, is anxious to have seeds of rare British species. He will defray all expenses.

W. NORWOOD CHEESMAN, Esq., J.P., The Crescent, Selby, York, will be glad to receive or exchange specimens of *Mycetozoa*.

Rev. T. STEPHENSON, Epworth, Aberystwith, wishes to have living specimens of *Liparis*, *Spiranthes* species, *Corallorrhiza*, *Helleborine atroviridis*, and any hybrids.

Mr G. C. DRUCE, Yardley Lodge, Oxford, would like fresh specimens of the Marsh Orchids, stating their precise habitat, also fresh Orobanches.

Mr T. A. DYMES, F.L.S., Carthona, West Drayton, Middlesex, wants ripe capsules of *Cephalanthera*, *Herminium*, *Spiranthes*, *Neottia*, *Goodyera*, *Helleborine latifolia* and *Orchis mascula*, *Morio*, *pyramidalis* and *ustulata*.

SUPPLEMENT TO REPORT OF BOTANICAL  
SOCIETY AND EXCHANGE CLUB  
FOR 1917,

BY

E. S. GREGORY.

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SOME NOTES ON BRITISH VIOLETS, WITH ADDITIONAL  
LOCALITIES.

Since "British Violets" was published in 1912 I have had opportunities for further study of the genus *Viola*, and have added notes from time to time in the interleaved copy which I use. It may be worth while to give other botanists who are interested the result of my research. In addition to the study of many dried collections I have been allowed to use a piece of ground in the Cambridge Botanic Gardens for the cultivation of rare and interesting forms, and am convinced that only in some such way can we arrive at a full knowledge of any genus, unless we have access to the plants in their own habitats at all times of the year. For instance, plants from South Devon which appeared to fulfil many required characters for the *Viola sciaphila* of Koch, even so far as to have perfectly glabrous capstules in their early stage, were watched carefully and were found to develop a fringe of hairs on each angle of the fruits as they approached maturity. It is possible that Koch's plant behaved in the same way without having been observed. Again, a plant which I had labelled *V. hirta*, var. *lactiflora* bore perfectly white flowers during the first blooming; these faded, and were almost immediately succeeded by a fresh crop of flowers of a pale mauve colour. Unlike the fruit of *V. hirta* type the capsules of this plant were glabrescent. There is also my forma *gigas*, of *V. hirta* × *odorata*, described at length in the *Rep. B.E.C.* 403, 1916. The description is abridged in these notes.

The Rev. H. J. Riddelsdell has very kindly helped me, not only by sending me many interesting specimens, but by reducing to order some of my rough notes. He has also supplied me with a long list of new localities.

VIOLA ODORATA L.

Var. *violacea* does not appear to be as common as var. *dumetorum*, and is often confused with var. *praecox*. I have however good examples from Maidencombe, Devon S. Between Worle and Banwell, Somerset N., this variety grows abundantly with vars. *dumetorum* and *subcarnea*.

Var. *praecox* Greg. is reported from Tiverton, Devon S.; Braunton, Devon N.; Ham Ponds, Kent E.; Oxfordshire; Cirencester; Almondsbury Hill; Glamorgan.

Var. *dumetorum* Rouy et Foucaud. Gloster E. and W.; Glamorgan. This name is already used in *Leucorum Prahl. Kut. Fl. Sch. Holst.*, p. 22 (1890) = *V. alba* auct. plur. non Besser. Besser's species, *V. alba*, has triangular, hairy leaves; stipules with teeth as long as the stipule's breadth; white, scented flowers, with white spur: a smallish plant, not yet recorded for Britain.

Var. *rubra-purpurea*, nov. var. A highly scented reddish violet, from Newquay, 1915. It had been growing there in an orchard for many years. Transplanted into my trial-bed in the Cambridge Botanic Gardens, it has bloomed profusely this year (1917). Miss Roper has since found what appears to be the same variety near Bitton, Gloster W.

Var. *subcarnea* Parl. Additional localities have been found in Gloster E. and W.

f. *imberbis*. Mr P. M. Hall writes (29th April 1914): "In March and April I paid particular attention to f. *imberbis* Leighton. I observed that each variety of *V. odorata*, i.e., type, *praecox*, *dumetorum* and *subcarnea*, has a corresponding *imberbis* form." Mrs Wedgwood sent me an *imberbis* form of *V. hirta* × *odorata* (*subodorata*) from a copse near Lewes (16th Feb. 1913). f. *imberbis* is recorded also from Odiham, Hants N. (Herb. C. E. Palmer); Compton Dando (white-flowered); also Devon S.; Somerset N.; and Gloster W.

f. *inodora*. Stokeinteignhead, Devon, March 1913.

HYBRIDS OF *V. ODORATA*.

*Hirta* × *<odorata* (= *V. sepincola* Jord.). Gloster E. and W., Rev. H. J. Riddelsdell; Harting, Sussex W.; Bubb Down, near Chetnole, on chalk, Dorset; in Herb. Rev. Moyle Rogers. There is also an intermediate between × *sepincola* and × *multicaulis*, in the same collection, from hedgebanks between Plymton and Elburton, Devon S. My note (*Brit. Violets*, p. 13) regarding the flower colour of this hybrid must be qualified. In 1913, at Maidencombe, Devon S., I found × *permixta* with dark flowers, as described by Jordan. The same dark-flowered form was sent to me by Mr P. M. Hall, from Woodstock, Oxon.

*V. hirta* × *odorata* (= *V. multicaulis* Jord.). Gloster E., Rev. H. J. Riddelsdell; Braunton Burrows, Devon N; W. P. Hiern; Lockley's Wood and Harmer's Green Wood, Welwyn, Herts., Rev. W. Moyle Rogers; North Leigh, Oxon, and Basildon, Berks, 1914, P. M. Hall. A white-flowered form has been found by Miss Peck in Devon S.

*V. hirta* × *odorata* (= *V. collina* Besser). A fine example of this hybrid was distributed through the *B.E.C.* in 1914 from Alveston, Gloster W., by Mr J. W. White.

*V. hirta* × *odorata* f. *gigas*. Found originally (see *B.E.C.*) March 1913 by E. S. G. at Stokeinteignhead, Devon S. Fls. averaging 3 cm. in length and breadth; stipules 8 mm. broad at base and for two-thirds of their length, with concave tip, suddenly narrowing; fls. of exquisite pale mauve colour, with large white eye; lateral petals very much inflected; the whole plant of a thick texture, recalling that of *V. odorata* var. *floribunda*; leaves rounded at apex, hairs slightly depressed; flowers scentless on long peduncles (11-12 cms.); bracts 1 cm. long × 5 mm. broad at base; spur thick, hooked, purple; sepals broad, obtuse. I suspect this new form to be a cross—var. *dumetorum* × var. *hirsuta*.

*V. HIRTA* L. Gloster E. and W.; Glamorgan; and also var. *vulgaris*, Rev. H. J. Riddelsdell.

Var. *oenochroa* Gillot. Kingley Bottom, Sussex W., P. M. Hall; Bude, Cornwall, Rev. H. H. Harvey. Rouy says:—"Pl. moins développée, pétales d'un violet pourpre ou lilacé."

Var. *pinetorum* Wiesb. Cornwall E.; Somerset N.; Gloster E.

Var. *propera* Jord. Cornwall E.; Devon S.; Sussex W.; Oxon; Gloster E. and W.

Var. *foudrasi* Jord. Devon N.; Dorset; Sussex W.; Gloster E. and W.; Glamorgan; Lancs. W. Mr J. W. White has a f. *rosea* of this var.

Var. *inconcinna* Briq. Devon S.; Dorset; Gloster E. and W.

Var. *hirsuta* Lange. Corfe Castle, Swanage; Gloster E. and W.

To this variety must be added:—

*F. nudiflora*, lateral petals *imberbis*; rest of plant shaggy.

*F. nudicaulis*, all shaggy but peds.

*F. hirtiformis*, every part shaggy.

*F. luteo-canescens*, early stage similar to *V. calcarea*, but with yellow, shaggy hairs; later, clearly belonging to this var. and not to *V. calcarea*. Norfolk W. Nos. 1771 and 1778 Herb. Greg.

Var. *variegata* Greg. Bibury, Gloster E.

Var. *lactiflora* Reichb. Gloster E. and W.

*F. imberbis* Greg. Dorset; Gloster E.

*F. rosea*. Dorset; Gloster E.; Pembroke; Lancs. W.

*F. revoluta* Heuff. Dorset; Lancs. W.

*V. CALCAREA* Greg. Hampton Downs, Brockley and Bourton Combes, Somerset N.; Ballard Downs, Dorset, C. B. Green; Eastbourne, Sussex E.; Kingley Bottom, Sussex W.; Leicestershire; Dalton-in-Furness, Lake Lancs.; Gloster E. and W.; Glamorgan. Allied forms from Isle of Wight.

*V. PALUSTRIS* L. Several localities in Notts, Prof. Carr; bogs on Mendip (with white flowers), J. W. White; Gloster W.; Glamorgan.

*F. major*. Bogs on Mendip, Somerset N.; Gloster W.; Glamorgan; Brecon, Rev. H. J. Riddelsdell.

*V. EPIPSILA* Ledebour. This has been recorded from Braunton Burrows, Swimbridge, High Bray, King's Nympton, Molland, Devon N., W. P. Hiern; by trickling streamlets (very abundant), Ponsworthy to Cator, Devon S., Herb. Rev. W. M. Rogers; bogs near Priddy, on Mendip, Herb. J. W. White; Somerset S., Rev. H. J. Riddelsdell.

*F. glabrescens*. Goatland, York N.E., J. E. Little; Norfolk (a new record), 1917, J. E. Little; Glamorgan, Rev. H. J. Riddelsdell.

A violet in Mr W. P. Hiern's collection, from the N. W. corner of Barcombe Down, North Molton Parish, Devon N., is probably *F. uliginosa* Schrader. Unfortunately only fruiting examples are present. I have compared it with plants in the Herbaria at Kew and C.



bridge, some of which it matches exactly. The very open and remotely cordate bases of the leaves differentiate it from *V. epipsila*.

*V. SYLVESTRIS* Lam. emend. Reichb. Seen from fresh habitats in Herts, Gloster E. and W., Glamorgan, Brecon. Capital specimens from Roudsea Wood, Lake Lancs., were sent by Mr W. H. Pearsall, who wrote as follows:—"Hitherto I have been unable to find the type in v.c. 59b, although members of my staff and myself have examined some thousands of plants." Mr J. E. Little has an intermediate (probably *V. sylvestris* × *V. sylvestris*, var. *punctata*) in his garden at Wymley, Hitchin, Herts.

Var. *punctata* Druce. Observed in Isle of Wight, Sussex W., Norfolk W., Gloster E. and W., Kingford, Glamorgan, Derby, Notts.

*F. pallida* Neum. Devon N.

*F. rosea* Neum. Gloster E.

*F. leucantha* Beck. Devon N.; Surrey; Gloster W. The plants from Gloster W. had many of the flowers completely spurless.

*Viola Riviniana* × *sylvestris*. Devon S.; Hants N.; Gloster W.; Hereford; Glamorgan. The first two are white-flowered forms.

VIOLA RIVINIANA Reichb. In distinguishing the type from var. *diversa* attend to the upper stipules; anther-spurs long, straight; narrow sepals more attenuate. Additional localities: Herts; Middlesex; Gloster E. and W.; Glamorgan.

Var. *diversa* Greg. Dorset; Herts; Oxon; Essex N.; Gloster E. and W.; Stafford; Glamorgan; Hereford; Cheshire; Lancs W.; Leicester; Forfar. *F. attenuata*. Gloster E. and W.

Var. *pseudo-mirabilis* Coste. Owing to the instability of its characters this should be treated as a form.

*F. villosa* Neum. Herts; Cheshire.

*F. luxurians*. Gloster W.

*F. minor* Murb. Lancs W. (red-flowered form); Cornwall W.; Somerset S.; Sussex W.; Middlesex; Gloster E. and W.; Glamorgan; Anglesey; Lancs S.; Forfar.

*V. CANINA* × *SYLVESTRIS*. Gloster N.; Glamorgan; Westmoreland.

*V. RIVINIANA* × *RUPESTRIS*, var. *glabrescens*. Gloster W.

*V. CANINA* × *RIVINIANA*. South Molton, Devon N.; Dorset; ster W.

*V. RUPESTRIS* Schmidt. Research in Teesdale, undertaken by Dr ss and Mrs Wedgwood in the summer of 1913, proved that there

exists a vast series of intermediates between *V. rupestris*, var. *arenaria*, and *V. Riviniana*, f. *minor*.

I have come to a conclusion (29th June, 1917) after much careful study that *V. rupestris* and vars. are distinguished from allied *V. Riviniana* forms by broader (twice as broad) stipules with *canina*-like teeth (see Teesdale plants), and through this conclusion have advised Mr Riddelsdell that some of his plants from Tidenham Chase, Gloster W., belong to *V. rupestris*, var. *glabrescens* Neum. *F. alba* of this variety, also from Gloster W., and other specimens of the variety itself from Bourton Downs, Gloster E. A specimen from Tidenham Chase has all its parts except the peduncles hairy, scarcely downy. The same variety, or a plant very near it, has been seen from the Clova mountains, Forfar.

Var. *arenaria* Beck. Stipules not narrow in the same sense as in *V. Riviniana*—really as broad again and toothed more sparsely with *canina*-like teeth.

*V. CANINA* L. Additional records: Oxon; Bucks; Gloster E. and W.; Glamorgan; Radnor.

Var. *ericetorum* Reichb. Devon N. and S.; Wilts. N. and S.; Dorset; Hants S.; Gloster E. and W.; Brecon; Lancs S.

Var. *pusilla* Bab. Devon N. and S.; Somerset N.; Dorset; Hants S.; Middlesex; Norfolk E. and W.; Cambridge; Gloster E. and W.; Lancs S.; Westmoreland; Forfar.

Var. *sabulosa* Reichb. Devon N. and S.; Godlingstone Heath.

Var. *lanceolata* Martin-Donos. "The more I see of this violet, especially of the flowering branches, the more confident I feel that *V. lactea* is somewhere near it and has a share in its parentage." This extract is from a letter I sent to Mr White in March, 1917, on his Yate Common violet, mentioned in "British Violets" (p. 83), under var. *lanceolata* of *V. canina*. The mystery was cleared in the summer of 1917 by the finding of *V. lactea* on Yate Common, and the misunderstood plant falls into place as *V. canina* × *lactea*. Var. *lanceolata* (apparently genuine); Gloster W.; Derby; Lake Lancs; Forfar.

Var. *crassifolia* Grön. Coast sand hills, Newton, N. Uist, W. A. Shoolbred. Gloster W.; Hereford.

*V. CANINA* × *STAGNINA*. Wicken Fen, Cambridge, Herb. Rev. W. M. Rogers.

*V. LACTEA* Smith. Helston, Cornwall; Devon N. and S.; Stony Cross, Hants; Tunbridge Wells; Dorset; Surrey; Somerset; South-

ampton; Anglesea; Glamorgan; Berks; Bucks; Yate Common and Tidenham, Gloster W. (with a sobole); Co. Clare.

*V. LACTEA* × *RIVINIANA*. Somerset S.; St Miniver, Cornwall; Gloster W.

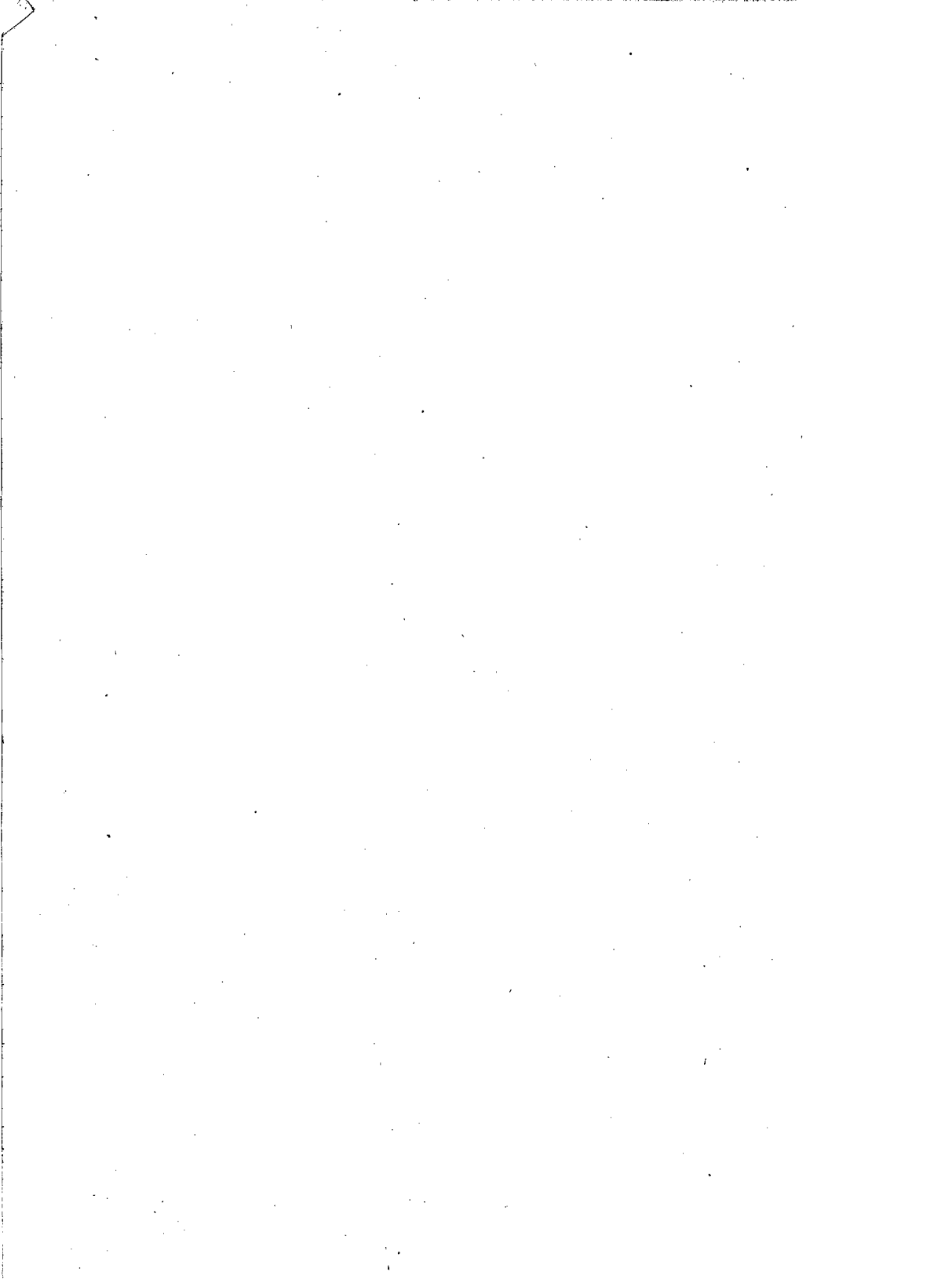
*V. CANINA* × *LACTEA* (= *V. lactea*, var. *intermedia* Wats.). Dorset; Gloster W.; Fleet Pond, Hants; Devon S.; Cornwall E. and W.; Surrey; Glamorgan; Pembroke.

*V. lactea*, var. *pumiliformis* Rouy et Foucaud. Devon N.; Gloster W.; Mullion, Cornwall; Isle of Wight.

*V. CANINA* × *LACTEA* × *RIVINIANA*. Good examples of this ternary hybrid in Rev. H. J. Riddelsdell's collection, from Tidenham Chase, Gloster W.

*V. stagnina* Kit. Menmarsh, Oxon. "In the wettest part of a big field where grows *V. canina*, var. *lanceolata*. Also a hybrid very near *V. stagnina*, but with bluer flowers and broader leaves, probably *V. canina*, var. *lanceolata* × *stagnina*" (P. M. Hall). Originally found there in 1812. See spec. in Herb. Oxon; also from Notts.

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# NOTES ON THE BRITISH ORCHIDS

## CHIEFLY THE PALMATE SECTION

By G. CLARIDGE DRUCE.

It has been thought desirable to bring together the scattered notes relating to this critical group, adding the information obtained during the past four years' field work in many counties, and the light it has thrown upon certain hybrids, as well as varieties, of *Orchis* and *Habenaria*.

2326 (2). ORCHIS PRAETERMISSA Druce in Rep. Bot. Soc. & E.C. 340 (1913), 1914; *Satyrium foemina* Blackwell Herbal, t. 405, 1739, badly drawn and coloured; *O. incarnata et latifolia*, auct. var.

The following descriptions, slightly modified from the original after examining thousands of specimens, with measurements of the leaves and labellum, are here given for convenience of members :

Root—Two (three) palmate tubers, with long cylindrical rootlets. Stem—Hollow, 1—8 dm. high and up to 3.5 c.m. circumference. Leaves—Linear to oblong-lanceolate, varying in breadth; up to 21 cm. long by 5.5 cm. broad, narrowing from a broad base upwards to the usually hooded or thickened apex, usually gradually; sometimes a little broader near the middle, but even then with a broad leaf-base only slightly narrower than the widest part of the leaf; yellowish green, sometimes greyish or darker green, unspotted, erect or ascending. Bracts—Often coloured, as long as, or longer than the flowers, sometimes leafy, conspicuous. Inflorescence—A cylindrical or subconical spike up to 17 cm. long, somewhat loose when mature, showy. Flowers—Conspicuous, of various shades of dull-rose purple, often of the colour of *Rhododendron ponticum*, reddish, rarely dark crimson, purple, or white. Lip large, broad (as broad or broader than long), flat before fertilisation, the sides sometimes ultimately reflexed, more or less distinctly three-lobed, the central lobe smaller and slightly longer, as long as, or slightly shorter than, the lateral lobe; thin flexible in texture, usually about 12 mm. broad by 9 long: the central lobe when present up to 2 mm. long. Sometimes the flower is almost

concolorous; at others it is more or less strongly marked with darker shade than the ground colour, with more or less defined dots, lines or blotches: sometimes with a geometric pattern with defined margins (usually this is the case where there is a trace of *O. Fuchsii*, or rather its occurrence suggests hybridity). Viewed from the front, the flower looks broad and showy. Upper petals converging into a hood. Upper sepals usually paler, divaricate. Spur shorter than ovary, curved, cylindric. Flowering usually 10 to 14 days later than *incarnata*, with which it often grows in permanent moisture, less frequently in dryish grassy places, and very rarely on chalky banks.

A claimant for admission to rank among British species is rightly closely criticised, the onus of proof resting with the proposer: therefore no grumbling at adverse criticism, nor resentment towards those who for a time refuse to acknowledge the interloper, can of course be entertained. The history of several plants now acknowledged to be good species is illuminative. There is the period when its claims are derided, 'there is nothing in it'; then perhaps doubts are cast upon its indigenuity, and quite likely there will be suggestions that it is a hybrid, or monstrosity; eventually a further stage is marked by the assurance that 'everybody always knew that it was a distinct species.' Slightly travestied, this is a not unnatural history, and has its prototype in the body politic. With regard to *praetermissa*, the last stage seems to be approaching. The way was paved for such a culmination when Mr. C. B. Clarke read his paper on the true *incarnata* of Linnaeus, which assumed the existence of an *Orchis* distinct from the Linnean *incarnata*. To convince those who are still sceptical, it may be said that there are at least two ways in which a botanist will be led to consider it not a true species—(a) by consulting ordinary descriptive Floras; (b) by examining the badly-prepared specimens which too often represent the palmate Orchids in Herbaria. One must not imitate the mediæval botanists who tried to identify every western species among the eastern plants of Dioscorides. Nature must be the teacher, and in her book the student will, by careful examination, have little difficulty in seeing *praetermissa*, and in distinguishing it from its congeners. There are, however, certain obstacles in the way,—it has a range of variation of its own which is

not yet fully ascertained; being perennial, there is a certain variation due to age, and it readily hybridises with its allies. There seems good reason to suppose that the hybrids themselves recross, and that possibly there are more than two species represented in some individuals. Neither must soil and edaphic influences be lost sight of as a factor in variation.

Three classes of objection have been raised against the specific grade of *praetermissa*. (1) That the description is so vague [that there is nothing in it]. This scarcely requires explanation. Botanical species have not the rigid outlines of a geometric figure. The description is not drawn from a single herbarium specimen, which, however rigidly it might expound an individual, would be useless in the field when one is dealing with a species having quite a large series of variations, often parallel to those in the allied species. The salient features are, however, given in the original description, and it is hoped are sufficient to enable a person of ordinary botanical intelligence to correctly identify the species in question. (2) 'It is presumably a hybrid.' If so, what two species are the parents? Do hybrids usually occur in the proportion of nine to one of the parents? Does a hybrid yield seeds which (so far as the original experiment went) produce seven individuals all like each other and the parent? Proof is required that *pure praetermissa* seedlings break away towards one or other of the assumed parents. No such proof has been advanced. The only possible parents could be true *incarnata* and aggregate *maculata*, or what is called *latifolia*. These are normally pale-flowered species. Why should the vast proportion of *praetermissa* show purplish flowers? Why should the spotted leaves of *maculata* not be reproduced? And, as more cogent reasons, why should *praetermissa* be found where type *incarnata* is not present, and in those cases where the species grow in proximity the great majority of individuals of pure *incarnata* are long past fertilisation before *maculata* has its pollen ready for dispersal? (3) It has been asked: 'Why cannot I make out *praetermissa* from the *Student's Flora, English Botany, or the Manual?*' One could scarcely write of Victorian Art if one had only Tudor Literature to consult; the descriptions of the palmate orchids in text-books are avowedly incomplete.

The reasons which lead one to consider *praetermissa* a good

species are as follows: That although it is on the whole more closely allied to *incarnata*, with which it had long been confused, than any other species, there are such widely divergent, and not necessarily vague, differences as to prevent the one being treated as a variety, race, hybrid or form of the other. The question of sub-species can now only be incidentally discussed. Smith believed that what he called *latifolia*, which was in the main *praetermissa*, including *incarnata* and their hybrids, and *maculata*, in the aggregate sense were all one species. Even Boswell Syme united (what he called) *incarnata*, which was also mainly *praetermissa* (although the figure, execrably coloured, is *incarnata*, and (what he called) *latifolia* under one species—his *O. palmata* (a name not cited in the *Kew Index*). The first great distinction between the two plants is that over the great portion of its area *incarnata* flowers 10 to 14 days in advance of *praetermissa*, as do also the two species of Hawthorn, *Crataegus oxyacanthoides* and *C. monogyna*. In both cases exceptions are to be found, and plants of the two species or orchis and *Crataegus* are in flower together, but this is the exception, not the rule. An essential difference, as at present ascertained, appears to be in the *size and texture of the labellum*. This is rarely more than 7 mm. in *incarnata*, even when pressed flat: in doing this, from its more brittle texture, the labellum often splits.\* Compared with this small-sized labellum may be contrasted the average dimensions of the labellum of *praetermissa*, viz., 12 mm. broad by 9 long. Again, the outline is usually less angular, lozenge shaped or oblong, and is nominally rounded in outline. It has a distinct range of colouring, but, so far, the curious flesh-coloured tint of *incarnata vera* has not been seen, and when *incarnata* takes on red or dark-purple colouring the tints are brighter

\*For the purpose of examination in the field marginal strips of adhesive stamp-paper may be used, on which the locality, date, and description of the leaves, &c., are noted. Then cutting off the labellum one attaches it at once to the moistened gummed-paper, pressing it flat, and putting it in the pages of a pocket-book under the pressure of a strong elastic band. In this way the colour and markings to some extent, and its shape and size, are retained. The spur, sepals and petals can be also attached, and a number, which corresponds to one on the individual plant, makes the specimen complete and ready for adding to herbarium. The plant itself (having the stem split to show its hollow character) with the leaves up to the flower, is dipped in boiling water. It is necessary to add a note as to the leaves being spotted or unspotted, as after immersion the spots and their character on drying in some cases disappear.



than in the corresponding *praetermissa* series. The shape of the labellum is never oblong, and the middle division is much more rarely prolonged into a point (t. ix is from a cultivated specimen, not infrequently the change to a more porous soil accentuates this character); the texture is thin, and the labellum readily flattens under pressure, even when it has become reflexed. No special stress is placed on the characters afforded by the foliage, stem, and bracts.

The distribution of the two species is by no means ascertained. All book-references to *incarnata* prior to 1914 (and many since) must be ignored. Herbarium specimens are very treacherous, since the essential characters, often owing to bad drying, are with difficulty made out. The results of my own experience show that *incarnata*, although widely spread, is numerically much rarer. As has been said, both species grow in the same soils. More frequently *incarnata* delights in the wettest parts of a marsh, and on the whole both species are best represented in a neutral or sub-alkaline marsh in preference to a peaty soil. *Praetermissa* is abundant in the irrigated meadows of Hampshire and Wiltshire, and in the marshy meadows of Sussex, Surrey, Dorset, Glamorganshire, Carmarthenshire, Norfolk, Berkshire, Oxfordshire, Gloucestershire, and in the few marshes of Northamptonshire, where almost certainly the water is alkaline or loaded with basic salts. *Praetermissa* is abundant, also, in some parts of Anglesey, where the water may in some cases be slightly acidulous: of this we await further particulars. Two years ago, through the kindness of Earl Fortescue, I was enabled to see it growing in many localities in the neighbourhood of Castle Hill and Molland in N. Devon, where in the third week in May it was plentiful, but no hybrids were observed. It was in great luxuriance in wet pastures in the Park of Lady Stucley's at Hartland Abbey, and again as a smaller plant in an upland marsh near Hartland Point. No true *incarnata* was seen. On Saunton and Braunton Burrows it was not unfrequent, and at the former place occurred also as a broad-leaved form. No hybrids were seen on this visit. The Misses Cobbe, who were there in 1917, also said they saw no plant with spotted leaves. At Holsworthy, N. Devon, it was also common in marshes. On wet ground and in acid soils it grew with *maculata*, and hybridised with

it near Wareham, Dorset. At Funtingford, W. Sussex, only *praetermissa* grew with some strongly bracteate forms: in the meadows near Fishbourn (Arnold's locality for *incarnata*) only *praetermissa* grew in 1916. The meadows and marshes of the Nene and Whitewater in Northants afford both species. There *praetermissa* hybridises with *Fuchsii*, and other combinations and forms occur. Two visits to South Wales in 1916, resulted in finding *praetermissa* in several spots near Whiteford Point and Llanmadac, Glamorgan, where true *incarnata* also grew. In marshes near Kidwelly and Bury Port, Carmarthen, *praetermissa* was common, and there it crossed with *maculata*. In Oxfordshire, it grows in about twenty different localities, sometimes all pure *praetermissa*, in others crossed with *maculata*, as near Charlbury, or with *Fuchsii*, as at Weston, Finstock (where Mr. Powell showed it me), Hazeley, Headington, etc. *Incarnata* also grows in several of these marshes, and at Cothill and in the Wytham meadows, Berkshire, probably hybridises with *praetermissa*. The latter species is locally abundant near Tubney, Frilford, and Radley. It may be worth while to briefly describe the latter locality. Near Abingdon, at the head of a narrow valley, excavated through the Coralline oolite to the Kimmeridge clay, there is a small marsh, with waters distinctly calcareous. There *Juncus subnodulosus* abounds, with *Carex flava* agg., but no *Drosera*. Among these hundreds of large spikes of *praetermissa* may be observed, varying as to the breadth of the leaves, but uniform in leaf-texture and in the flowers, except that about one in twenty may be picked out at a distance from having lighter coloured flowers. It can be predicted with some certainty that a closer examination will reveal that these will have also leaves more or less strongly spotted, that normally the flowers will have the labellum more cut, and that in many instances they will be taller and stronger plants. These are doubtless hybrids. As another proof that it is a good species may be instanced its occurrence under peculiar conditions in Sussex. The old Chichester Canal from that city westwards is now disused, and its water has partly disappeared, so that there are now long stretches with little open water. A growth of rush, sedge and willow fill up the marshy tract. Evidently any orchid which grows there must have seeded itself from the adjacent meadows or from even greater distances. Along this canal bed

there are now thousands of *praetermissa* singularly unvarying in important points, but greatly different in size (1.5—7.5 dm. high). If *praetermissa* had been a hybrid, surely in such a case we should have seen *incarnata*, *maculata*, or intermediates there? To forestal the critic, we may also say that what has been described as *latifolia* by our British authors is not there either. One is being driven to ask the question—Is there such a species? Or is not the *latifolia* of British botanists a dust-bin into which every hybrid of *praetermissa* and *maculata* (in the wide sense) has been cast? In the meadows adjoining the Canal at Mundham and elsewhere *praetermissa* also grows, and doubtless it is from this area that the seeds came which germinated in the canal bed. Here, too, in these meadows, was *Orchis Fuchsii*, but last year not very commonly (the term, 'last year,' is expressly used because what may be true of Orchid frequency one year may be quite different on a subsequent occasion).

#### HYBRIDS OF PRAETERMISSA.

O. PRAETERMISSA × FUCHSII (? *O. maculata superba*, Syme). In Sussex among *praetermissa* and *Fuchsii* were a few (about five per cent.) intermediate in character, which were almost certainly hybrids of the two species. At a distance of many yards the presence of the plant with paler flowers might with some degree of certainty be predicted to have spotted leaves. These spots differ from the strongly marked rings and well-defined blotches of normal *Fuchsii* in being paler, less defined, and not rarely as if they were beneath, not upon, the epidermis. Of course all degrees were found. Not unfrequently the hybrids were very robust and handsome. One measured nearly a metre in height, with a correspondingly thick hollow stem. The flowers had the flat labellum characteristic of both parents, the colour much paler than in *praetermissa*, the central lobe much longer, the markings often more defined and often violet or violet-purplish: flowers averaging 14 mm. broad by 8 long, none less than 12 mm. broad were noticed. The leaves were often more spreading than in *praetermissa* (the leaf direction seems to be greatly due to the more or less thick herbage by which the plant is surrounded), in some instances they were 18 cm. long,

the leaf-markings paler than *Fuchsii*, and of a duller and bluer green than in *praetermissa*. Doubtless these intermediate forms are the *latifolia* of many botanists, but whether of Linnaeus is conjectural. In similar conditions at Frilford, Cothill, and Abingdon (Berks), Weston, Finstock, Tackley, Spartan, Eynsham (Oxon), Whitewater, Hornstock (Northants, Benacre (Suffolk), Filby (Norfolk), Winton (Hants), [*Lowndes*], near Aberystwith (Cardigan) [*Stephenson*], the same thing occurred. The largest flowers at Frilford and Abingdon were 14 mm. broad by 8 or 9 long, the smallest at Finstock, 11 mm. by 9. At Weston a few of the hybrids had unspotted leaves, but they offered no other distinguishing features.

In answer to some leading questions on the transmission of leaf-spots, Professor W. Bateman kindly writes 'from what you say there can be little doubt that under the several forms included under the names *O. latifolia*, etc., are a complex group of hybrids and derivatives. . . . As always in such cases, there will be several true-breeding forms to which the term 'species' may properly be attached, though whether these are originals or derivatives 'extracted' from crosses can never be decided. Even experimental breeding cannot answer that question, for there is no distinction, physiological or other, between the two classes, and, apart from the incidence of sterility, they are identical. On the specific question as to what would happen in a cross between two types untried, there is only analogy to guide one. But supposing both types pure (which they would almost certainly not be), I feel sure that (1) all the F. hybrids would be blotched or spotted; (2) I expect the labelum would be intermediate in width. As regards (3) I only know that in wheat *hollow* stem dominates over *solid* stem, but that is too far off to be much of a guide.'

A large plant from Frilford (probably a first cross), a metre high, is probably that mentioned by Boswell Syme (*Eng. Bot.* ix, 101) as *maculata superba*. This grows well in garden loam: it was supposed originally to have been found in a cottage garden at Kilmarnock by Miss Hope of Wardie Lodge, Edinburgh, and Mr. Webster (*Brit. Orchids*, p. 68) says he has found plants in the bogs of Carnarvonshire which, grown side by side, were so alike that he found it impossible to detect a difference. It is quite probable that

hybrids of *praetermissa* × *Fuchsii* and *praetermissa* × *maculata* may occur under Boswell Syme's *maculata superba*.

O. PRAETERMISSA × MACULATA, vera. This combination is, I believe, present in plants observed at Perranwell (Cornwall), Wool (Dorset), Odiham (Hants), Charlbury (Oxon), Cothill (Berks), Hornstock (Northants), etc., and usually this occurred in a greater percentage than the preceding hybrid. In this case the marking was more variable and, as a rule, not so well defined (true *maculata* usually has less defined markings than *Fuchsii*). The measurements varied from 14 mm. broad at Wool to 11 at Odiham. This hybrid is often a more handsome plant, owing to the broad flat labellum with its large side-lobes, than the *Fuchsii* hybrid, and, although sometimes the markings are less evident, the whole flower is often suffused with a brighter colour than *praetermissa*.

There are other hybrids into which *praetermissa* enters to be mentioned :—

O. PRAETERMISSA × INCARNATA. The flower is of a dull purplish-pink, paler and smaller than *praetermissa*, the labellum narrower and less rounded, the central lobe often prolonged : in some plants the labellum is nearer the shape of *incarnata*, but is larger, darker coloured, and the sides less reflexed. These hybrids are rare, both as regards the number of habitats or individuals : nor are they to be expected in any quantity, since normally the flowers of *incarnata* are over before *praetermissa* are ripe enough to give or receive pollen. Yet plants having this origin have been seen in the Thames meadow above Godstow, at Cothill in Berks, and at Hambleton, S. Hants. The beautiful painting by the Countess of Aylesford of *O. latifolia* which she obtained from Colne meadows at Denham, Bucks, in 1788, suggests that the plant was slightly verging towards *praetermissa*, or rather that *praetermissa* is present to some small extent, as is evidenced by the somewhat broader and more deeply coloured lip ; otherwise it is *incarnata* which occurs in the vicinity. This painting is preserved in the library at Patshull, where, owing to the kindness of the owner, the Earl of Dartmouth, I was enabled to submit it to examination.

HABENARIA GYMNADENIA × ORCHIS PRAETERMISSA. The combination *H. Gymnadenia* × *latifolia* = × *H. WINTONI* (see plate 10) was suggested (*Rep. Bot. Soc. & E.C.* for 1911, 33) for an Orchid

found on the Winchester Downs by Mr. R. Quirk (*Rep. Winch. Coll. Nat. Hist. Soc.* 102, 1911). This was very close to *Habenaria*, the larger flower and more bracteate inflorescence suggesting the presence of a palmate Orchid. Our members, P. M. Hall and R. B. Ullman (*Rep. Winch. l.c.* p. 8-12, 1912-3), contributed some very valuable notes on the local Orchids, in which several hybrids are mentioned. In this the second parent was suggested to be '*O. incarnata*, n. 2. Druce' (this was before the publication of *praetermissa*). That view was further strengthened in 1914, when the Rev. S. A. McDowall sent me specimens from the downs of another of these hybrids which, while definitely *Gymnadenia*, also showed traces of *praetermissa*. At that time the presence of true *incarnata* and *praetermissa* on Winton chalk-downs was unknown to me, but there seems no doubt that both species occur. In Buckinghamshire also Mr. Roderick Mackenzie and I saw *praetermissa* growing on a dry chalk bank, an old locality for *militaris*, for which we were in quest. Doubtless, here, as at Winchester, seeds of the marsh orchid had been blown from adjacent meadows and, falling between the grass, had germinated and grown in so very different a habitat. This also explains the presence of true *maculata* in unexpected habitats, and of the woodland *Fuchsii* in open meadows. *H. Gymnadenia* × *O. praetermissa* also grows (teste F. A. Lees) at Bowland, Yorks.

The hybrid, *O. latifolia* × *praetermissa* (see *B.E.C.* 211, 1915), has been recorded from Winchester (*Lowndes*), and *O. Fuchsii* × *latifolia* (l.c.) from Pennypot, Surrey (*Lady Davy*), and Winchester (*Lowndes*).

The other hybrids in the *Winchester Rep.* include (1) *O. latifolia* × *maculata* (these names are used in the Symean sense, before the separation of *Fuchsii*, and doubtless include *O. praetermissa* × *Fuchsii* and *maculata*, vera); (2) *O. incarnata* form 1 Druce with *maculata*; (3) *O. incarnata* f. 2 Druce × *maculata*, which is *O. praetermissa* × *Fuchsii*; (4) *O. incarnata* 2 Druce × *ericetorum*, which is *praetermissa* × *maculata*, vera.

*HABENARIA VIRIDIS* × *O. MACULATA* × *PRAETERMISSA* (see *B.E.C.* 24, 1914, and *B.E.C.* 342, 1913). This was first described by Mr. Hall as *Habenaria viridis* × *O. maculata*. In 1913, fresh specimens were found growing with Frog and 'with a form of *incarnata*' [*praeter-*

*missa*] and we independently came to the opinion that it was a ternary hybrid, thus :—

*O. incarnata* (*praetermissa*) { × *Habenaria* (*Coeloglossum*) *viridis*.  
*O. maculata* (or *Fuchsii*) { (See plate 11).

Among the variations noticed are two which are rather monstrous conditions than true varieties, e.g., 'lusus ECALCARATA with a spurless flower and concave lip, seen near Pudmore, Surrey, by Mr. J. C. E. Boys, June 20th, 1914, and 'lusus REVERSA' with the germen not twisted, so that the labellum is uppermost, Charlbury, Oxon (in which some of the flowers are normal), and sub-var. ALBIFLORA with flowers pure white, a solitary specimen seen near Abingdon, Berks. The width of the leaves and the length of the bracts vary so greatly and so gradually that these characters are useless for varietal segregation.

The question, not unfairly, may be asked :—'Are spots on the leaves of specific value?' The answer is no, if that is the only difference, since each normally maculate species has occasionally concolorous leaves, but if amid the unspotted *praetermissa* one found plants having intermediate flower characters, and the spotted form of *maculata* only were present, the occurrence of a small proportion having both the flower and the leaf characters intermediate would justify the suspicion that these were of hybrid origin. Soil does not appear to account for great variation in *praetermissa*, but a more complete drainage, such as I have noticed in cultivation, seems to brighten the colour and to accentuate the labellum-lobing, and also the size of the central lobe. Mr. W. C. Barton, after seeing *praetermissa* and its allies in some quantity in Suffolk and elsewhere has no doubt of its specific grade, and that is the opinion of such a close observer in field as the Rev. E. S. Marshall. The Rev. S. McDowall, who has had exceptional opportunities of studying the plant, and having had also under his examination the field-work of those two promising Wintonians, Lieuts. P. M. Hall and Ullman, who independently came to the conclusion as to its specific grade, himself states that *praetermissa* is a constant and definite species at any rate in this (Winchester) district, 'though it is very ready to hybridise with the other marsh forms.'

The examination of thousands of specimens from very varied sources convince me that *praetermissa* is a good species, and that

it hybridises, not only with *incarnata*, but with both segregates of *maculata*. That these hybrids again cross is pretty evident, and when, as in Dorsetshire, all three species grow together, a much greater variation is to be found. Under *praetermissa* allusion was made to plants with darker coloured leaves, which may be the hybrid recrossed with *praetermissa*.

The following is the distribution of the species so far as known to the writer. He has either gathered it in these places or has seen fresh specimens :—

*Praetermissa* has been seen from Cornwall—The Lizard (F. J. Smith) Par, Millook, Perranporth (Harvey). Devon, S.—Ivy Bridge (Hon. Mrs. Mildmay). Devon, N.—Braunton, Saunton, Hartland, Castle Hill, Mollond, Holsworthy. Somerset, N.—Weston in Gordano (Mrs. Sandwith). Wilts. S.—Wilsford. Wilts, N.—Chilton Foliat (Miss Todd). Dorset—Toller (F. J. Smith), Wool, Moreton, Wareham (Druce), Stoborough (Roper), Slep Heath, Studland (Green, etc.). Hants, S.—Milford (Melvill), Hambleton (Miss Butler), Winton, in meadows and on downs (McDowall, Hall, Lowndes, etc.). Hants, N.—Basingstoke (Miss Vachell), Easton (Comber), Odiham (C. E. Palmer). Sussex W.—Fishbourn (Burdon), Petsworth (Lacaita), Mundham Funtington, Bed of Chichester Canal. Sussex, E.—Near Lewes. Kent—Lullingstone (Hume). Surrey—Ockham (Britton), Chobham (Lady Davy), Pudmore (Watkins), Frensham (Shaw), Pennypot. Essex, S.—Lea meadows. Essex, N. Gt. Henny (Druce and Brown). Herts—Wilstone, Marsworth. Middlesex—Nr. Uxbridge. Berks—Tubney, Abingdon, Frilford, Newbury, Wytham. Oxon.—Tackley, Eynsham, Weston, Sonning meadows. Bucks.—Longwick, Wilstone, Denham, Fawley (on chalk), Hambleton. Suffolk, E.—Benacre (Druce, 1910). Suffolk, W.—Nr. Sudbury. Northants.—Whitewater, Hornstock, Wadenhoe, Bedford Purlieus. Gloster, E.—Cirencester (Greenwood), Marston Meysey. Monmouth—Nr. Tintern (Lamb). Stafford—Nr. Patshull (Lady Joan Legge). Salop—Longmer (Burton). Glamorgan—Taeyparn, Cowbridge (Vachell), Whiteford Point, Llanmadoc. Carmarthen—Kidwelly, Burry Port. Cheshire—Wybunbury. Carnarvon—Traeth Mawr. Anglesey—Bodorgan, Cors Bodeilio. Leicester—Botcheston (Horwood). Rutland — Luffenham (Horwood).



Derby—Ashwell (Bailey). York—Bowland (Lees), Scalby (Roe). Durham—Copsgrove, Teesdale. Lake Lancashire—Kirkby (Pear-sall, 69b). Wigton—Portpatrick (Bailey), Selkirk. Seetholme—Whitemoor (Hayward). Berwick—Gordon Moss. Forfar—Rescobie. Aberdeen—Nr. Aberdeen. Hebrides—Canna (Vachell). Orkney—Sanday (St. Quintin). Localities without personal authority are my own finding.

A glance at the history of the Palmate Orchids may now be given.

It is said that when Dillenius received Linnaeus at Oxford, he said, in an aside to Dr. Shaw, 'This is the young man who is bringing confusion into Botany.' Had he limited his remarks to the Orchidaceae, he would not have been unjustified. Linnaeus altered many names, he rearranged and muddled many of Tournefort's genera, for his knowledge of this group was not up to his normal level. He united the solid-rooted *Serapias* with the creeping *Helleborines*, and called them all by the former name, which Hill had the acumen speedily to correct. His species in some cases contained plants of two or more genera. He described *O. latifolia* and *O. incarnata*, in the *Species Plantarum*, basing his description on that of *Flora Suecica*, i.e., *O. incarnata* = 'O. bulbis palmatis, nectarium cornu conico, labio obscure trilobo serrato, petalis dorsalibus reflexis. Hab. in pratis rariis. Praecedenti [*O. latifolia*] simillima, a qua differt: foliis pallide viridibus, immaculatis: nec saturate viridibus maculatis: caule dimidio brevior: bracteis vix flore out germine longioribus: corollis pallide incarnatis nec rubris: petalis 2 dorsalibus totaliter reflexis: nec tantum patulis, nec maculatis; nectarium labium structura convenit.' There can be no doubt that our pale flesh-coloured Orchis described by Clarke, and in the foregoing pages is covered by the Linnean description. Leaving the question of *O. latifolia* L. for the time, we shall see that Hudson (*Fl. Anglica*, 335, 1762) omits all reference to *incarnata*, and describes the Male-handed Orchis as *O. latifolia*, taking the name and description from the *Sp. Pl.* and *Fl. Suec.* He cites Bauhin's *O. palmata pratensis latifolia*, longis calcaribus, and Gerard's Palma Christi mas 220 (this figure is copied from Lobel's wood-cut, which represents our *O. incarnata*. In the second edition (385, 1778) he alters the English name to the Broad-leaved Orchid, omits

the reference to *Fl. Suec.* but adds a ref. to Oeder *Fl. Danica*, t. 246, which also is a form of *O. incarnata*. Hudson's *latifolia* doubtless included both *praetermissa* and *incarnata*, as well as *latifolia*, whatever that may be. Withering (*Bot. Arr.* 544, 1776), while quoting Gerard's figure, adds a description which says 'leaves, especially the lower ones, a little spotted': his '*latifolia*' is evidently a mixture. Stokes (*Bot. Arr.* ed. 2, 875, 1787), as is his custom, quotes descriptions from different British botanists: he also cites the figure in Blackwell's *Herbal*, t. 405, which is a badly-coloured *praetermissa*. Woodward's description also includes the spotted-leaved plant, but he evidently had *praetermissa* also before him, and it was probably that species which Stokes saw between Battenhall and Worcester. Next in order comes Curtis (*Fl. Lond.* fasc. v, t. 65), who beautifully figures as *O. latifolia* what C. B. Clarke (*Journ. Linn. Soc.* xix.) says is the true *incarnata*. Curtis says 'it grows in Battersea meadows, pink being the most predominant colour . . . frequently purple, and sometimes white.' To me there seems in it slight traces of *praetermissa*, or it may be a slight variant in that direction. The drawing of the flower is excellent, showing the small labellum, just as the flower expands: Curtis adds 'reflexed with age'; in perfectly true *incarnata* this happens very soon, and this causes the flower when viewed from the front to look smaller than it is. The shape and direction of the leaves are well depicted, and Curtis adds 'colour yellowish-green . . . spotless with us.' Smith (*Flora Britannica*, iii. 924), as usual, gives a large number of synonyms for his *O. latifolia*; he cites Curtis (*incarnata*) and Haller Hist. ii., 1279, t. 32 (which is a different *Orchis*). His descriptions (contradicting Linnaeus), 'labium rotundatum apice trifidum lobis magnitudine et forma variis,' and 'folia . . . omnia apud nos immaculata,' suggest that *praetermissa* and perhaps *incarnata* were also before him. In his *English Flora* (iv. 21, 1828), *latifolia* is made even more a mixture, since there are several additional synonyms. He, however, says 'unspotted leaves erect, gradually smaller upward, the lip variously notched, generally somewhat three-lobed, the colour varying from a pale-flesh colour or white to a full rose or crimson.' He goes on to say, 'authors have made several species out of this one,' but he himself certainly combines several distinct species. The

specimen figured in *Eng. Bot.* 2308, 1811, as *O. latifolia* is probably a form of *incarnata* badly coloured. Babington appears to have been the first English botanist to introduce the name *incarnata* into our list (*Man.* 310, 1847), where he makes it a variety of *latifolia*, under which he places also var. *angustifolia* as synonymous with *Traunsteineri*. His description of *latifolia*, 'leaves spreading oblong obtuse, upper lanceolate acute, lower bracts longer than flowers,' conveys very little, but his italicised words, 'sides of lip reflexed,' seems to eliminate *praetermissa*. In *E. B. Suppl.* n. 2973, 1863, he however describes and Salmon figures a plant from Triplow, Cambridge, gathered in 1856, which he calls *latifolia*. He says in MS. note, 'flower should be bright cochineal rather blue, like the bracts above.' This figure also does duty for *latifolia* in *E. B.* t. 1458, where Syme's description does not agree in all points with the figure. The statement that the flowers are rather smaller, darker and redder than *incarnata* is incorrect; the labellum in his *incarnata* measures 7 mm. broad by 10 long; in his *latifolia* it is 14 mm. broad by 15 long. Pending a visit to the locality, I should consider the plate, *E. B.* 1458, to represent a hybrid of *praetermissa*. In later years Babington specifically separates *incarnata* from *latifolia* in his *Manual*, where he still cites the *E. B. Suppl.* plate to represent the latter species. The plate (*Reichb.* 397) cited by him for his *incarnata* does not represent the typical British plant, the labellum being too broad and three-lobed. The definitions in Hooker's *Student's Flora*, where they are treated as sub-species, i.e., *latifolia* 'lip spotted, leaves oblong, tip flat'; *incarnata* 'flowers larger, leaves lanceolate, acute unspotted, tip concave, base broader,' has misled many botanists, and is practically useless. Webster, whose work on the British *Orchids* has been strangely neglected, has a much clearer idea of the plants in question. He says (*I. c.* p. 71), '*O. incarnata* can, however, never be mistaken for *maculata*, as no two native species are more dissimilar either in size, habit, general appearance, or colour of flowers. The leaves are never spotted . . . but of a bright, pleasant green, always erect, and clasping the stem . . . the flowers are of a flesh or port-wine colour.' He goes on to suggest that his *latifolia*\* (which is doubtless *praetermissa*) can be

\* The figure he gives of *latifolia* is taken from *E. B.* 2308.

'only applied to the plant with unspotted leaves and deep purple, port-wine coloured flowers, and that all specimens with spotted leaves and variously coloured (usually lighter) flowers be regarded as mere hybrid forms between this plant and *maculata*.' This, altering the name *latifolia* to *praetermissa*, is practically my own conclusion. He speaks of his *latifolia* having uniform, that is, unmarked, flowers, and 'that it is in truth *the* Marsh Orchis, for it always affects the dampest ground in company with iris, rushes, sphagnum and other semi-aquatic herbage.' He speaks of the intermediates. (1) 'That in which the habit remains unchanged, but the leaves faintly spotted and the flowers are of a less desirable hue.' This is probably *O. praetermissa* × *maculata* agg. (2) *O. maculata* *superba*, already alluded to. (3) 'Larger than the last with the leaves spotted or blotched and only sub-erect, but far more so than in *maculata* [Fuchsii] and, like that species, with a pyramidal head of purplish flowers rather loosely placed on the stem [possibly *O. Fuchsii* × *praetermissa*]. He says, 'All these forms occur sparingly with *latifolia* (*praetermissa*) in wet, marshy ground . . . rarely at a great elevation. In some of the Carnarvonshire and Anglesey bogs and swamps I have frequently met this plant, sometimes in quantity, so that ample opportunities have been offered for studying them under different circumstances as regards soil and situation.' He goes on to speak of the difficulty in growing his *latifolia* (*praetermissa*) if even a portion of the rootlet is broken; it is, he says, 'a lovely plant, with a peculiar fresh-green tint of foliage that is wanting in any other species. The flower is also beautiful in the extreme. . . . There is a white-flowered variety . . . which Mr. J. E. Griffith sent from marshes in Anglesey. They were like the type,' but 'the flowers were of an unspotted white . . . instead of the usual deep purplish-pink.' In the Anglesey marshes, such as Cors Bodeilio, *praetermissa* and its hybrids still occur.

When Mr. Webster speaks of *O. maculata*, he evidently means *O. Fuchsii*, as his figure, taken from *E.B.*, 2973, shows. His *O. maculata praecox* is the true *O. maculata* L., and it is owing to his acumen that the difference between it and the other form was first pointed out. Some held that *praecox* differs from *ericetorum* (Linton), since Webster speaks of it as flowering in April and May,

PLATE 10.



HABENARIA GYMNADENIA  $\times$  ORCHIS PRAETERMISSA  $\times$  = H. WINTONI DRUCE.  
(H. conopsea  $\times$  praetermissa).

From water-colour drawing by Miss B. Corfe.

Photo, R. H. K. Peto.

(Lent by the President, Winchester Coll. Nat. Hist. Soc.).

FIG. B.



HABENARIA VIRIDIS X ORCHIS INCARNATA X MACULATA.

From water-colour drawing by Miss B. Corfe.

Photo, A. J. Plaister.

(Lent by the Rev. J. H. Winchester Coll. Nat. Hist. Soc.).

PLATE II.

FIG. A.



HABENARIA VIRIDIS X ORCHIS MAC. ? INCARN.

Water-colour drawing by Miss B. Corfe.

Photo, A. J. Plaister.

[This may be Habenaria viridis X praetermissa.]



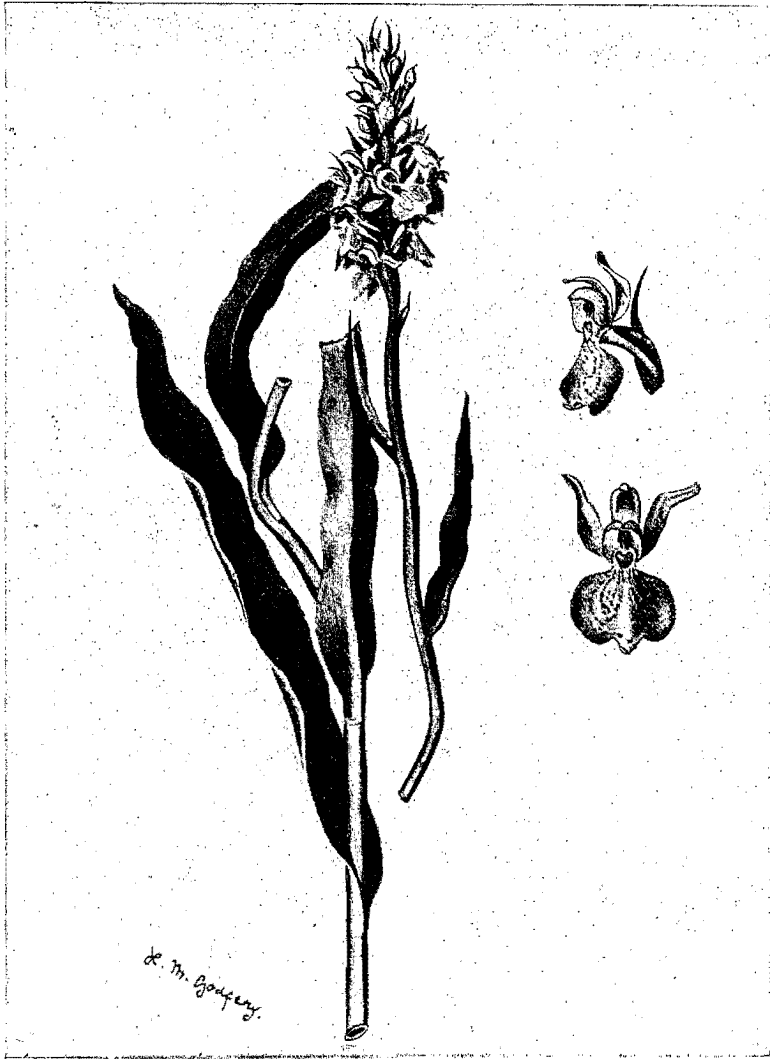
PLATE 12.

HABENERIA GYMNADENIA  $\times$  VIRIDIS.  
(Gymplatanthera Jacksonii).

From water-colour drawing by Miss M. Corfe.

(Lent by the President, Winchester Coll. Nat. Hist. Soc.).

Photo, W. Abley.



ORCHIS PRAETERMISSA X FUCHSII.

From water-colour drawing by Mrs. H. M. Godfrey. Photo, W. Abley.

(Lent by the President, Winchester Coll. Nat. Hist. Soc.).



but Mr. J. Griffith, the well-known author of the *Flora of Anglesey and Carnarvonshire*, says (in lit.) Webster's plant is *ericetorum*, that it flowers from May onwards, and 'I have seen it growing in such habitats as that mentioned by Webster.' True *maculata* of the peaty areas flowers earlier than *Fuchsii*, as Mr. Linton himself mentions: therefore we may assume that *praecox* and *ericetorum* are identical, and that the description in the *Species Plantarum* well covers both.

2327. ORCHIS MACULATA. In the *Rep. B.E.C.* 99, for 1914, descriptions are given of the three species formerly merged in the above name. For convenience, their main features are here repeated.

O. MACULATA, L. vera [*O. ericetorum* (Linton), *O. maculata* var. *praecox* (Webster)]. Plant usually rather slender, leaves usually spotted, usually narrower than in *Fuchsii*, inflorescence often conical and normally shorter than *Fuchsii*, corolla of different shades of lilac or purple, or sometimes pure white with faint markings, labellum trilobed, the lateral segments larger and usually longer than the middle one, and, owing to the broad labellum, the flowers are more contiguous, but the bracts less conspicuous. Heathy situations, or damp places on acid soils over primitive rocks.

O. FUCHSII, Druce, (*O. maculata* Sm. *E.B.* t. 632, not the details) and Kränzlin and Müller (*Orchid Art.*, t. 29, 1904). Usually a stiffer and often a taller plant than preceding, with broader and more fleshy leaves, which are more strongly marked with black-purple rings or blotches; inflorescence usually cylindrical, but at first conical, bracts often exceeding flowers, corolla lilac (rarely purple) with much darker and usually more definite markings than *maculata*: labellum trilobed, the middle segment as large and longer than the lateral. Woodlands and pastures, usually on basic soils. Mr. Burton has grown both species, and finds they keep their character for many years even in different soil.

O. O'KELLYI, Druce, l.c. Rather slender, leaves usually narrow, pale clear green, unspotted; flowers smaller than preceding, pure white or with a roseate tinge on the stigma and (as Mr. Burton points out) on the pollinia cells, the pollen mass of a dark shade of green; labellum of three small sub-equal divisions, the middle one the longest. Calcareous areas of the Burren, Co. Clare, Galway, Sutherland, Yorks, etc. The more slender growth and smaller

flowers with sub-equal divisions distinguish it from white-flowered *Fuchsii*, i.e., var. *triloba* Bréb., to which it is closely allied. The first two species vary immensely, and either hybridise or possibly merge into each other, especially on certain soils, such as pastures on basic soils on which there is humus, or on cliffs and downs of calcareous strata in pockets of leaf-mould. *O. maculata* itself sometimes occurs on basic soils; considering the smallness and infinity of the seeds, this might be expected. So, too, *O. Fuchsii* may occasionally seed itself on acid soils. The intermediate plants, with a stronger growth and firmer leaves, and longer inflorescence, I have named (*Rep.* 213, 1915) *O. maculata* × *Fuchsii* = *O. transiens*, Langham Moor (Essex), G. Brown, Aberystwyth, T. Stephenson, Wareham (Dorset), Tackley (Oxon), S. Devon, Miss Larter.

*O. MACULATA*, sub-var. *LEUCANTHA*. Beautiful specimens sent from Longmer by Mr. R. F. Burton in 1916, which have been grown in a pot since 1911 from tubers collected in an adjacent field. The colour of the flowers is pure white, with strong parallel veins, which in drying turn brown, giving a curious striate appearance; after four years' growth in the changed soil a few pink spots could be detected through a X 10 lens. Originally a weak dwarf plant, but grown in sifted bog earth it has developed into a plant 22 inches high with a spike 4 to 5 in. long. Also at Tregaron (Cardigan) Stephenson, Ballyvaghan (Co. Clare), O'Kelly, Tackley (Oxon), Wool (Dorset).

*O. MACULATA* × *PRAETERMISSA* = × *O. HALLI*, Druce, has already been mentioned. Otterbourne (Hants).

*O. MACULATA* × *INCARNATA*.

*O. MACULATA* × *LATIFOLIA* = *O. BRAUNII*, Hal. See *Rep.* 219, 1915.

*O. MACULATA* × *HABENARIA GYMNADENIA*. Tregaron (Cardigan), Stephenson, 1915, Birkenhead (Cheshire), E. F. Payne, v. sp.

*O. MACULATA* and *O. FOLIOSA* = *O. SCAMPSTONENSIS*. A fine specimen occurred at Scampston Hall, where Mr. St. Quintin had a bed of *foliosa*, originally brought from Madeira, and *O. maculata* grew near. This plant has the robust growth and large flowers of *foliosa*, but the stem is solid and the leaves spotted. The labellum measures 16 mm. by 10 mm., is three lobed, the two lateral large and rounded; they are beautifully marked with violet lines. It may

be well here to refer to  $\times O.$  *Hepburnii*, a hybrid of *foliosa*, and the showy *maculata superba*, which originated in a similar manner in the garden of Sir A. Buchan Hepburn (see *Rep.* 211 for 1915). These hybrids prove an important point, namely, that in the hybrid of a plant with clear green leaves like *foliosa* the purplish-black markings of the other parent appear as rings or blotches in the offspring. Some striking forms of *O. maculata* have been sent by the Rev. T. Stephenson and his son from Cardiganshire. One of these, *Rep.* No. X. 77, has long narrow leaves, often unspotted, and a curious pink tint of flower. It grows in a bog to the exclusion of other forms. In a bog near Corfe Castle, Dorset, a similar long-leaved plant occurs, the flowers are small, purplish, and with sharply defined markings.

*O. FUCHSII*, Druce, has many modifications. *Var. trilobata*, Breb., has a slender spike of small flowers, the lip-divisions nearly equal and is very close to O'KELLYI, but it has spotted leaves and tinted flowers. Oxon, Hailey; Leicester, Saltby Heath (*Horwood*); Hants, N., Wassail Copse, Odiham (*Palmer*, 1883); Lake Lancashire; Dalton-in-Furness (*Pearsall*; M. Perth, Kenmore.

Sub-var. ALBIFLORA, spikes 4—5 in. long, lower bracts green exceeding the flowers, labellum pure white, deeply trifid, the middle lobe as long as lateral, strongly veined. Dorset, Wool, Moreton.

*O. FUCHSII*  $\times$  *HABENARIA GYMNADENIA* with both parents. Fermoy (Ireland) *T. H. Leach*.

2326, *ORCHIS INCARNATA*, L. The description of this has already been given, and some of its hybrids referred to; but it has other modifications. One of these is a small beautiful plant which is found on sand-dunes, sometimes (as on the Sands of Barry) in enormous quantities, and in a large series of bright colours from pure white, various shades of rose, red and crimson to darkest purple. This I described in *Rep.* 212, 1915, as var. *dunensis*.

There is another beautiful form which grows in sphagnum and peat bogs in the New Forest, Teesdale, Wales and Scotland, and is what I have been calling northern *incarnata*. For this I propose the name—

*ORCHIS INCARNATA*, L. var. *pulchella mihi*. This differs from the type by the flower being of a rich purple colour, the labellum 7 to 8 mm. broad by 8 long, broadly oval in outline but with rough

crenations on the sides, not trifid nor trilobed, strongly marked with darker interrupted lines. The labellum is less reflexed and less brittle than the type, and the plant rather more slender. This grew in a wet boggy place south of Lyndhurst, S. Hants, and is somewhat similar to plants sent me in 1911 by Mr. Philipson-Stow from the same neighbourhood, but his plants had a broader labellum (9 by 8 mm.) and they were coarsely lobed at base. The various hybrids into which *incarnata* enter have been mentioned.

Under this comes a very beautiful hybrid *O. incarnata* var. *pulchella* × *maculata* agg. (probably *Fuchsii*) which Mr. W. H. Quintin found near the Yorkshire coast.

2325. ORCHIS LATIFOLIA L. The Linnean description (*Sp. Pl.* 1334, 1763) is 'O. bulbis subpalmatis rectis, nectarii cornu conico: labio trilobo lateribus reflexo, bracteis longioribus,' *Act. Upsal.* 1740, p. 15, *Fl. Suec.* 728, 801, *It. Oel.* 48, *Dalib. Paris.* 274. O. radicibus palmatis, bracteis flore longioribus, nectarii labio trifido, cornu germinibus brevioribus, *Hort. Cliff.* 429, and O. palmata pratensis latifolia longis calcaribus, *Bauh. Pin.* 85, *Vaill. Paris.* t. 31, f. 1-5. He adds three other plants from Caspar Bauhin, gives as its habitat 'in Europae pratis,' and adds 'Petala 2 lateralia sursum flexa, tria vero conniventia, Nectarii labium lateribus reflexum, Caulis fistulosus.' It will be observed that no reference is made to the spotted leaves. In *Flora Suecica* (ed. 2, 801) Linnaeus says it grows 'in pratis montosis humidioribus, minus frequens in plerisque regionibus (*incarnata* "in Pratis rarius"). Radices rectae, nec multum divaricatae, inque duos vel tres digitos divisae. Folia parum maculata, praesertim inferiora. Petala 2 dorsalia patentia margine posticae reflexo. Nectarii labium retrorsum complicatum, serratum, obscure trilobum.'

There is little in these descriptions to exclude the suggested hybrids in the foregoing pages, but they may refer to a distinct species.

Fries, perhaps better than any botanist, knew the plants of Linnaeus, therefore we quote from the *Flora Scanica*, p. 164, '*O. incarnata* L. foliis acutis erectis, petalis lateralibus reflexis immaculatis. In paludosis inter *Juncos*, etc., frequenter. Descriptio Linn. manifestissima. Caulis . . . firmus *curvus*, foliis plerumque linearibus canaliculatis, fere equitantibus, laete at pallide viri-

dibus, absque macularum vestigio, dense obtectus et vulgo superatus. Petala dorsalia reflexa immaculata. *O. angustifolia* Lois.' This, so far as it goes, excellently describes our *incarnata*. His *O. latifolia* 'foliis acutis patulis, petalis lateralibus adscendentibus maculatis. In pratis et campis depressis, priori rariora. Folia obscuriora saepe maculata in caule altiori fistuloso sparsa, prioris vulgo latiora. Priori serius floret.' Smith's *English Flora*, as we have seen, materially alters Linnaeus' description, and says 'leaves unspotted.' He cites three figures,—Curtis, t. 65, which is *incarnata*; Fl. Danica, t. 266, also *incarnata*; Gerard's 220 and 222, *Serapias palustris latifolia* and Haller's *Hist. Helv.* ii, 142, t. 32, f. 2. This represents fairly well many of the plants called *praetermissa* × *maculata*, except that the sides of the labellum are more reflexed, which doubtless influenced Babington's description.

By the kindness of Herr Keller of Aarau this summer some fresh specimens of the Swiss *O. latifolia* were sent me; unfortunately the misdirected energies of censorship delayed their delivery until the flowers were destroyed, yet the general appearance differed from that of any English plants known to me. It may well be that there is a distinct species *O. latifolia* (cf. Kranzl and Muller's *Orchid. Art.*), and that what have here been suggested to be hybrids come under it. For the last three years I have visited many localities from which *latifolia* is recorded; so far I have not been able to satisfy myself that we have a third species of the Marsh Orchid.

It is evident that much further field-work will have to be done before it is safe to reject *latifolia* as a British plant. Indeed such trustworthy observers as Colonel Godfery, whose experience of continental forms is very great, tells me that Reichenbach's figure of *latifolia* is not good; that he has found *latifolia* with spotted and unspotted leaves in the water meadows near Winchester. He considers it is a species, since it is too constant for a hybrid, and he has seen hundreds of *latifolia* growing together, as like as two peas: that he has found in plenty where *praetermissa* does not occur, and also he believed where *maculata* was absent; and that the hybrids of *praetermissa* and *maculata*, of which he has found three different kinds, did not suggest *latifolia* to him; and that on the continent he has seen *latifolia* abundant in the lower part of the St. Martin Vesubii valley more so than *maculata* auct., and he

believed *praetermissa* was absent. Dr. Heslop-Harrison, who has been studying the Durham Orchids, also says that '*O. latifolia* occurs near Bully quite away from the other forms. It occurs in profusion where *O. maculata* and *O. incarnata* are unheard of. Similarly I know localities in S. Durham where *O. incarnata* is without it, but with *O. maculata*. *O. praetermissa* is most frequent on the coast with *O. maculata*, but (as with us) precedes it in flower. The following is the order of flowering: *O. praetermissa*, *O. incarnata*, *O. latifolia*, *O. maculata*, but note, the conditions vary tremendously.' (With us in the South *O. incarnata* usually precedes *praetermissa*). The crucial test will be to cross *praetermissa* with its allies, but the time required to prove the offspring is so long that I am not likely to see the results. It is quite certain that *O. latifolia*, as described by Babington and other British botanists, does not apply to a single entity: contrast the figures he cites of *E. B. Suppl.* 2973, and *Reichb. Ic.* 402, which are wide as the poles asunder. It was this divergence of opinion respecting *latifolia* which caused Watson (*Top. Bot.*) to use the name *majalis* Reichb., but even under that heading the species in his herbarium are far from homogenous, and the two figures of *majalis* (Reichb. *Icones Critica*, n. 515, have narrow spotted leaves, the apices not flat, the lip deeply trilobed, the upper bracts not very long nor leafy (his description says leaves 'ovali-lanceolatis, patentibus,' while his fig. l. c. 564, is a quite different plant, nor are either like his *latifolia* in the *Ic. Fl. Germ.*, xii., t. 402). Mr. Bedford has sent me some beautiful photographs of '*O. latifolia*' in situ from Sussex. Mr. St. Quintin agrees with me in the belief that these are *maculata* hybrids.

Lengthy as this note is it can only be looked upon as a contribution towards unravelling the tangle in which the palmate Orchids are enmeshed.

2338. HABENARIA GYMNADENIA, Druce, *Gymnadenia conopsea*, Br. Under the latter name Dr. Heslop Harrison (*Vasculum*, 9, 1917) records 'var. DENSIFLORA (Dietrich) with broad leaves and thick flowering spike, flowers a little darker than type.' Billingham, Durham.

Var. nova SPIRALIS, spike pyramidal, fairly dense; flowers fragile looking, lilac: upper sepal revolute; lateral or wing sepals, spirally

twisted; lip narrow, more definitely cleft than type, bent backward instead of forward; leaves narrow and lanceolate, edges not sub-parallel. Billingham, Durham.

Var. nova BICOLOR, put provisionally under *conopsea*, but thought to be a var. of *odoratissima*. The flowers purplish, except the lip, which is pure white, hence the name; leaves narrower, but bracts less lanceolate than type.

The floral characters of these forms are shown in this table :

Form.	Breadth of flower.	Height of flower.	Breadth of lip.	Height of lip.	Length of spur.	Length of ovary.
conopsea	14 mm.	11.5 mm.	8.5 mm.	5 mm.	15 mm.	10 mm.
spiralis	15 mm.	11 mm.	7.5 mm.	5 mm.	12 mm.	8 mm.
bicolor	11 mm.	7 mm.	3 mm.	2 mm.	3.5 mm.	8 mm."

Rouy (*Fl. France*, xiii, 100, 1912) describes *Habenaria odoratissima* as *Gymnadenia odoratissima* Rich. as follows: Stem, from 2-4 dcm. (*H. Gym.* 3-6) subangular above (*Gym.* cylindric); leaves glaucescent, upright or arched, carinate linear, much narrower than in *H. Gym.*; flowers small, 5-8 mm. long (*H. Gym.* 8-10 long), clear lilac (Reichenbach says kermespurple) (in *H. Gym.* violet or carmine), with a powerful vanilla-like scent (in *H. Gym.* scent of orange flowers), in a slender, dense, rather short spike (*H. Gym.* in a more or less compact cylind. spike); labellum 3-lobed, longer than broad, the median lobe broad and prominent (in *H. Gym.* broader than long, the median lobe narrow only slightly longer than lateral); spur short, thickened, scarcely as long as ovary (in *H. Gym.* slender, subulate curved about twice as long as ovary). This is found in moist calcareous fields and hilly places in the west and north-west of France and about Paris.

This was recorded from Durham by Dr. Heslop Harrison (*Rep.* 429, 1916). It was first mentioned as British by Mr. W. Pamplin in the *Mag. of Nat. Hist.*, xx, 475, 1836, growing between Juniper Hill and Box Hill, Surrey, June 28, 1833, but Watson lost the record, and the plant has not been included in our floras. Through the kindness of Dr. Heslop Harrison I saw the Billingham specimen of his *bicolor*, which has a white labellum deeply trilobed and broader than long; the spur is short, not more than half the length of the ovary; the carinate leaves, however, are not very narrow, the lower being 14 mm. broad. Against Dr. Harrison's sugges-

tion that it is a form of *odoratissima* are the broader leaves and rather large flowers.

2338. HABENARIA GYMNADENIA Druce, var. BOREALIS, nov. var. Plant about 1.5 dm. high; leaves about 5 mm. broad, the spurs thick about as long as ovary; flowers very sweet-scented, dark purple, 3 mm. long by  $2\frac{1}{2}$  broad, the middle lobe relatively larger than lateral. Upland pastures near Watendlath, Cumberland, 1907. Formerly I thought it might belong to the var. *alpina* of Reichenbach. See  *Ic. Fl. Helv.* t. 425, but these Borrowdale specimens have a shorter spur, and approach *odoratissima*.

In order to bring the scattered notes on Orchids together, through the kindness of the President of the Winchester College Natural History Society (the Rev. S. A. McDowall), the following papers which appeared in the Reports of that Society, 1912—1917, are here reprinted nearly in *extenso* :—

‘NEW HYBRID ORCHIS, *Habenaria viridis* (Frog Orchis × *O. latifolia* ? Marsh Orchid). This remarkable new hybrid (of which a close description is given) is a valuable find and an interesting sequel to Mr. Jackson’s discovery of the cross between the Fragrant and the Frog Orchid. The Frog is again our parent but its influence is more marked: while the earlier cross may be said to be three parts Fragrant to one part Frog, the new one is in a fully intermediate stage and stands midway between the Frog and the other parent. What the latter is has not yet been determined,—probably *O. latifolia*, a somewhat stunted form of which occurs sparingly on the Downs, but *O. incarnata* and *maculata* have also claims to be considered. Taking *O. latifolia* to be the second parent, the following are some of the main respects in which the Frog influence is shown: plant shorter, flower spike less compact, flowers strongly tinged with green or dull coppery red (colours never seen in the Marsh Orchid), flowers tilted downwards, sometimes almost horizontal (this point is very characteristic of the Frog), spur very short. Five plants have been found, no two alike. Found by P. M. Hall near Winchester, June 24, 1912.’

Here follows a minute description of the two chief forms by Rev. R. Quirk. See *Rep. B.E.C.* 508, 1910.

To this Mr. P. M. Hall adds a note (it must be borne in mind that at this time *praetermissa* had not been described): ‘The Orchid



hybrid found last June near Winchester was at first assumed to be most probably *O. maculata* × *Habenaria viridis*, though Mr. Druce and Miss Corfe who made the excellent drawings of this plant, suggested quite independently that *Orchis latifolia* was one of the parents, and Mr. Quirk was inclined to think *O. incarnata* might possibly prove to be the other parent, though he leant to the *maculata* parentage. This year the plant reappeared, and the suggestion at once occurred to the finder: for Marsh Orchis parentage is strongly suggested by the deep red markings on the lip and by the hollow stems. On examining the plants in the immediate neighbourhood there appeared to be two forms of the Marsh Orchid present, one being *incarnata* and the other what would ordinarily be called *latifolia*. But it seemed probable that these latter plants were not really *O. latifolia* but a hybrid between *O. incarnata* and *O. maculata*, which also grows in the neighbourhood. This view has been confirmed by Mr. Druce. . . . That the new hybrid has *O. incarnata* × *maculata* and not the former alone for one of its parents, is proved by the spotted leaves in several instances. It is probable, therefore, that the correct pedigree of this new hybrid is:

*O. maculata* {  
*O. incarnata* { × *H. viridis*.’ (*Winch. Bot. Rep.* 1912-3, p. 8).

See figures t. I, f. A, B.

This is followed by a paper by R. B. Ullman and P. M. Hall, a note on a section of the Genus *Orchis* which treats of ‘the plants included under the old *Orchis maculata* L. and *O. latifolia* L.’ As *praetermissa* had not then been separated, nor *O. Fuchsii* described, it is interesting to see what careful and suggestive observations these students made on ‘The forms which have been collected in Hampshire entirely, with the exception of a few forms of *maculata* from the west of Ireland. . . . Hampshire possesses almost every known form and hybrid, many of them growing in great profusion in close proximity.’ The first group consists of the solid-stemmed plants, and is represented by two species, *O. maculata* L. (*O. Fuchsii*) and *O. ericetorum* Linton (*O. maculata*). The characters of these are well given, and ‘the second is a well marked plant,’ of which ‘specimens examined from Scotland, Ireland and five English counties agree very well together and with the original description of Welsh plants in Webster’s *British Orchids* under the

name of *O. maculata* var. *praecox*. This sub-species has recently been found at Otterbourne, and is a record for this district of Hants. There is some doubt whether *ericetorum* is not merely a soil-form of *maculata*, though both plants have been found growing in the same meadow at Otterbourne and retaining their distinctive characteristics, yet some Irish specimens seem to show considerable variation of *ericetorum* in the direction of *maculata* without hybridisation.' It is quite possible that these variations are the result of hybridity: such are not uncommon, and come under *Fuchsii* × *maculata* = × *O. transiens* Druce. The authors then continue: 'The second group, which consists of hollow-stemmed plants, is far more perplexing. Three types appear to stand out, two with purple, and one with flesh-coloured flowers. The latter . . . is the *O. incarnata* L. A hybrid, *O. maculata* × *O. incarnata* (true), was found this year at Compton and identified at Kew. Besides its colour *O. incarnata*, form 1, may be distinguished by its small reflexed flowers and dense cylindric spike. The form found by Mr. Druce in Oxfordshire appears from a drawing, in its larger spike and larger flowers, to approach more nearly to the next type, which in Hampshire is very distinct from the flesh-coloured plant. Let us call this next plant *O. incarnata*, form ii [my *O. praetermissa*]. It is distinguished by its purple-coloured, larger flowers and spotted labels, laxer spike and long narrow unspotted leaves. Both forms have green leaves hooded at the apex, generally broadest at the base. A form of ii has shorter leaves, broadest in the middle and is less erect: while another dwarf form with suffused spots on the labels and very narrow, folded leaves grows on the Downs. Hybrids between *maculata* (*Fuchsii*) and *incarnata* ii (*praetermissa*) and between *maculata* (*Fuchsii*) and the dwarf form of *incarnata* ii have been found near Winchester, the latter confirmed by Mr. Druce: also the parallel cross between *ericetorum* and *incarnata* ii [*praet.*] has been found; and, lastly, some very critical plants, apparently intermediates between this plant and the next, to be dealt with. These plants, whatever they should be called, at any rate beyond doubt exist as definite forms varying within given limits.' *Orchis latifolia* is then alluded to, although 'its very existence . . . is called into question, it is best described as a stouter but less erect plant than the preceding, with shorter and broader leaves,

not hooded, and widest in the middle and spotted with chocolate-coloured blotches, sometimes green in the centre: the flowers are dark in colour and the labels are marked with lines, not spots: it flowers quite a fortnight later than *incarnata*. This has been described as *latifolia*: but it is doubtful whether really *incarnata* ii [*praetermissa*] ought not to be given specific rank as *latifolia*, the term *incarnata* being confined to *incarnata* i, and all marsh orchids with spotted leaves being classed as hybrids with *maculata*. But this plant is distinct from evident first generation hybrids, and possibly exists as a constant species in place where one of the so-called parents does not any longer exist. It may possibly represent the result of hybrids self-fertilising for some generations and so producing in time a type breeding true: but this point again must be decided by experiment.' The editor adds a pertinent note 'On the Mendelian hypothesis, the hybrid DR, exhibiting imperfect dominance should throw DD and RR in the generation F, supposing that a simple pair of allomorphs are involved, giving reversions to the types of both grandparents. But there is no reason to suppose we are necessarily dealing with a single pair, and in more complex cases the pure recessive would appear so rarely that it might not be observed for a long time in the locality. The authors go on to say 'By this hypothesis the so-called *O. latifolia*, represents a species now breeding true, but originally of hybrid origin, and at any moment liable to result from the same causes that produced it in the first instance. In localities where this plant and *maculata* alone grow together as at Ampfield, hybrids have been found. Also some plants sent to Mr. Druce as *incarnata* ii  $\times$  *ericetorum* were named *latifolia*  $\times$  *ericetorum*.' These I should now refer to *praetermissa*  $\times$  *supermaculata*. The authors express their hope 'that this attempt to explain the difficulties of the problem will encourage others to add their evidence and support. A list is appended, which is intended as a suggested arrangement of the various species and hybrids in the most convenient order.' This is here given, the first column being the author's names, the second the names which the Secretary now suggests:

## HALL &amp; ULLMAN.

- i. *O. maculata* L.
- b. O'Kellyi Druce (*O. immaculata*  
O'Kelly ined.)
- $\times$  *O. Kellyi* = *O. lilacina* O'Kelly.

## DRUCE.

- i. *O. Fuchsii* Druce  
bis *O. O'Kellyi* Druce  
 $\times$  *Fuchsii*

HALL & ULLMANN.	DRUCE.
2. <i>O. ericetorum</i> , Linton × <i>maculata</i> (hybr. or interm.).	2. <i>O. maculata</i> L. × <i>Fuchsii</i> = <i>O. transiens</i> .
3. <i>O. latifolia</i> L. × <i>maculata</i> ? × <i>ericetorum</i>	3. ?
4. <i>O. incarnata</i> , form ii, × <i>maculata</i> × <i>ericetorum</i> × <i>latifolia</i> (?hybr. or interm.).	4. <i>O. praetermissa</i> Druce × <i>Fuchsii</i> × <i>maculata</i> × ?
5. <i>O. incarnata</i> L., form i, b. <i>ochroleuca</i> Wüstnei × <i>maculata</i> .	5. <i>O. incarnata</i> L. b. <i>ochroleuca</i> Wüstn. × <i>Fuchsii</i> .

N.B.—Mr. Druce's form ii is placed before his form i, as it approaches more nearly to *latifolia*, which again is nearer to *maculata* than either of the *incarnatas*.

A list of the hybrids found near Winchester is appended. One of these, *Gymplatanthera Jacksoni*, is figured on t. 12. It is *Habenaria Gymnadenia* × *viridis*, Druce, × *H. Jacksonii* (*Winch. Coll. Rep.*), see *B.E.C.* iii, 33, 1911.

The Report of the Winchester Coll. Society, 1913-5, contains many notes by the President, the Rev. S. A. McDowall: they include the record of *Habenaria conopsea* × *O. maculata* found by J. C. Lloyd Edwards (see Plate 2, fig. A).

Two other specimens, one very fine, have since been found in different localities by Mr. Furley and Mr. Quirk. A very beautiful form of *Gymplatanthera Jacksoni* has also been found this June by the Rev. R. Quirk, which differs considerably from those previously obtained (this is described): 'The inflorescence is more like that of *viridis*; the spur is short (5-6 mm. when fully developed: less in the younger flowers); the labellum is shaped like that of *viridis* and when first open, the rose-purple coloration appears on the lateral lobes only, the rest of the labellum being a delicate primrose-green, which gradually changes to rose-purple almost all over. The tilt of the flowers is marked (see plate).

On the Mendelian hypothesis, assuming that there are several pairs of allelomorphs, it is not at all strange that various intermediates between the two parents should occur; but the possibility of the occurrence of forms differing markedly from both parents

must not be overlooked. If these occur, their nature could only be proved by inbreeding.

Mr. Quirk has also found several somewhat peculiar forms on the Downs, which Mr. Druce inclines to call hybrids between *O. Fuchsii* and *O. maculata*.

H. McKechnie and J. C. Lloyd Edwards have also brought in a number of intermediate Down-forms of the *maculata* type, which are puzzling, but may be mostly mere varieties. One similar to *maculata*, but with a labellum having a very long mid-lobe and narrow side-lobes, long purplish bracts, stout stem (solid), dense spike, and pointed, rather broad leaves, slightly spotted with very small spots—may be a hybrid between *praetermissa* and *maculata* or *Fuchsii*.

A form fairly plentiful in the New Forest near Matley Wood, resembles *incarnata* in all points except the colour of the flowers, which is that of *praetermissa*. Whether it is a hybrid between these forms, or only a soil variety of *incarnata*, is uncertain. A similar flower which grows with this is white, and appears to be white *incarnata*.

The examination of large numbers of Marsh Orchids during the present summer has revealed a bewildering series of intermediates. *O. latifolia*, *O. praetermissa*, and *O. incarnata* are well-marked types, but they seem to be linked by a graded series of forms, which may be hybrids, but which, on the other hand, may simply show that the Marsh Orchids constitute either a recent group which has not yet settled down into well-defined species, or else a species that has become variable and is breaking up into three types. Particularly puzzling was a form brought to me by R. F. and D. G. Lowndes from some watermeads near Winchester, which appeared from the deeply cut labellum and crest, somewhat appressed, spotted, and pointed leaves, to be a hybrid between *O. praetermissa* and *O. maculata*, in which the spots on the leaves had green centres, as in the true *latifolia*.\* I find I have no note as to the stem, but I believe it was solid: several of the peculiar orchids brought in with it from the same locality certainly had. Typical *maculata* and *praetermissa*, and not quite typical *latifolia* also grew

\* Several Down-forms with green-centred spots have been found since, apparently of the same parentage.

there in plenty. This suggests that there may be something in the theory that *O. latifolia* is itself of hybrid origin.'

The President has also inserted the note written by me in the Report, B.E.C. for 1914, on *Habenaria Gymnadenia* × *Orchis praetermissa*. The beautiful painting by Miss Corfe is reproduced on Plate 10.

The Report for 1915-7 contains the following interesting paper by the Rev. S. A. McDowall:—

'Several interesting hybrids have turned up during the past two years:—A new form of *H. viridis* × *G. conopsea* (*Gymplatanthera Jacksonii*), *O. Fuchsii* × *H. viridis* (two types), *O. Fuchsii* × *O. praetermissa* (Plate 13), *O. praetermissa* × *O. incarnata*, *O. praetermissa* by *O. latifolia*, *O. ericetorum* (= *O. maculata* Linn.) × *O. incarnata*, *O. ericetorum* × *O. praetermissa*. Notes on these will be found in another place. Possibly *Fuchsii* hybridises with *ericetorum*: some specimens I have seen suggest this, but I feel very uncertain on the point. Last year Mr. Quirk obtained four more specimens of *H. conopsea* × *O. Fuchsii*, originally found by J. C. Lloyd-Edwards (Report, 1913-15, p. 9).

'A promising field of research is still offered by the complex group of Marsh Orchids. Ullman and Hall laid a foundation in their careful analysis (Report, 1911-13, p. 1). As has already been stated, Philipson-Stow and McKechnie started a closer investigation of the varieties last year, and McKechnie and Lowndes have carried on the work during the present summer. Their results will be found on another page.

'The examination of some hundreds of these plants inclines me more and more strongly to the belief that *O. latifolia* and *O. Fuchsii* (= *maculata*) represent a single dimorphic species, of which the down-forms have become fairly stable, while the marsh-forms show every kind of intermediate. Neither label, colour, shape of leaf, type of spotting (rings, or simple spots, or blotches), hollowness or solidity of stem, afford any definite guide in these last. While the typical marsh form of *latifolia* is perfectly distinct from the typical marsh form of *maculata* (*Fuchsii*), these typical forms being the commonest, nevertheless every possible intermediate, every conceivable combination of characters, exists. On the other hand, *praetermissa* seems to be a constant and definite species, at

any rate in this district, though it is very ready to hybridise with the other marsh-forms. *O. ericetorum*, again, appears to be a perfectly well-marked and stable species; and it seems as if the Linnean name of *maculata* should be definitely assigned to this type. *Incarnata* also is unquestionably a definite species, although a variety found, together with the white form, in Matley Bog possesses a purple colour even deeper than that of *praetermissa*. The form of the flower is, however, perfectly characteristic and constant. Both of these last (*incarnata* and *ericetorum*) are inclined to hybridise with other forms, and this may have helped to cause the confusion which exists in the minds of botanists in regard to the Marsh Orchids.

‘Of course, only a very long and laborious research directed towards the production of artificial hybrids could definitely solve all the problems, and the long period of immaturity in orchids renders this out of the question for a school society. Nevertheless, personally I have little doubt in my own mind that we ought to admit *incarnata*, *praetermissa*, and *ericetorum* as true species, and *latifolia* — *maculata* (= *Fuchsii*) as a dimorphic species on the way to establish two races—a process almost accomplished in the down-forms. The two last are easily distinguished in their typical forms. Both have lined labels (*praetermissa* is spotted), but in *maculata* the label is deeply cleft, with a long, narrow mid-lobe; in *latifolia* it is more or less bracket-shaped, the mid-lobe being, however, more pronounced than this description implies. *Maculata* tends to a solid stem, *latifolia* to a hollow; *maculata* tends to spotted leaves, *latifolia* to ringed: the leaves of the latter are wider, blunter, and more fleshy. The colour of the flower in *latifolia* is generally a deepish purple; in *maculata* the ground is lighter, so that the lines are more marked. There are other points of difference, but these will generally serve to distinguish the species.

‘I may add that I set down these views before reading McKech-  
nie’s report, in order that the opinion I have formed should be independent and not coloured by the work of another.

Reproductions of Miss Corfe’s paintings of new hybrid Orchids, and of a painting of *praetermissa* × *Fuchsii* most kindly done for us by Mrs. Godfrey, as well as photographs of one or two of the

Marsh hybrids,\* will be found in this Report, though no photograph can do justice to the beauty of the paintings.

#### NOTES ON SOME NEW HYBRID ORCHIDS.

H. McKECHNIE (c).

*Habenaria viridis* × *Gymnadenia conopsea* (new form).

This plant was found on the downs with both parents by the Rev. R. Quirk in June, 1916. Plant about 6 ins. in height. Leaves small and narrow, with no trace of *H. viridis* in them. Spike a little laxer than in *G. conopsea*. Sepals as long as the petals, pinkish on the back and yellowish in front. Petals yellowish on both sides. Lip longer than in *G. conopsea*, pink at the sides and yellowish-white in the centre. Spur shorter than the ovary, and more slender than in *H. viridis*. The plant was interesting in that it was nearer to the Frog Orchid than the original form. Mr. Jackson's original specimens suggested rather two parts Fragrant to one part Frog. See Plate 12.

*Orchis Fuchsii* × *Habenaria viridis* (new form).

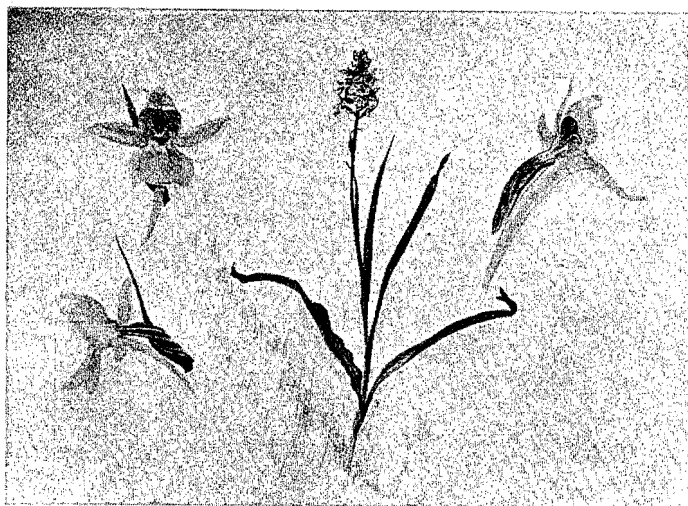
This plant was found on the downs, where both parents grow freely, on 22nd June, 1917. Stem slender, green among the flowers. Leaves narrow-linear, so much keeled as to be almost folded, unspotted, not as thick as in *H. viridis*, erect and curving outwards. Bracts about the same length as the flowers. Spike colour, as in *O. Fuchsii*. Central sepal reflexed at the tip from the petals; lateral sepals ( $2\frac{1}{2}$  lines long) extended sideways and a little upwards, dotted with purple, lip ( $2\frac{1}{2}$  lines long) one-lobed; lower half and centre of upper half white, slightly tinged with light purple, with two yellow blotches on the sides of the upper half; inclined more downwards than in *O. Fuchsii*. Spur blunt; thicker than in *O. Fuchsii*, and more cylindrical than in *H. viridis*.

The plant in general gave one the impression of *O. Fuchsii*; additional points of resemblance were the shape and form of the leaves, and the light purple colour of the flowers. The influence of

\* About one of these, *incarnata* × *ericetorum*, I feel some slight doubt. I think the attribution is justified, but other botanists may differ. It seemed desirable to publish a photograph of the spike in order to give to others an opportunity of judging.



PLATE 14. FIG. A.

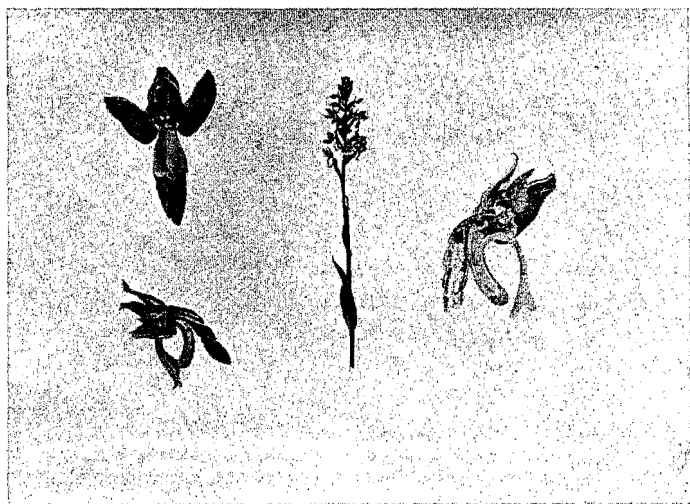


HABENARIA GYMNADENIA X ORCHIS MACULATA.

(*H. conopsea* X *Orchis maculata*.)

From water-colour drawing by Miss B. Corfe. Photo, W. Abley.  
(Lent by the President, Winchester Coll. Nat. Hist. Soc.).

FIG. B.



HABENARIA GYMNADENIA X VIRIDIS.

(*H. conopsea* X *viridis* = *Gymplatanthera Jacksonii*, *Winch. Rep.* 8, 1913.)

From water-colour drawing by Miss B. Corfe. Photo, W. Abley.  
(Lent by the President, Winchester Coll. Nat. Hist. Soc.).



ORCHIS FUCHSII X HABENARIA VIRIDIS.

From water-colour drawing by Miss B. Corfe.

(Lent by the President, Winchester Coll, Nat. Hist. Soc.).

Photo, W. Abley.



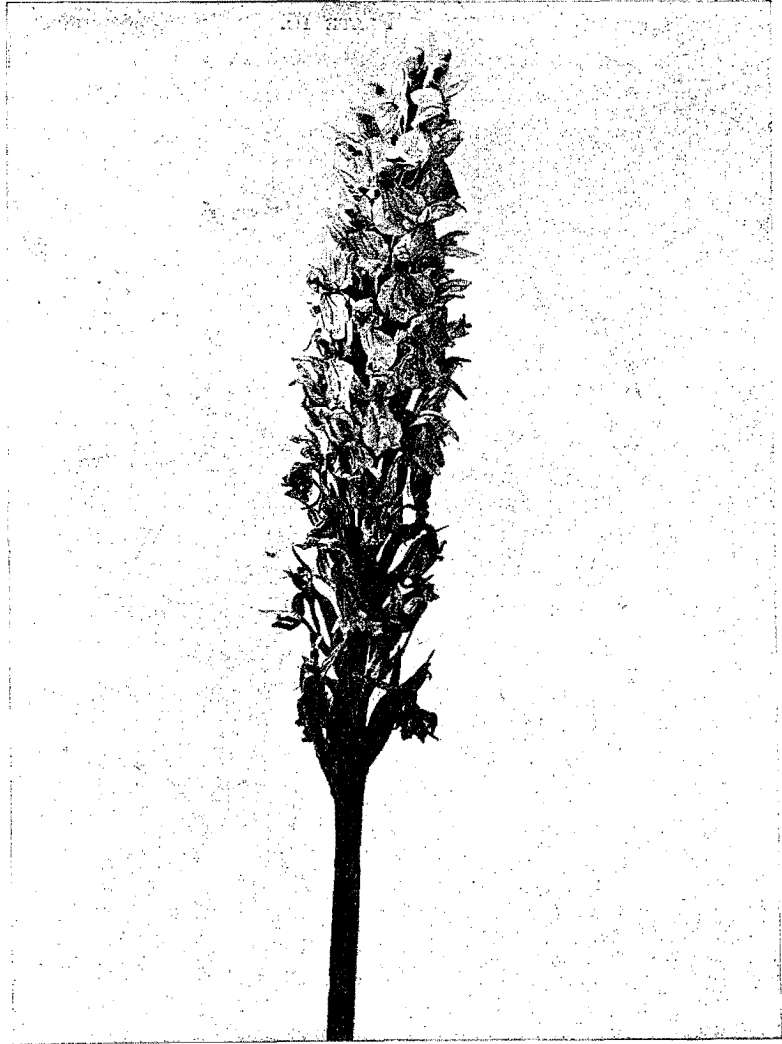
ORCHIS FUCHSII X HABENARIA VIRIDIS.

From water-colour drawing by Miss B. Corfe.

(Lent by the President, Winchester Coll. Nat. Hist. Soc.).

Photo, W. Abley.

PLATE 17.



ORCHIS INCARNATA X MACULATA.

Photo, W. Abley,

(Lent by the President, Winchester Coll. Nat. Hist. Soc.).

PLATE 18.



ORCHIS PRAETERMISSA X FUCHSII.

Photo, W. Abley.

(Lent by the President, Winchester Coll. Nat. Hist. Soc.).

See Rep. 1917, pp. 15, 19.

[The page contains extremely faint and illegible text, likely bleed-through from the reverse side of the document. The text is scattered across the page and cannot be transcribed accurately.]

*H. viridis* is shown strongly in the remarkable lip and the inclination of the flowers.

The form found last year by Mr. Comber and G. P. Philipson-Stow was nearer the Frog Orchid, while this more closely resembles the Spotted. See Plate 15.

*Orchis maculata* Linn. (= *O. ericetorum* Linton.) ×  
*O. incarnata* Linn. See Plate 17.

This plant was found by D. G. Lowndes in July, 1917. Stem just over a foot in height, tinged with purple among the flowers, hollow. Leaves narrow, linear, broadest in middle, unspotted, strongly keeled (almost folded), hooded at the tip. Spike 3 ins. in length. Flowers closely packed, generally light purple in colour, and giving the impression of *O. maculata* Linn. Lip slightly reflexed with the edges upturned (as in *O. praetermissa*); in shape narrower than in typical *O. maculata*, but with line markings suggestive of that plant; lobes equal in length, the central one small and rounded (as in *O. maculata*). Spur slender, conical, curved. Bracts larger than flowers below, smaller above.

The plant gives one the general impression of *O. maculata*, but the unspotted leaves, hollow stem, and slightly narrower and reflexed lip suggested the presence of some other orchid, presumably *O. incarnata*.

*H. viridis* × *O. Fuchsii*. See Plate 16.

Found on the downs near Winchester by G. Philipson-Stow and Mr. Comber, June, 1916. Plant, 13½ cms. high; leaves, 5½ cms. long, 1.4 cms. broad, spotted; spike, 2 cms. high; flowers, six, rather loose. Bracts dull green, slightly tinged purple, rather longer than the flower. Unopened buds dull purple with slight greenish tinge, nearly green underneath. Expanded flowers, green label, two rows of suffused spots, and one elongated spot in the middle. Lateral sepals with one or two spots. Corolla 14 mm. long by 15 mm. broad to tips of lateral sepals. Labellum greenish in centre, purplish edges, two purplish lines of suffused spots, one or two spots forming incomplete medial line. Exterior lobes 4 mm. long, curved inwards at tips. Central lobe reflexed outwards 1½ mm., maximum width 7 mm. Labellum hangs straight down. Lateral sepals 7 mm. long, about 3 mm. broad, tapering to narrow

point, one or two large spots; green, with tinge of purple. Under sepal somewhat shorter, recurved at tip. Petals 6 mm. long, about  $2\frac{1}{2}$  mm. broad at base, narrowing to rather blunt point, very pale greenish in colour with faint trace of purple. Anthers very similar to 'A' in Report, 1912, p. 6. Spur 4 mm. purple curved inwards towards labellum; bulging towards base to maximum, breadth 1 mm. Ovary spirally twisted; brownish purple.

*Note.*—A very fine but somewhat overblown specimen of this cross was found this year by McKechnie, July 13th, as well as two splendid examples of Lloyd-Edward's type of *conopsea* × *maculata* (*Fuchsii*).—Report, 1913-15.

S. A. McD.

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*O. ericetorum* × *O. praetermissa*.

*Leaves* faintly spotted (at the tips only), keeled, closely folded, very narrow, erect: abortive leaf at foot of stem.

*Flowers.*—Sepals spreading, lip wide, scarcely three-lobed lip, sepals, petals, mauve spotted with crimson purple. Spur slender, conical, slightly curved. Otterbourne.

*O. ericetorum* × *O. latifolia*.

*Leaves* erect, keeled, hooded, widest in the middle, heavily blotched.

*Flowers.*—Sepals spreading, lip very wide, mid-lobe longest. Sepals, lip, petals pinkish mauve, lip lined with bright mauve. Spur slender, conical, slightly curved. Otterbourne.

D. G. L.

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*O. praetermissa* × *O. incarnata*.

Form found by Colonel Godfery (June 21st, 1917). *Leaves*: *praetermissa* type. *Flowers*: small, with narrow label, of *i. carnata* type, but with triangular mid-lobe; suffused spots; whole flower deep purple, but not the same colour as purple *incarnata*. Label not reflexed, even when faded; showing *praetermissa* type in its flatness and forward-curving margins.

Another form, found by McKechnie, had flowers somewhat reflexed.



*O. praetermissa* × *O. latifolia*.

Form found by Colonel Godfrey (June 21st, 1917). Leaves: *praetermissa* type, but coarsely, though rather faintly, spotted. Flowers: *praetermissa* type, but lined; mid-lobe typical *praetermissa*, but rather long.

Another form, from the downs, found by Lowndes, had ringed leaves and spotted labels.

*O. praetermissa* × *O. Fuchsii*. See Plate 13, 18.

Form found by S. A. McD. Leaves: *praetermissa* type, with very fine spots; rather blunter than usual. Flowers: mid-lobe very long: label deeply cut.

S. A. McD.

## NOTES ON THE GENUS ORCHIS.

H. McKECHNIE (c).

THE following remarks are the result of three years' work among orchids, almost entirely in the Winchester district. In a subject on which experts disagree our opinions do not pretend to be more than suggestions, but they do represent the result of much careful observation. The quotations, unless otherwise stated, are from letters written by the different authorities.

Two forms of the ordinary Spotted Orchid, *Orchis maculata*, are common in Hampshire. The one which grows on the Downs here has the narrower lip, with a mid-lobe fairly large in comparison with the lateral lobes, and generally the longest of the three. The other, found in the New Forest and at Otterbourne, is readily distinguished by its very broad label with an exceedingly small and short mid-lobe. The first of these two forms was commonly known as *O. maculata* (Linn.), the second as *O. ericetorum* (Linton). But Mr. G. C. Druce has shown that this last is the original *O. maculata* of Linnæus,\* and for the *O. maculata* (auct.) he has suggested the name *O. Fuchsii*. This nomenclature has been adopted throughout the article. The common Spotted Orchid of the chalk Downs round

\* Rep. Bot. Soc. and Ex. Cl. of B. S., 1914, vol. iv, Pt. I, pp. 99-105.

Winchester is therefore *O. Fuchsii* (Druce), and the broad-lipped plant generally found in peaty soils is *O. maculata* (Linn.).

The form of the lip is the best distinction between the two, but each varies a great deal, and often in the direction of the other. Sometimes, for instance, the lateral lobes of *O. Fuchsii* increase in size at the expense of the middle lobe. Sometimes again the three divisions of the lip in *O. maculata* (Linn.), (= *O. ericetorum* [Linton]) become more nearly equal. A useful criterion, which does not vary with the size or shape of the lip, is that in *O. Fuchsii* the lateral lobes are quite distinctly notched about the middle of the outside: in *O. maculata* (Linn.) this is not usually the case; but the notching does sometimes occur, so that this criterion is not absolute. Another difference, which is not always constant,\* is that the lowest one or two leaves on the stem of *O. Fuchsii* are broader, shorter, and more obtuse than the ones next above them; while in *O. maculata* (Linn.) the lowest is the longest, and is the same shape as the others.

Many other supposed distinctions, such as the number of bracts on the stem, the luxuriance of the markings and the leaves, the habit of the plant, and the colour of the flowers have been found to be dependent upon soil and situation. It may, however, be generally stated that the flowers of *O. maculata* (Linn.) are much larger, and the lip more prominent, than in the case of *O. Fuchsii*. As to the matter of soil it has been said that the former is found only on peaty and silicious soils, while the latter is confined to chalk, quartz, and flint; but such distinctions do not seem to be always exact. *O. maculata* (Linn.), however, certainly has a preference for damp, heathy places, and *O. Fuchsii* for dry downs.

It will therefore be realized that it is not always easy to assign a plant to one or the other of these two forms; but on the whole it seems probable that they are distinct. Mr. Druce has assigned specific rank to both, and Rev. E. S. Marshall agrees, having known them apart for fully thirty years. The typical forms of the two are certainly very different, but intermediates are found not infrequently. On the other hand the two species grow in the same

\* Obvious *O. maculata* (Linn.) have been found both near Otterbourne and in the West Highlands of Scotland which had one or more of these small leaves lowest on the stem.

meadow at Otterbourne and yet retain their characteristics. Even if they are merely soil forms, as has been suggested,† on the analogy of the *Hieracia* and *Rosae*, there is no reason why they should not be ranked as species.‡

The matter is still further complicated by the existence of a third plant (or form of *O. Fuchsii*), *O. O'Kellyi* (Druce), found in the Galway hills and at Inchnadamph, in West Sutherland. It has white flowers and unspotted leaves, and is nearer to *O. Fuchsii* than to *O. maculata*. The three segments of the labellum are 'narrow oblong, sub-acute, the middle segment longer and as broad as the lateral.\* Mr. Marshall, who found the plant in the last-named locality, 'thought it a new species, but hesitated to describe it as such.' A plant occurs sparingly on the downs here which has a lip whose three lobes are about equal in breadth and length, and which has white flowers and unspotted leaves. This however appears to be merely a white form of *O. Fuchsii*. If *O. O'Kellyi*, as we must believe on such good authority, is a true species, it seems very difficult to differentiate it from *O. Fuchsii*, *forma alba*.

*Orchis Fuchsii* and *O. maculata* are in most cases to be distinguished from the group of Marsh Orchids, to which we turn next, by their solid stems. But cases have occurred where typical *O. Fuchsii* growing in a damp situation has been found to have hollow stems. It seems therefore probable, judging from this, and from the fact that Marsh plants in general have hollow stems, that an orchid in the dry ground can and will develop a hollow stem if it grows for long in marshy ground. Our original distinction therefore is not altogether a reliable one, although it will readily serve as a rough test. Nothing but first-hand acquaintance with the species concerned can enable a botanist to differentiate satisfactorily between marsh orchids as a whole and dry-ground orchids as a whole.

The group which formerly included only *O. latifolia* (Linn.) and *O. incarnata* (Linn.) is at first sight puzzling. The latter, however (here at any rate), is easily distinguishable from all other marsh

† Mr. Druce suggests this as a possibility in Rep. Bot. Soc. and Ex. Club of B. S., 1914, Vol. IV, Part I, p. 108.

‡ I disagree.—[S. McD.]

\* Rep. Bot. Soc. and Ex. Club of the B. S., 1914, Vol. IV, Part I, p. 108.

orchids by the compact spike of small flesh-coloured flowers with a much-reflexed lip, the mid-lobe slightly longer than the other two. The flowers are nearly always flesh-coloured, but in a certain bog in the New Forest only varieties with either dark purple or pure white flowers are found.\* The form which is common here (and we believe in the New Forest in general) does not grow in that particular bog. The albino variety provides a very interesting parallel to *O. O'Kellyi* in the dry-land group of orchids.

But after laying on one side these easily distinguishable forms of *O. incarnata*, we come to the often misrepresented *O. latifolia* (Linn.) and *O. praetermissa* (Druce).

These two have only recently been separated. *Orchis latifolia* is here generally distinguishable by its ringed leaves from the other two marsh orchids; but the Rev. E. S. Marshall says that his experience it is much more common with 'unblotched leaves.' Apart from this it may be distinguished from *O. praetermissa* by the shape, colour, and markings of the lip. In the latter the mid-lobe projects in a point beyond the ill-defined lateral lobes; the markings are dots (not lines) of only a shade darker red-purple than the rest of the lip; the edges are always upturned. In *O. latifolia* the colour and general appearance at once suggest *O. Fuchsii*; the lobes are well-defined and more equal in length, the markings are lines which stand out distinctly on the lighter purple background; edges hardly ever upturned. In *O. praetermissa*, too, the spur is shorter, thicker, and more abruptly narrowed than in *O. latifolia*, where it is more cylindrical and longer.

But besides these types there are intermediates or hybrids. All seem to vary a certain amount, especially in the lip. It does not seem likely that variation could account for a plant midway between two species; in such a case it must in all probability be a hybrid. There is no reason why the plants should vary towards one another. But undoubtedly the species are not quite constant, especially *O. latifolia*. However, it seems rather remarkable that there should be such a large number of hybrids as are found in watermeads here. We know no other genus in which they are so frequent. Of course

\* Both varieties also occur in Ireland; Mr. G. C. Druce has suggested that the former may be *O. Traunsteineri*.

*O. Fuchsii* and *O. maculata* hybridize just as freely,\* and it is probable that all four species are really more or less constant.†

Two theories seem to suggest themselves. First, that *O. latifolia* is originally a hybrid between *O. Fuchsii* and *O. praetermissa*; second, that *O. latifolia* was originally the marsh form of *O. Fuchsii*. With regard to the first theory, a plant occurs in one place on the downs which is apparently—to judge from the flowers—a hybrid between *O. Fuchsii* and *O. praetermissa*, of which a small down form grows close at hand. That it is not *O. Fuchsii* pure is proved by the ill-defined lateral-lobes of the lip; that it has something to do with *O. praetermissa* is clear from the fact that the edges of the lip are upturned and from the shape. The markings of the lip, however, are lines, and the leaves are ringed. From these last two points it is argued that the plant is *O. latifolia*, but the ill-defined lateral lobes with upturned edges go to show that it is not. Typical down *O. latifolia* grows elsewhere in a similar situation, and in it the divisions of the lip are well defined. It seems therefore clear that the plant under discussion is a hybrid between *O. Fuchsii* and *O. praetermissa*; in fact, that an unspotted leaf crossed by a spotted one can produce a ringed leaf. This is corroborated by another plant which is an obvious hybrid with *Habenaria viridis* as one parent; what the other parent is, is disputed, but the two suggestions which are generally believed to be possible are *O. Fuchsii*, or else another hybrid—*O. praetermissa* (down form) × *O. Fuchsii*. Whichever we accept as the other parent, the result for our purposes is the same. Seven specimens of the plant under discussion were found; either one or two had ringed leaves. Here again we see that a spotted leaf crossed with an unspotted can produce a ringed leaf.

From this evidence it is clear that the rings on the leaves of *O. latifolia* might well be produced by the crossing of *O. Fuchsii* with *O. praetermissa*. On the other hand, on the analogy of the hybrid, one of whose parents was the frog, we should expect more plain or spotted leaved than ringed leaved plants of *O. latifolia* to occur in the marshes. This is not the case; by far the larger number of the *O. latifolia* to be found near here have ringed leaves. The fact that the form with unmarked leaves is the more common in

† [I rather disagree with these two statements. See Preface.—ED.]

general—a fact which we have on the evidence of Rev. E. S. Marshall—will not explain away the difficulty. We are dealing with one particular district, not with the country as a whole, and that district seems to be an exception.

Of course the broad lip of *O. praetermissa* might well have been the parent of the smaller lip of *O. latifolia*. And the fact that the leaves and markings of the latter are larger than those of the former is no objection, as *O. latifolia* might readily, after beginning to breed true, have taken to marshes and developed luxuriant foliage and markings. It seems, however, that on the whole the evidence is against the theory that *O. latifolia* is a hybrid between *O. Fuchsii* and *O. praetermissa*.

The second theory, however, seems much more probable—that *O. Fuchsii* and *O. latifolia* were originally one and the same plant, and that those which established themselves in marshes developed in a different way to those which grew on dry ground. Anyone well acquainted with both will know that there is a great superficial resemblance between them; the colour of the flowers and the general appearance of *O. latifolia* at once suggest *O. Fuchsii* and *vice versa*. But the likeness is not merely superficial; the well-defined lobes and slightly reflexed edges of the lip, the line markings, and the long, slender spur are common to both. Also apparent *O. Fuchsii* has been found to have a hollow stem, and the two seem to run into one another to a very great extent.

On the whole, therefore, it seems probable that the two were originally one—in fact, to put it in a different way, *O. latifolia* is the marsh form of *O. Fuchsii*. If this is so, we can imagine that the marsh plants would grow more luxuriant, and develop hollow stems, while the blotches on the leaves would be expanded into rings as the foliage increased in size. The plants which grow on dry ground would retain their hollow stems, and assume a more stiff and wiry habit. But at present we cannot venture more than to state this theory as a possibility.

If these remarks are of any use to those interested in orchids, or may serve to give as clear an impression of the species as is now possible to those who are not altogether clear on the subject, our object will have been achieved. There is much more work to be

done among the marsh and other Orchids of Hampshire, and we hope that others may find it equally engrossing."

The above paper includes some contentious matter, nor can I agree with the suggestion that in historic times *Fuchsii* and true *latifolia* were one and the same plant, but it is to be hoped that our members will interest themselves in the variations of this interesting group.

In connection with the subject we may direct our readers to the Presidential Address (Manchester Micros. Soc., 1916) by Professor F. E. Weiss, F.R.S., on the Seeds and Seedlings of Orchids. The lightness of the seeds is well known, Kerner (*Pflanzenleben*, vi. 851) says a single seed of *Goodyera* only weighs 0.000002 gramme, *Gymnadenia* being four times heavier, if such a term can be used for anything so supremely light, and Mr. Charlesworth, whose classic experiments in orchid culture are well known, estimates that a mature capsule of *Gymbidium* contains 850,000 seeds. But successful germination depends upon the presence of a fungus as in the Bee, Butterfly and Soldier Orchid, which penetrates the young embryo. The fungus belongs to the genus *Rhizoctonia*, of which there are several species.

This curious phenomenon explains the failure to obtain British orchid seedlings in bare soil. I once saw seedlings of *Aceras* among pine needles in France, and those of orchis *praetermissa* in a marsh at Cothill. It may be that soil from a field in which *Orchis morio* grows would be a good medium for culture, especially if sods of the turf itself were used. Prof. Weiss, quoting Dr. Rayner, says that *Calluna* exhibits the same peculiarity of germination but in the latter case the fungus is already present in the seed when the latter matures, the mycorrhiza having penetrated through the whole plant even to the seed-coat.

# REVISION OF THE BRITISH SPECIES OF SAGINA

By F. N. WILLIAMS, F.L.S.

- | Sect. 1. SAGINELLA Koch.            | Sect. 2. SPERGELLA Koch.          |
|-------------------------------------|-----------------------------------|
| 1. <i>S. procumbens</i> Linn.       | 6. <i>S. subulata</i> Presl.      |
| <i>lusus pentamera</i> Rouy & Fouc. | 7. <i>S. scotica</i> G. C. Druce. |
| <i>lusus apetala</i> Fenzl.         | 8. <i>S. Linnæi</i> Presl.        |
| f. <i>ciliolata</i> Schur.          | <i>b nivalis</i> Hook. f.         |
| f. <i>Druceana</i> nobis.           | <i>c Boydii</i> nobis.            |
| 2. <i>S. apetala</i> Ard.           | 9. <i>S. nodosa</i> Fenzl.        |
| <i>b prostrata</i> S. Gibson.       | <i>b moniliformis</i> Lange.      |
| 3. <i>S. ciliata</i> Fries.         |                                   |
| 4. <i>S. Reuteri</i> Boiss.         |                                   |
| 5. <i>S. maritima</i> G. Don.       |                                   |
| <i>a genuina</i> Syme.              |                                   |
| <i>b debilis</i> Bab.               |                                   |
| f. <i>prostrata</i> Townsend.       |                                   |
| <i>c densa</i> Aschers.             |                                   |
| <i>d stricta</i> Clavand.           |                                   |
| <i>e ciliata</i> Nordstedt.         |                                   |

The history of *Sagina* in British Botany begins with John Good-  
yer's finding of *S. nodosa*, on August 12th, 1626, 'on the boggy  
ground below the red well of Wellingborough in Northampton-  
shire,' as recorded by Johnson, in his *Herball*, p. 568 (1633), where  
it is named '*Saxifraga palustris alsine folia*.' The earliest printed  
record of a British species is, however, that of *S. procumbens* in  
the same author's previous work, *Iter Plantarum . . . in agrum  
Cantium*, p. 2 (1629),—'*Saxifraga Anglicana*, near Rochester.'  
The next species recorded were *S. apetala* in 1677 (Plot), and *S.  
subulata* in 1688 (Ray). There was then a long interval before *S.  
Linnæi* was found in 1789, by G. Don, in Perthshire (specimens in



Herb. Kew.), incidentally referred to by Smith, *Engl. Bot.* t. 2105 (1810), as previous to 1794.

English names for the commonest species are first used by Ray, *Cat. Plant. Cantabr.*, p. 151 (1660):—'Saxifraga Anglica Occidentalium . . . Pearlwort, Chickweed-Breakstone.'

The comparative census of species of *Sagina* for different countries may be of interest, giving with each the authority, the date, and the estimated number of species:—

Throughout the World.—Engler and Prantl (1889)	about 20
Europe.—Gürke, <i>Plantæ Europææ</i> , ii. p. 238 (1899)	... 20
Spain.—Willkomm and Lange (1878)	... 11
British Islands.—London Catalogue, ed. x (1908)	... 10
"    "    British Plant List, including 1 alien	... 10
"    "    (present revision, 1917)	... 9
France.—Rouy and Foucard (1896)	... 9
Austria-Hungary.—ex Gürke (1899)	... 8
Sweden.—ex Gürke (1899)	... 7
Denmark.—ex Gürke (1899)	... 7
Italy.—Fanfani (1892)	... 7
Switzerland.—Gremli 1885)	... 7
Norway.—ex Gürke	... 6
Germany.—Garcke (1885)	... 6
Belgium.—ex Gürke	... 5
Greece.—Halacsy (1900)	... 5
Russia.—Ledebour (1842)	... 5
Rumania.—Kanitz (1881)	... 4
Albania.—ex Gürke	... 2

SAGINA Linn. *Gen. Plant.* p. 118, n. 336 (1737); *Benth. and Hook. f. Gen. Plant.* i. p. 151; *Willk. and Lge. Prodr.* iii. p. 600; *Fanfani* in *Parl. Fl. Italiana*, ix p. 564; *Rouy and Fouc. Fl. de France*, iii. p. 284; *Jackson, Ind. Kew.* iv. p. 775.

Sect. 1. *Saginella* Koch *Syn. fl. Germ. Helv.* ed. 2, p. 117 (1843); *Willk. and Lge. Prodr.* iii. p. 601; *Rouy and Fouc. Fl. de France*, iii. p. 285; *Halacsy Consp. fl. Græcæ*, i. p. 246 (1900).—Flores tetrameri, staminibus 4. Petala exigua vel nulla. Annuæ vel perennes.

Subsect. 1. *Procumbentes nobis* (=subgen. *En-Sagina* sect.

Procumbentes nobis in *Journ. Bot.* 1896, p. 427).—Folia subulata aristata.

- |                               |                             |
|-------------------------------|-----------------------------|
| 1. <i>S. procumbens</i> Linn. | 3. <i>S. ciliata</i> Fries. |
| 2. <i>S. apetala</i> Ard.     | 4. <i>S. Reuteri</i> Boiss. |

Subsect. 2. *Maritimæ nobis* (=subgen. *En-Sagina* sect. *Maritimæ nobis* l.c.).—Folia linearia mutica.

5. *S. maritima* G. Don.

Sect. 2. *Spergella Koch* l.c. p. 118; *Willk. and Lge.* l.c. p. 602; *Rouy and Fouc.* l.c. p. 291; *Halacsy* l.c. p. 247.—Flores pentameri, staminibus 10 (raro 5). Petalia conspicua. Perennes.

- |                              |                            |
|------------------------------|----------------------------|
| 6. <i>S. subulata</i> Presl. | 8. <i>S. Linnæi</i> Presl. |
| 7. <i>S. scotica</i> Druce.  | 9. <i>S. nodosa</i> Fenzl. |

*S. PROCUMBENS* Linn. *Sp. Plant.* p. 128 (1753).

Perennis vel plurannua, procumbens, dense cæspitosa, glabra vel parce puberula, sempervirens. Rhizoma fibrosum. Caules 5-10 ctim., ex axillis foliorum rosulæ centralis sterilis undique prodeuntes, prostrati, radicantes. Folia circiter 12 mm., trinervia; caulina internodiis breviora. Pedunculi solitarii, terminales et axillares, sub anthesi et in fructu recti, post anthesin autem apice hamato-curvati. Sepala late ovata, exteriora 2 mm., interiora 2·4 mm., fructifera cruciatim patentia. Petala 1·6 mm., oblonga, interdum nulla. Stamina 2 longiora basi glanduligera, 2 breviora basi non glanduligera, sepalis æquilonga vel vix longiora. Capsula 2·2 mm. Semina dorso sulculata (*Pearlwort*).

*Stat.* Waste ground, damp places, fields, heaths, pastures, walls, bare spots; absent from a considerable area of meadow land, chalk downs, and from portions of arable land. Ascends to 1150 metres in Inverness-shire (*Watson*,— but I think the estimate is too high); to 1006 metres on the mountains of the Breadalbane district of Perthshire, on bare ground (*F. B. White*, *Flora*, p. 86), as on Ben Ein (*E. S. Marshall*, 1889, in *Herb. Brit.*); to 810 metres in Aberdeenshire (*Dickie*, *Bot. Guide*, p. 24); to 936 metres in Kerry, near the summit of Mt. Brandon (*R. W. Scully*, *Flora*, 1916, p. 46); to 750 metres in Wicklow (*Cyb. Hib.* ed. 2, p. 58); to 540 metres in Cumberland, in the springs on Great Gable, at the head of Ennerdale (*J. G. Baker*, *Fl. Engl. Lake District*, p.

48); to 600 metres in W. Yorkshire (*F. A. Leës*, Flora, p. 169); and to 800 metres in Northumberland, on the top of Cheviot Hill (*Baker and Tate*, Flora, p. 136).

*lusus pentamera*, Rouy and Fouc. Fl. de France, iii. p. 286.

Mr. G. C. Druce noticed such a sport or form about Sligachan, in the Isle of Skye, in 1908. Another collector, in 1913, collected similar examples not far off Skibost (*Bot. Exch. Club Rep.* 1913, p. 310). In the only French specimens I have seen there were one or two tetramerous flowers on the same plant. It can hardly be considered therefore as a definite form.

*lusus apetala* Fenzl. in *Ledeb.* Fl. Rossica, i. p. 339.

*f. ciliolata* Schur Emm. Pl. Transsilv. p. 108 (1867).

Syn.—*S. procumbens* var. *spinosa*; *S. Gibson* in *Phytologist*, 1842, p. 179 (the varietal name is in no way applicable to the small plant); var. *subciliata* Bischoff in *Jahresb. Pollichia e. Ver. Bayr.* 1849, p. 12. This form is not uncommon, and it shades off into the type. The leaves are margined with minute diaphanous setiform cilia, and in many specimens the leaves have but few. Near Killin, Perthshire, on a shady roadside bank it forms large cushions some two feet across. Crump, *Fl. Halifax*, 1904, p. 17, says that it is not uncommon in that district, from which there are specimens in Gibson's herbarium (in the Belle Vue Museum, Halifax); see also *Bot. Exch. Club Rep.* 1910, p. 548 (ref. no. 64). *S. Gibson*, an entomologist, is not to be confused with the better known George S. Gibson. Part of his herbarium is at Peel Park Museum, Salford.

*f. Druceana* nobis.

Pedunculi breves. Flores magis conspicui. Petala calycem æquantia. Syn.—*S. alpina*, G. C. Druce in *Ann. Scott. Nat. Hist.* 1892, p. 273; non *S. maritima* var. *alpina* Syme, *Eng. Bot.* ii. p. 117 (i.e. *S. alpina* G. Don ined. ex *Journ. Bot.* 1892, p. 378).

The plant here indicated was 'a small *sagina* [which] was gathered on the steep cliffs of Corrie Sneachda, and also on a rock near the waterfall which enters Glen A'an from Ben Macdhin.' This is on the Cairngorm mountains of Inverness-shire and Banffshire. It is also incidentally mentioned in the last edition of *Babington's Manual*, p. 59.

Baxter (*Phæn. Bot.* iii. 199, 1837) figures and describes a curious

lusus 'one flower in the Botanic Garden at Oxford had forty-four perfectly formed petals all of which, in a fully expanded state, occupied a circle of only one-tenth part of an inch in diameter. . . It was first found by the Rev. H. Davies on a green near Beaumaris, Anglesey, in July, 1817.'

S. APETALA Ard. Animadv. Bot. Spec. ii. p. 22 (1764),  
t. 8, f. 1 (1763).

Annual, solitaria sive aggregato-cæspitans, glanduloso-puberula vel glabra. Cauliculi multi tenues e radice collo egredientes, simplices erecti vel ramosi adscendentes, laterales atque centralis floriferi. Folia  $2\frac{1}{2}$ —6 mm., omnia vel saltem superiora internodio duplo breviora, basi ciliata, supra plana, subtus leviter convexa, inferiora mox marcescentia. Anthemia laxa, pseudo-scorpioidea. Pedunculi terminales et axillares, deflorati recti, fructiferi internodio proximo subduplo longiores. Flores 2 mm. diam. Sepala ovato-oblonga obtusa cucullata, exteriora inflexo-mucronulata, interiora mutica, fructifera cruciatim patentia. Capsula matura erecta inclinata vel nutans, calyce  $\frac{1}{4}$ — $\frac{1}{2}$  longior. Semina  $\frac{1}{8}$  mm., rugulosa, dorso canaliculata.

*Stat.* Dry sunny places, wall-tops, garden-paths, and bare gravelly ground. Generally distributed, but local and rare in the Scottish Highlands.

B. *prostrata* S. Gibson, in *Phytologist*, 1842, p. 178.

Not infrequent. In Berkshire, *e.g.* it has been noticed at Southcote, Bagshot Heath, Wantage, and roadside near Bagley Wood (*G. C. Druce*, *Flora*, p. 98). In Hertfordshire, at St. Ippolyts (1913, *J. E. Little*). Var. *lævis* Gibson l.c. is the common glabrous erect form; and var. *glandulosa-ciliata* F. W. Schultz, is the usual glandular form.

Arduino's figure leaves something to be desired. The sepals are drawn acute (which recalls *ciliata*). In fruit two are applied to the capsule and the other two are patent. The whole plant is invested with an obvious indumentation of patent hairs, which is not met with either in *apetala* or *ciliata*, which are both glabrous or have only the thinnest covering of light hairs.

S. CILIATI Fries in *Liljeblad Svensk Flora*, ed. 3, p. 713 (1816).

Annua, flavicanti-viridis, inferne glabra, superne glanduloso-puberula. Radix minus ramellata. Cauliculi multi tenues e radice collo egredientes, a basi ramosi adscendentes, laterales atque centralis floriferi. Folia  $2\frac{1}{2}$ —4 mm., omnia vel saltem superiora internodio duplo breviora, basi non ciliata, supra plana, subtus leviter convexa, inferiora mox marcescentia. Anthemia laxa, pseudo-scorpioidea. Pedicelli capillares, terminales et axillares, floriferi erecti, deflorati subarcuati, fructiferi internodio proximo longiores. Flores 2 mm. diam. Sepala ovato-oblonga obtusa cucullata, exteriora inflexo-mucronulata, interiora mutica, fructifera capsulae stricte adpressa. Capsula matura erecta, calycem subsæquans. Semina rugulosa, dorso late canaliculata.

*Stat.* Dry sandy fields, heaths, commons, roadsides, dry banks and sand-dunes, from Jersey northward to Aberdeenshire (*A. Bennett*, *Top. Bot. ed. 2, suppl. p. 19*).

Benekin, in *Flora*, 1845, p. 721, maintained that the restricted *S. apetala* and *S. ciliata* were mere habitat states. His views were combated Babington, in *Bot. Gazette*, 1849, p. 174, and supported by Henfrey (*ibid.* 1850, p. 182). All these allied species have both glandular and non-glandular forms, which are mere states due to environment, and not actual varieties.

*S. REUTERI* Boiss. *Diagn. Plant. nov. or. Ser. iii. fasc. 1,*  
p. 82 (1853).

Annua, pygmæa, glabra vel parce glanduloso-puberula. Caules  $2\frac{1}{2}$ —5 cm., erecto-patentes, fere a basi dichotoma ramosi, internodiis brevibus. Folia inferiora 4—6 mm., internodia superantia, superiora vix 2 mm. Pedunculi breves setacei, plerumque dense glandulosi, fructiferi erecti vel inclinati, calyce multum longiores. Flores apetalæ. Sepala 2 mm., ovato-oblonga glabra mutica, fructifera adpressa. Capsula calycem excedens, valvis emarginato-truncatis.

This is an example of a plant whose geographical status has been reversed. First noticed by Reuter in the environs of Madrid in 1841, it has not been noticed elsewhere in Spain except in a convent garden near Saragossa. The plant has evidently always been overlooked in Britain and passed over as small examples of *S. apetala*. It could not have been otherwise than a stray casual

near Madrid, probably imported with cement or gravel, especially as it has not been noted in other localities in Spain.

In Britain the plant was first recorded on walls near a railway station in Worcestershire (see *B.E.C.* 358, 1892), and has since been noticed in other counties, under circumstances which indicate that it has been passed over as *S. apetala*, and is not a recent introduction. Since then it has been noticed in several other counties, as far apart as Hertfordshire, Pembrokeshire, and Angus, and is apparently widely distributed. Mr Druce has recently sent me specimens from Ilfracombe, in Devon (July, 1917) collected by C. P. Hurst.

*S. MARITIMA* G. Don Hort. Sicc. Brit. n. 155 (fasc. vii, 1806);  
et *Smith* Engl. Bot. t. 2195 (Sept. 1810).

Annua, glabra. Caules plures ramosi tenues fragiles patentes sæpius purpureo-fuscati, plurimum ex axillis foliorum basalium rosulæ prodeuntes, centrali etiam florifero elongato simul furcato. Folia basalia 6—12 mm., mox emarcida; caulina internodio breviora. Pedunculi solitarii, axillares et terminales, sub anthesi adscendentes, fructiferi erecti, internodio proximo multum longiores. Flores 5 mm. diam. Sepala ovata sæpius purpureo-tincta anguste scarioso-marginata, apice incurva, fructifera patentia. Petala nulla, vel rudimentaria, vel raro lanceolata calycem æquantia. Andræcium isomerum. Ovarium subsessile. Capsula sessilis erecta, calycem subæquans. Semina flavido-brunnea, irregulariter ruguloso-granulata, dorso profunde lateque canaliculata.

*Stat.* On the shores of the sea and tidal rivers, and in places liable to be occasionally overflowed.

A. *genuina* Syme Engl. Bot. ii. p. 117 (1864).

Caules tenues adscendentes ramosi, internodius elongatis. Folia incrassata. Capsula calycem æquans vel sublongior.

Syn.—*S. maritima* Jordan, Obs. Pl. Nouv. crit. Fragm. iii. p. 48, t. 3, f. A (1846).

B. *debilis* Bab. Man. Brit. Bot. ed. 5, p. 50 (1862).

Caules tenuiores decumbentes ramosi, internodiis elongatis. Folia incrassata. Capsula calyce subbrevior.

Syn.—*S. debilis* Jordan l.c. p. 49, t. 3, f. B (1846).

f. *prostrata* Townsend, Fl. Hampshire.

c. *densa* Aschers. in Verhandl. Bot. Ver. Brandenburg. iii. iv. p. 390 (Dec. 1862).

Caules tenues ascendentes perramosi internodius brevibus. Folia incrassata. Capsula calyce obvie brevior.

d. *stricta* Clavaud in Act. Soc. Linn. Bordeaux, 1881, p. 386.

Caules multum firmiores stricti minus nitidi leviter ramosi, internodiis abbreviatis. Sepala lanceolata. Capsula calyce obvie brevior.

*Hab.* Inverness-shire; on the top of Ben Nevis (*G. Don*, 1794).

The example in Sowerby's herbarium (in Herb. Brit.), used for the figure of *S. maritima*, has Don's label attached, and it is here transcribed with the original spelling in the characteristic orthography of this remarkable botanist:—'*S. alpina*, this I believe to be a new species. I found it upon ben Nivis in Lochaber, this answers to the following description: foliis radicalibus linearibus, obtusis nitidis flore apetalis; this differs from the *apetala* in the radical leaves being broader and obtuse and [?] opening, and it is a considerable larger plant. I have cultivated this and *apetala* both for 2 years, and they remain permanently different. This is a cultivated specimen, but it is in no way different from the wild specimen in appearance; found in 1794.' In support of this identification, Messrs. Groves (*Babington's Manual*, ed. 9, p. 58) say that 'Fries states that his plant (*stricta*) sometimes occurs upon mountains in Norway; and G. Don seems to have found it on Ben Nevis.' D. Don states that his father, G. Don, found it still there in 1803, nine years after he first noticed it on the mountain. Smith says that 'G. Don sent the same from the summit of Ben Nevis in 1803. This example is in Smith's herbarium.

Syn.—*S. stricta a alpina* Fries, Nov. Fl. Suec. ed. 2, p. 58 (1828); *S. maritima* var. *alpina* Syme, Engl. Bot. ii. p. 177 (1864).

e. *ciliata* Nordstedt in *Hartman Skand.* Fl. ed. 11 p. 247 (1879).

Griseo-glaucescens, parce glandulosa. Caules decumbentes. Folia apiculata, pilis glanduliferis minutis.

*Hab.* Cliffs at Boddin Point, 3 miles south of Montrose, on the coast of Angus.

This is the plant mentioned in *Bot. Exch. Club Rep.* 1914, p. 130, found growing on limestone by Mr. R. H. Corstorphine, in June, 1914. Specimens of a form of *S. maritima* from Afton bay, Alum

bay, and Headon bay, in the Isle of Wight (*Miss C. E. Palmer*), and from Penmon in Anglesey (*G. C. Druce*), and in more diffuse form from Stonehaven, in Mearns, closely approach it in habit and in glandular condition.

The variety described by Nordstedt occurs in the amt of Bleking, in Sweden.

*S. apetala* crosses with *S. procumbens* and forms hybrids; and O. Kuntze (*Fl. Leipzigs*, 1867, p. 225) has suggested whether *S. ciliata* may not be a result of such crossing.

*S. SUBULATA* Presl. *Fl. Sicula*, p. 158 (1826).

Perennis, dense cæspitosa, sæpius glanduloso-puberula. Rhizoma brunnescens in ramulos longos solutum, verticale, tenuiter tenereque fibrillosum, e collo cauliculos floriferos adscendentes et rosulas foliorum steriles edens. Caulis centralis ad rosulam sterilem reductus. Cauliculi laterales floriferi 5—12 ctim., sub rosula centrali egredientes. Folia subulata longe aristata; infima brunnescentia emarcida; inferiora recurvo-patentia, basi utrinque scariosa margineque ciliata; caulina breviora rigida, internodia æquantia vel breviora, subciliata. Pedunculi solitarii, terminales et laterales, recti filiformes visciduli, fructiferi usque ad 3 ctim. Flores laxè pseudo-cymosi, proterogyni. Sepala  $2\frac{1}{2}$  mm., ovalia, post anthesin suberecta, fructifera primum patentia dein capsulæ adpressa. Petala  $2\frac{1}{2}$  mm., vel sublongiora, ovato-rotunda. Stamina 10; filamenta  $2\frac{1}{2}$  mm. Capsula 3 mm., primum nutans, dein erecta. Semina granulata rugulosa, dorso leviter canaliculata, oris canaliculi nigro-circellatis.

Stat. Dry gravelly and sandy places, heaths, dry pastures, rocks, gravelly places near the sea, the peat-filled cracks and hollows of mountain-rocks, dry ditch-banks,—‘a noticeable feature by the bare roadsides in heathy districts when the flowers are open’ (*G. C. Druce*). Generally distributed, but more sparingly in the south of England, and local elsewhere. Ascends to 810 metres on the Grampians of Aberdeenshire (*Watson*); to 600 metres in Perthshire, on Ben Vrackie, in which county it is common on the trap-hills on the south-east side of the lowland area, and not rare on the conglomerate and slate rocks along the highland boundary (*F. B. White*, *Flora*, p. 85); to 690 metres in Kerry, on Mt. Bran-



don (*R. W. Scully*, *Flora*, 1916, p. 46); to 590 metres in Galway (*Cyb. Hib.* ed. 2, p. 59); and to 375 metres in W. Yorkshire, on the shingly sandy margin of the south side of Malham Tarn (*F. A. Lees*, *Flora*, p. 169),—though the plant is very rare in Yorkshire.

'The mode of growth in this and the other perennial species of *Sagina* is, first, the production of a rosette, from the lower leaves of which axillary stems are produced. These lateral stems in *S. procumbens* and *Linnæi* take root early, but in *S. subulata* and *nodosa*, not until a much later period. The lateral stems alone produce flowers which are in a terminal cyme. Besides this, they produce, later in the season, a bud towards the base of the flowering stem, which grows into the central barren rosette of the succeeding year. The rosette of the parent at last withers, and the lateral stems become separate plants, united together until set free by the decay of the connecting portion, which is superficial in *S. procumbens* and *Linnæi*, but shorter and generally buried in *S. subulata* and *nodosa*.' (*Syme*, *Engl. Bot.* ii. p. 123).

Syn.—*S. procumbens* var. *b* Linn., *Sp. Plant.* p. 185; *Spergula laricina* Lightfoot, *Fl. Scotica*, i. p. 244 (1777), non Linn. (1753), i.e. *Alsine laricina* Crantz, nec Wulfen (1788), i.e. *Spergula arvensis* Linn.; *Spergula subulata* Swartz in *Vet. Acad. Handling.* Stockholm, 1789, p. 45, t. 1, fig. 3; *Phalœ subulata* Dumort., *Fl. Belgica*, p. 110 (1827); *Alsine subulata* Jessen, *Deutsch. Excurs.* fl. p. 286 (1879).

*S. SCOTICA* G. C. Druce in *Bot. Exch. Club Rep.* 1911  
vol. 3, p. 14, April, 1912).

A priore distinguenda: Rhizoma crassius. Caudiculus repens et radicans, adscendens. Folia brevius aristata. Pedunculi prælongi, glabri. Sepala elliptica. Petala conspicua, calycem subæquantia.

Syn.—*S. glabra* var. *scotica* G. C. Druce in *New Phytologist*, 194, p. 310.

On the Phyto-geographical excursion this plant was noticed on the lower slopes of Ben Lawers, Perthshire, by the large burn which descends from the Gentian rocks. It suggested a creeping form of *S. subulata*. The plants were in good quantity and in free flower 17 Aug., 1911; and they occurred at levels from 360 to

1050 metres. In Herb. Kew. and Herb. Brit. are several specimens (of *S. Linnæi* and *S. subulata*) marked by Mr. Druce as referable to this species (or ?subspecies). Mr. Ostenfeld was inclined to refer the plants to a hybrid of *S. Linnæi* × *procumbens*. A point in favour of this, as in hybrids frequently, is that the plants were commoner than either of the assumed parents. At about 1000 metres on Ben Lawers it was in full flower, when *S. Linnæi* was well over. It seems rather widely spread in the Highlands, according to the localities given by Mr. Druce, which are classified under counties from his data.

Hab. *Perthshire*—Ben Lawers (*Brown*, 1794, in Herb. Brit., 'Spergula subulata'); Craig Chailleach and Glas Thulachan, 1912; Stuch-an-Lochan (*Syme*, 'Sagina subulata'). *Angus*—mountains of Clova, 1912; Glen Dole, 1913; Glen Phee, 1915. *Caenlschen, Aberdeenshire*—Callaten, 1912. *Inverness-shire*—Stob-Coire-an-Easain-Mhor, 1912 (*W. A. Shoolbred*, 'Sagina Linnæi'); Glen Ennich, 1912. *Braeriach, Argyllshire*—Ben Lui, 1913. *Glen Aan, Banff*.

Mr. Druce tells me that this is the common *Sagina* above 840 metres on the Scottish hills. And, moreover, it would be interesting to find it where *Linnæi* is not within hail.

*S. LINNÆI* Presl. Pel. Haenk. ii. p. 14 (1831).

Perennis, glabra. Rhizoma ramosum. Cauliculi laterales multi tenues debiles, prostrati dein apicem versus geniculato-ascendentes, sub rosula centrali sterili prodeuntes. Folia fere plana, rosularum elongato-lineararia, caulina lineararia internodia æquantia vel breviora, omnia mucronata. Pedunculi solitarii filiformes, terminales et laterales, deflorati apice nutantes, fructiferi erecti internodio proximo vix duplo longiores. Sepala 2 mm., ovato-oblonga, fructifera capsulæ adpressa. Petala oblonga, calyce paullo breviora. Stamina 10, petalis vix longiora, antheræ flavicantes. Styli erecti. Capsula 3—3½ mm. Semina ferruginea, dorso leviter canaliculata.

*Stat.* In the Scottish Highlands, on rocks and wet banks of mountains; in Perthshire, Angus, Aberdeenshire, Banffshire, Inverness-shire, Argyllshire, Ross-shire, and Shetland (*Beeby*). Ascends to 1200 metres in Perthshire, on the summit of Ben Lawers,

in the Breadalbane district (*F. B. White*, Flora, p. 86; and *Brown*, 1794, in Herb. Brit., 'at great heights even near the summit of Ben Lawers'); between 945 to 1022 metres on Ben Lawers (*J. H. Balfour*, 1864, and *E. S. Marshall*, 1887, in Herb. Brit.); to 1070 metres on Ben Ein (*W. R. Brunton*, 1864, and *E. S. Marshall*, 1887, in Herb. Brit.); corrie near the summit of Stob-Coire-an-Easain-Mhor above Loch Triag, in Inverness-shire (ex herb. *J. H. Morgan*, 1891, in Herb. Brit.); to 1006 metres on the Grampians of Aberdeenshire (*G. C. Druce* in Ann. Scot. Nat. Hist. 1900, p. 168). *Perthshire*. Common in the Breadalbane district, on grassy alpine slopes, rare elsewhere. The earliest specimen I have seen is an example from Meall Ghoardie (*G. Don*, *Dawson Turner*, 1789, in Herb. Kew.). This is the find mentioned by Hooker, *Fl. Scotica*, p. 145 (1821); and incidentally referred to by Smith, *Engl. Bot.* t. 2105 (Jan. 1810),—'Received from the late Mr. J. Mackay, who gathered it on Ben Lawers in 1794; Mr. G. Don appears to have found it previously on Malghydy.' It was first recorded as a British plant by Smith, *Fl. Britannica*, ii. p. 504 (1800);—'on Ben Lawers, where it was discovered by Mr. J. Mackay in 1794.'

*Smith*, *Engl. Flora*, ii. p. 339 (1824), gives a good description of the plant under the Linnean name of *Spergula saginoides*, but seems to have had his doubts about the right genus. He says,—'This is altogether a *Sagina* in habit, very much resembling the common *procumbens*; but without adverting to number or size, the structure of each part, carefully examined shows sufficient differences.' Scandinavian specimens seem to have more frequently five stamens instead of ten.

*v. nivalis* (Hook. Stud. Fl. Brit. Islds. p. 66, 1884, as subspecies).

In cæspitibus parvis densis. Cauliculi nani, circiter 30 mm., laterales atque centralis adscendentes ramosi. Folia basalia vix rosularia. Pedunculi cum floribus omnino recti.

*Stat.* Bare places on alpine ridges in Perthshire and Argyllshire. First recorded as a British plant (from Ben Lawers) by Watson, in Journ. Bot. 1863, p. 355. The same thing was apparently gathered there by R. K. Greville before 1840 (see *Trans. Proc. Bot. Soc. Edinburgh*, xiii. p. 95). Ascends to 1200 metres near the summit of Ben Lawers (*l.c.* xxi. 1898, p. 104). In Perthshire

found also on Am Binnein, Craig-na-Caillich, and Cam Chreag (*F. B. White*, Flora, p. 86), also more recently on a small hill north-east of Ben Lawers (*M. Cowan*, 1910, n. 66, ex Bot. Exch. Club Rep. 1911, p. 76). Also on Ben Lawers (*Hooker*, 1864, in Herb Kew.), and up to 1000 metres (*P. Ewing*, 1901, in litt.).

Watson wrote, 'Syme has shown to me a specimen of this Arctic plant picked on Ben Lawers several years ago by Professor Balfour.' It is still another instance of the extreme botanical interest of this famous Scottish mountain. Balfour's specimens are dated 1847.

Syn.—*Spergula saginoides* var. *nivalis* Lindblom in Physiogr. Sallsk. Tidskr. p. 328 (1837-38); *Sagina intermedia* Fenzl in Ledeb. Fl. Rossica, i. p. 339 (1842), (ex Gürke, Pl. Europææ, ii. fasc. 2, p. 240 [Jan. 1899]); *Sagina nivalis* Fries, Nov. Fl. Suecic. Mant. iii. p. 31, *ex parte* (1842); *S. nivalis* var. *laxa* Lindblom in Bot. Not. 1845, p. 66; *S. nivalis* auctt. scot.

c. BOYDII nobis.

Pulvinata. Cauliculi nani structi. Flores apetalii. Sepala nunquam patentia.

*Hab.* Aberdeenshire; on Ben A'an, a hill in the deer forest of Invercauld, somewhat difficult of access.

Judging from the specimens in Herb. Kew., which form dense hard cushions, it has the habit of the alpine var. *nivalis*, and seems to come well under *S. Linnæi* rather than under *S. procumbens*, of which it has been suggested to be a form.

The plant may possibly be a *lusus*. The discoverer had the plant in cultivation, but it never produced fertile seed, and it was multiplied by division. Its peculiar ovary is described as 'globose, flattened at the apex, which is covered by a cluster of about 11 or 12 semi-globular shining pale yellow papillæ, round which cluster is a slightly thickened rim (with 5 or 4 points and 5 or 4 angles) round the flattened apex.'

Syn.—*S. Boydii* White in Trans. Bot. Soc. Edinburgh, 1887, p. 32. The plant was found while exploring the Braemar district in 1878, but the exact station was not remembered, nor has subsequent search been successful. Like the herbarium specimens, the figure shows the plant to be quite different both in appearance and

in habit from *S. procumbens*, and from which it differs in several salient characters.

*S. NODOSA* Fenzl. Vers. Darst. Verbr. d. Alsineen, tab.

synopt. ad p. 18 (1833).

In cæspitibus parvis laxis, perennis, glabra vel superne glanduloso-puberula. Rhizoma parce ramosum. Cauliculi laterales 1—2½ dcm., sub rosula centrali egredientes et circulo patiti, dein curvati adscendentes simplices vel superne di-trichtomi, ob axillas foliorum fasciculigeras eximie nodosi, caule primario aut centrali ad rosulam foliorum sterilem reducto. Folia subulata obtusa, mutica vel submucronulata; rosularum late vaginantia, 12 mm., caulina 3—6 mm. Dichasium reductum, 1—3 florum. Pedunculi terminales vel pseudo-axillares, fructiferi erecti, internodio proximo subduplo longiores. Flores 6 mm. diam., breviter pedunculati. Sepala 4 mm., ovalia concava. Petala 9 mm., obovata. Androecium diplomerum. Capsula 5 mm. Semina obovoideo-rotunda, distincte tuberculata, dorso vix canaliculata. (*Knotted Spurrey*).

*Stat.* Damp sandy places, on heaths, meadows, and commons, and in peat pits, marshes, and in the slacks of sand-dunes, from Sark (*E. D. Marquand*, Fl. Guernsey, p. ) northward to Shetland (*R. Tate*, 1865 Herb. Brit., and herb. Watson). Ascends to 540 metres in Northumberland, in W. Allendale (*Baker and Tate*, Flora, p. 137); to 500 metres in Westmoreland, by springs between Shap Fell and Kendall Fell (*J. G. Baker*, Fl. Engl. Lake District, p. 48); to 450 metres in W. Yorkshire, on Malham Tarn shingle (*F. A. Lees*, Flora, p. 169); to 420 metres in Perthshire (*F. B. White*, Flora, p. 85); and to 375 metres in Dublin, on Seecawn Hill (*N. Colgan*, Flora, p. 40).

No longer found in Jersey since most of the St. Ouen's Pond hollows have been filled up.

The glandular and glabrous forms are not separable as varieties, the former being usually a plant of maritime stations. Var. *simplex* Graebn. (1895) is a reduced form with simple stems, and var. *ramosissima* Wohlfarth (1890), is an extreme form with the lateral stems much branched: both are frequently met with.

B. MONILIFORMIS Lange.

*Stat.* Widely distributed from Dorset northward to Sutherland,

and from Norfolk westward to Clare (*G. C. Druce*). On Anna-coona, Sligo, Mr. Druce saw it as high as 540 metres, *i.e.* at a greater altitude than the type in England.

The life-history of the species in the Lancashire dunes is discussed in a paper in *Journ Bot.* 1911, p. 270, by W. G. Travis, where it is shown that this variety is a condition in which the plant reproduces itself by leaf-bulbils which develop in the leaf-axils of the lateral stems, especially when the plant grows in wind-swept places. Therefore it may be looked for in sandy places on the coast.

Gay (in *Kew. MSS. ined.*) says that the successive pairs of leaves are not actually decussate, but disposed in a weak spiral (cf. *Braun* in *Flora*, 1843, p. 387). This seems to me to indicate a transition stage in the direction of the aberrant type of Caryophyllaceæ exemplified in *Telephium*; which, in its free stylés, seems to be more nearly allied to the Spergulariæ than it is to the Polycarpeæ in which the styles are united below, in spite of the presence of stipulate leaves in the Spergulariæ.

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It is to be regretted that owing to a misunderstanding the above valuable Monograph was printed before an opportunity was given to Dr Williams to correct the proof. There are, unfortunately, many typographical errors. The most important corrections to be noted are:—

- p. 190, line 16—For “Clavand” read “Clavaud.”
- p. 191, line 10—For “Europaeae” read “Europeae.”
- p. 191, line 15—For “Foucard” read “Foucaud.”
- p. 191, line 19, et seq.—For “Fanfani” read “Tanfani.”
- p. 191, line 37, et seq.—For “En.” read “Eu.”
- p. 192, line 10—For “petalia” read “petala.”
- p. 193, line 34—For “Machdin” read “MacDhui.”
- p. 194, line 36—For “ciliati” read “ciliata.”
- p. 195, line 11—For “subaequans” read “subaequans.”
- p. 196, line 24—For “subaequens” read “subaequans.”
- p. 196, line 29, et seq.—For “internodius” read “internodiis.”
- p. 200, line 14—For “Caenlschen” read “Caenlochen.”
- p. 202, line 18—For “structi” read “stricti.”