THE BOTANICAL SOCIETY AND EXCHANGE CLUB OF THE BRITISH ISLES.

REPORT FOR 1914

(WITH BALANCE-SHEET FOR 1913)

BY THE

SECRETARY,

G. CLARIDGE DRUCE,

PRESIDENT OF THE ASHMOLEAN NATURAL HISTORY SOCIETY OF OXFORDSHIRE.

VOL. IV. PART I.

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REPORT

OF THE

BOTANICAL SOCIETY

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May 1915.

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BOTANICAL SOCIETY & EXCHANGE CLUB OF THE BRITISH ISLES.

THE REPORT OF THE TREASURER & SECRETARY,

G. CLARIDGE DRUCE, YARDLEY LODGE, OXFORD,

FOR 1914.

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Spare copies not required by members are valued. Early copies of the Thirsk Botanical Exchange Club are specially desired, as also that of this Club for 1912.

PLANT NOTES, ETC., FOR 1914.

(Mostly New Plants to the British Isles.)

1 (3). CLEMATIS VITICELLA L. Alien, Europe. Thicket by the River Mole, opposite Esher Paper Mills, Surrey. Quite naturalised, flowering freely. July 18, 1888, W. H. BEEBY. *Herb. S. Lond. Inst.*, ex W. H. GRIFFIN.

41. RANUNCULUS PELTATUS Schrank, var. SPHAEROSPERMUS comb. nov. *R. sphaerospermus* Boiss. & Blanche, in Boiss. *Diagn.* ser. ii., n. 5, p. 6 (1856). *R. aquatilis* L., var. *sphaerospermus* Boiss. *Fl. Orient.* i., 23. *R. aquatilis* form *sphaerospermus* Hiern in *Journ. Bot.*, 47, 1871. "*R.* foliis uniformibus omnibus in lacinulas filiformes breves rigidulas undique divergentes divisis, pedunculisc crassis folia superantibus tandem recurvis, petalis albis basi flavis calyce reflexo $2\frac{1}{2}$ plo. longioribus late obovatis 9-11 veniis, staminibus numerosis carpella superantibus, spica carpellorum globosa receptaculo hirto carpellis subglobosis dorso vix carinatis rugosis obtusis apice dorsum versus aculeato-hirtulis, stylo brevissimo crassiusculo ad extremitatem diametri majoris carpelli sito." Boiss. & Blanche (*l.c.*) This, as the authors say, is allied to the large flowered var. *pantothrix* of *aquatilis*, but it differs in the short, rigid leaf-segments, in the smaller and more numerous carpels, which are rounder and scarcely keeled, and the style springs from the apex and not from the interior margin of the carpel. From *trichophyllus* and *Drouetii* it is distinguished by its much larger petals. To the above (*Report*, 1913, p. 445), plants from the Cherwell, Gosford Bridge, Oxford, *Druce*, and near Cheddar, North Somerset, *Marshall*, have been referred. To me they lack the rigid leaf-segments of the Orient plant. Are they, despite the long peduncles, distinct from *pseudo-fluitans* (Hiern), which Mr J. W. White distributed through Dörfler's *Herbarium Normale*? Mr Hiern refers the Cherwell plant to *pseudo-fluitans*. Plants from the Canal, near Halton, Bucks., *Druce*, and from Odiham, N. Hants., *C. E. Palmer*, come under *sphaerospermus*.

109. FUMARIA BASTARDI Bor., var. c. GUSSONEI. St Ives, Cornwall, 1909. Herb. C. Bailey, ex. PUGSLEY in *Journ. Bot.* 1913, p. 50.

160. DRABA RUPESTRIS Br., forma STELLATA (Dickson) Ekman in *Arkiv. for Botanik*, Band 12, n. 7, p. 8 (1912). Plant with stellate hairs, Ben Lawers; forma HIRTA (Sm.) Ekman, *l.c.*, Ben Lawers. Plant with simple or only bifurcate hairs.

185 *b*. SISYMBRIUM ORIENTALE L., var. SUBHASTATUM (Willd.) Thellung. Alien. Wickhambrook, Suffolk, 1912, J. E. LITTLE. Det. A. THELLUNG.

227 (3). DIPLOTAXIS LAGASCANA DC. = *Brassica pendula* Boiss. Alien, Spain. With Esparto grass, Musselburgh, Edinburgh, v.-c. 83, 1913, J. FRASER, in *Trans. Bot. Soc. Ed.*, 1914, p. 234.

237 *b*. LEPIDIUM DRABA L., var. SUBINTEGRIFOLIUM Micheletti in *Bull. Soc. Bot. Ital.*, 86, 1908. See *Fl. Ital. Exsicc.*, n. 1049. Hedge, Farnham Road, Odiham, Hants, 1900, Miss C. E. PALMER in *Herb. Druce*. This exactly matches authentic specimens.

247 (16). LEPIDIUM RETICULATUM Howell. Alien, N. America. Exley's felmongery pits, Smithy Mills, near Leeds, 1902, J. F. Pickard, ex F. A. LEES. Det. A. THELLUNG. This species has also occurred adventitiously at Montpellier and in Australia.

247 (17). LEPIDIUM SCHINZII Thellung, in *Viertel-jahrssehrd. Zurich Nat. Ges.* li., 182, 1906. Side of Gala, A. Brothertson, 1873. This was sent to me by Brotherston, having been named *L. lacerum* by Syme. The No. 242 of my *List* may therefore be deleted. G. C. DRUCE.

273 *b*. ERUCARIA MYAGROIDES (L.) Halacsy (*E. aleppica* Gaertn.), var. LINEARIBUS (Boiss.) Thell. Alien, Greece. Near St Leonard's, Sussex E., Rev. A. MACGREGOR.

284 (2). RESEDA GRACILIS Tenore. Alien, S. Europe. Wandsworth, Surrey, A. IRVINE, *Fl. Surrey*, 1863, p. 313.

304. VIOLA MEDUANENSIS Boreau Fl. Centr. Fr., ed. 3, p. 80, 1857. South Molton, S. Devon, v.-c. 3, 1912, Miss HELEN

SAUNDERS and H. P. HIERN, in *lit.* Miss C. E. Larter in *Trans. Devon Ass. Sc.*, etc.

330 (2). GYPSOPHILA ELEGANS Bieb. Fl. Taur. Cauc., i., 319. Alien, Asia Minor. Waste grounds, Hackney Marshes, Middlesex, 1913, J. E. COOPER, ex *Kew.*

332 (2). SAPONARIA OCYMOIDES L. Alien, Europe. In a gravel pipe in the chalk-cutting North of Knebworth Station, Herts, some way from houses, 1914, J. E. LITTLE, in *lit.*

335 (2). SILENE CSEREI Baumgart. Enum. St. Transsv., iii., 345, 1816. *S. Fabaria*, sub-sp. *Cserei* Nyman Consp. 88. *S. latifolia* R. and B., var. Riddelsdell in *Rep. Bot. Exch. Club* for 1910, 545 (1911). In 1910 the Rev. H. J. Riddelsdell sent specimens with a careful description, labelled as above, through the Club, which he had gathered on Port Talbot Docks, Glamorganshire, having seen, he says, a similar form from Lydney, v.-c. 34, and had a specimen from Aberdare "which is nearly the same thing." The Rev. E. S. Marshall (*l.c.*) suggested it agreed "rather well with *S. vesicarius.*" In 1913 Mr D. Lumb, whose critical examination of the plants he finds is so praiseworthy, sent me specimens of a *Silene* which he had gathered in and about the Ironworks at Askam (v.-c. 69 b.), and gave very careful details showing how it differed from the Bladder Campion. These good fruiting plants at once convinced me that we had a new *Silene* in Britain. At the British Museum Herbarium, I was enabled to see specimens of *S. Cserei* which were practically identical with Mr Lumb's specimens. Baumgarten named it after Wolfgang de Cserei, and (*l.c.*) gives a lengthy description and localises it "in . . . Albensi Inferiore." Janka found it on Mt. Suluchu in Dobrudscha. Nyman also gives it for Croatia. There is no doubt that Nyman, who follows Rohrbach, is wrong in placing it under *S. Fabaria*, since as Dr Williams (*Monogr. Silene*, p. 49) and Dr Lindman (*Act. Hort. Berg.* i., n. 6, p. 14, 1891) point out this has twenty, while *Fabaria* has only ten calyx nerves. It differs inter alia from *S. Cucubalus* in its tall, stiff, often purplish-tinged, erect stem, by its longer inflorescence, by the more rigid and more strongly nerved leaves with prominent midrib, often sub-secund, by the calyx being more narrowed above and below (not inflated), by its fainter and more simple veining, its smaller size, and in being closely appressed to the capsule. The petals are smaller,

less white, and less conspicuous, the lamina more deeply cut (nearly to to base) the segments narrower, the limb often suffused with red, the filaments purplish-red, the capsule long and pointed, smooth and glossy, protruding beyond the calyx mouth, the seeds smaller and acutely tubercled. Mr Lumb tells me it is biennial, and he had noticed most of the above characters. Doubtless it is of purely adventitious origin in Britain, and from its occurring in Rumania, near the Black Sea, we may reasonably conclude that its origin is due to the importation of grain and other produce, its only British localities being in the Dockyard area at Port Talbot, Aberdare, Glamorgan, v.-c. 41 ; Lydney, W. Glos , v.-c. 34 ; Askam, S. Lancs., v.-c. 69 b. G. C. DRUCE.

341 (3). SILENE NOCTURNA L., var., BRACHYPETALA Benth. Cat. 122, 1826. *S. brachypetala* Rob. and Bast., Williams *Mon.*, p. 59. Alien, S. Eur. Galashiels, Selkirk, August 1913, Miss IDA M. HAYWARD. Det. A. THELLUNG.

416. POLYCARPON TETRAPHYLLUM L., var. DIPHYLLUM DC. Prod. iii., 376. St Aubin's Bay, Jersey. Differs from the type permanently by its smaller size, fewer branches, with usually opposite leaves and contracted, dense terminal cymes with much fewer but somewhat larger flowers, H. W. PUGSLEY in *Journ. Bot.*, 329, 1914.

420 (2). CLAYTONIA PARVIFOLIA Moç. in DC. Prod. iii., 361 (*C. filicaulis* Dougl.). Alien, Amer. N. Wood walk at Leagram Hall, W. Lancs., v.-c. 60. No explanation of its occurrence can be given, S. H. BICKHAM. *See Rep.* 461, 1913.

438 *b*. HYPERICUM LINARIIFOLIUM Vahl, var. APPROXIMATUM Rouy *ap.* Magn. *Scrinia* p. 245, 1892. Differs from the type in its ascending and dwarfer habit, shorter, broader and more revolute leaves, more contracted cymes and shorter capsules. Cliffs near Fiquet Bay, Jersey. Babington's Jersey specimens are similar, and specimens from Alderney, coll. C. R. P. Andrews, are the same. See H. W. PUGSLEY in *Journ. Bot.* 330, 1914.

452 (2). MALVA AMBIGUA Gussone Fl. Sic. Prod., ii., 331. Alien, S. Europe. Wandsworth, A. IRVINE, *Fl. Surrey*, 1863, p. 315.

483 (3). GERANIUM DIVARICATUM Ehrh. Beitr. vii., 164. Alien, Europe. Sporadic at Timperly, Cheshire, T. STEPHENSON, ex *Kew.*

490 (2). ERODIUM BOTRYS Bert. Amoen. Ital. 35. Alien, Europe. Apperly, York, 1912, J. CRYER, ex *Kew*.

519. RHAMNUS CATHARTICUS L. See *Report*, p. 463, 1913. Mr Lumb tells me he has found practically glabrous plants at Grange, v.-c. 69 b., in 1914.

535. GENISTA TINCTORIA L., var. LITTORALIS Corbière Nouv. Fl. Normand. 144, 1893. East Pentire, Cornwall, W., 1913, C. C. VIGURS. See *Report* 464, 1913. Corbière describes his variety (to which Dr Thellung, to whom I sent a specimen, suggested it might belong) as "Tige et rameaux pubescents, diffus. Feuilles elliptiques-oblongues brievèment apiculées fortement ciliées, pubescents sur les faces, specialement sur les nervures. Fleurs relativement grandes (env. 15 mm. long)." These specimens agree fairly well with this, except that the flowers are not quite so large. It may be well to keep this as var. c. of the type, leaving var b. PROSTRATA Bab. Man. 70, 1843, to represent the Cornish prostrate plant with hairy pods, since *G. humifusa* Dickson (not of Linn.) is a nomen solum and is based on a Northamptonshire plant.

542 (2). ONONIS RAMOSISSIMA Desf. Fl. Atl. ii., 142. Alien, Europe. Ballast heap, Fife. GRAHAM *Excurs.*, 1834, *Comp. Cyb.* 497, 1870.

581 (var. c.). MEDICAGO MINIMA Desr., var. LONGISETA DC. Prod. ii., 178 = var. *recta* (Willd.). Alien, S. Eur. Wandsworth, A. IRVINE, *Fl. Surrey*, 315, 1863.

616 (4). TRIFOLIUM TENUIFOLIUM Tenore Prod. Fl. Nap. 44. Alien, S. Europe. Arable land, Warlingham, Surrey, 1913, A. BEADELL, ex W. H. GRIFFIN.

Gen. 147 (2). COLUTEA L.

652 (2). COLUTEA ARBORESCENS L. Alien, Europe. Ballast heaps, Thames side, Grays, Essex S., Rev. P. T. CORFE, 1913, ex W. H. GRIFFIN.

681 (2). VICIA ATROPURPUREA Desf., *l.c.* ii., 164. Alien, Europe. Crayford, Kent, Rev. J. ROFFEY, 1913; and Chelsfield, Kent, 1914, W. H. GRIFFIN; Elland, York, F. A. LEES. The oldest name is *V. benghalensis* L. I have not seen the specimens.

688. VICIA SEPIUM L., forma LATIFOLIA mihi. With broadly oval leaflets (fol. ovalis latissimis). Walls, Shetland. W. H. BEEBY in *Hb. S. Lond. Inst.*

731 (2). PISUM ELATIUS Bieb. Fl. Taur. Cauc., ii., 151. Alien. S. Europe. Vetch and oat fields near Loch of Saintear, Westray, Orkney, 1913, H. HALCRO JOHNSTON.

788 (2). RUBUS CHLOROTHYRSOS Focke Abh. Nat. Ver. Bremenii, 462, 1871. Placed between *silvaticus* and *Sprengelii*. A plant from Derbyshire (W. R. Linton) is put here by Focke. See *Mon. Sp. Rub.*, n. 392, p. 176, 1914.

789 (3). RUBUS EGREGIUS Focke, *l.c.* p. 463, 1871. Mon. *l.c.* n. 396.

RUBUS EGREGIUS, var. PLYMENSIS Focke. Near Plymouth, FOCKE.

RUBUS EGREGIUS, forma EFFEMINATUS Focke "molliter pilosus: inflorescentia extra axillares longae, multiflorae: sepala longe acuminata, in flore patentia, in fructu reflexa: stamina stylis multo breviora. Fruticum vici unicum haud procul ab Oxford Britanniae." If this specimen was gathered by Dr Focke it was doubtless on the occasion when I took him to Bagley Wood and Boar's Hill in Berkshire. If it were from specimens sent by me it may have been from Oxfordshire, but probably the first suggestion is the most likely. On that occasion I showed him my "pink-flowered *nitidus*" which he afterwards named *holerythros*. He also gathered on that day the bramble called *subinernis* as well as many interesting forms.

825. RUBUS RADULA var. TIMENDUS (Sudre Rub. Pyr., 71, 1900) as a species. Yorkshire. FOCKE *Mon.*, p. 222.

835 (2). RUBUS FESTIVUS Muell. & Wirtg. (*R. Babingtonii*, var. *phyllothyrsus* Rogers (non Frider.) in part. Hereford, Ley, *Rubi Brit.* n. 95, FOCKE, *l.c.* See *Journ. Bot.* 207, 1914.

845. RUBUS SCABER × LEUCOSTACHYS (as *vestitus*). Formam aliam molliter villosam ex iisdem parentibus progenitam observavi in Britannia (Oxfordshire), Focke, *l.c.*

906 (2). POTENTILLA CANADENSIS L. Alien, N. Amer. Meanwood side, Leeds. Origin, originally introduced with other N. A. shrubs by Captain Oates, 30 years ago, F. A. LEES in *lit.*, 1914.

909 (2). ALCHEMILLA ACUTIDENS Buser and other forms of *A. vulgaris* L. C. E. Salmon, *Journ. Bot.*, 281, 1914. He considers that the type *acutidens* does not occur in Britain, but that our plant is a variation to which he gives the name var. *alpestriformis*. "A *A. acutidente* caulibus petiolisque minus pilosis, foliis fere glabris nisi tamen subtus nervibus in dimidio superiore pilosis, differt."

He gives a clavis to the plants of the *vulgaris* group :—

1	"Stems and petioles with spreading hairs, - -	2
	Stems and petioles, glabrous or with ± appressed hairs, - - - - - - - -	3
2	Pedicels and urceoles hairy, - -	*A. minor* Huds.
	Pedicels and urceoles glabrous, *	*A. pratensis* Schmidt.
3	Petioles and stems ± glabrous; leaf-toothing irregular, and teeth broader than long. Pedicels and urceoles glabrous, - - -	*A. alpestris* Schmidt.
	Petioles and stems with ± appressed hairs; leaf-toothing ± regular, and teeth longer than broad. Pedicels and urceoles glabrous,	*A. acutidens*, var. *alpestriformis*."

[* Not invariably.]

In this paper (*Journ. Bot.*, 288, 1914) Mr Salmon says "some confusion has been caused among British botanists by the plants distributed in 1911 by Mr Druce as *A. vulgaris*, var. *acutidens* from Ben Lawers through the Exch. Club . . . there is no doubt both *alpestris* and *acutidens* were dispersed through the Club, which accounts for the diverse views expressed in the *Report* for 1911, p. 84." On this statement I may say that all the specimens sent by me through the Club were so named by Dr Ostenfeld when he pointed them out to me on Ben Lawers. I collected no *alpestris* (in Dr Ostenfeld's meaning) for distribution. The plants were from two places, the larger ones of the original tuft from the burn side, the smaller ones from the rocks above. As for the "diverse views expressed in the *Report*," reference to that will show that only three critics are quoted : two of these, the Revs. E. F. Linton and E. S. Marshall, agree that it is *acutidens*. The third asks a question about the name, and it is evident from it that *acutidens* is unknown to him. I may also add that Dr Ostenfeld also named my Nant Ffrancon specimen *acutidens* (this is referred to as *alpestris* by Dr Lindberg in his *Monograph*). Ostenfeld also named the Linlithgow specimen, and his determinations of both plants were attached to the specimens when I sent them to Mr

Salmon. Other specimens named *alpestris* by Lindberg were also named *acutidens* by Ostenfeld (See *Rep.*, 322, 1910), and one of the original specimens which had been named "*alpestris*, a specim. *autumnale*" by Lindberg on Jan. 20, 1913, was also named *acutidens* Bus. without qualification by Lindberg on Dec. 30 of the same year. This is from the higher level on Lawers, i.e. 800—1000 metres. It may be recalled that Lindberg in his *Monograph* modified Buser's description, and that he may now still further widen it to include the slight modification which the British plants exhibit. Mr Salmon (*Linn. Soc.*, April 3, 1913) said "true *acutidens* has yet to be found in our Island." At its best it seems to me *acutidens* in only of varietal rank, and as such, following M. Briquet, I gave it in the Club's *Report* for 1911. This view (which is also that of Ascherson & Graebner) entails sinking Mr Salmon's variety to a sub-var. *alpestriforme* of *A. alpestris*, var. *acutidens*, unless, indeed, it is of hybrid origin. It will be found in the field, I think, that plants more or less intermediate in character occur. Such are the Nant Ffrancon and East Ross specimens. Finally I may add that all the plants recorded or distributed by me as *acutidens* have been so named for me by Dr Ostenfeld. G. C. DRUCE.

969 (2). CRATAEGUS PUNCTATA Jacquin. Alien, N. Amer. A tree at Rycote in the old park, 1906, G. C. DRUCE. Named at Kew.

1058 (2). EPILOBIUM ALSINOIDES A. Cunn. in *Ann. Nat. Hist.*, ii., 53, 1839. Alien, New Zealand. A pest on Tweedside, J. ROXBURGH, July 1913, ex *Kew*.

1099. APIUM INUNDATUM Reichb. f., var. FLUITANS Fries. Nov. Fl. Suec. Ireland. See RIDDELSDELL in *Irish Nat.*, 100, 1914.

1152 (2). PEUCEDANUM GRAVEOLENS L. *Anethum graveolens* L. Alien, S. Europe. Wandsworth, A. IRVINE, in *Fl. Surrey*, 316, 1863.

1206 (2). GALIUM TENUISSIMUM Bieb. Fl. Taur. Cauc., i., 104. Alien, Orient. Wood lane, Timperley, Cheshire, Rev. T. STEPHENSON ex *Kew*, W. H. GRIFFIN.

[ASPERULA NITIDA Sibth. & Sm. Planted alien or error. Between 3000 and 4000 feet on Ben Nevis as a tiny patch of a very

dwarf-growing plant. A part of the root was brought to a rock-garden in Kent. It flowered next year and was named at Kew as *A. nitida*. K. E. STYAN, in *Selborne Mag.*, 153, 1914. Obviously this species of Greece and Asia Minor must have either been intentionally planted on Ben Nevis by a disciple of Maurice Hewlett, or the specimen may have been confused with another in the rock-garden].

1247. CALOTIS HISPIDULA F. v. Muell., var. SESSILICEPS Thell., var. nov. "Capitulis ad caulis nodos plane sessilibus." Alien, Australia. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD. A. THELLUNG, in *lit.*

1257 (2). ASTER LANCEOLATUS Willd. Alien, N. Amer. On waste ground, Pryford, Surrey, 1913, Lady DAVY and G. C. DRUCE. Det. A. THELLUNG.

1262 (2). ERIGERON LINIFOLIUS Willd. and E. CRISPUS Pour. are synonymous.

1262 (3). ERIGERON ANNUUS Pers. Syn. ii., 431. Alien, N. Amer. Walton, S. Lancs., v.-c. 59, J. WHELDON. See *Rep.* 472, 1913.

1278 (5). HELIPTERUM DIMORPHOLEPIS Benth. Fl. Austral. iii., 650. Alien, Australia. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD. Det. *Kew.*

Gen. 289 (4). TOXANTHES Turcz. in *Bull. Soc. Nat. Moscou*, xxiv. (1), 177, 1851.

1278 (10). TOXANTHES MUELLERI Benth. Fl. Aust. iii., 592. Alien, Australia. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD.

Gen. 291 (2). BUPHTHALMUM L.

1286 (20). BUPHTHALMUM SPECIOSUM Schreb. Lovat Bridge, Beauly, v.-c. 96. Rev. J. ROFFEY.

1295 (3). XANTHIUM ORIENTALE L. Alien, Orient. Par, Cornwall, 1909. C. C. VIGURS, ex *Kew.*

1329. ACHILLEA MILLEFOLIUM L., var. d. MAGNA Rouy and Camus Fl. Fr. viii., 247 (*A. compacta* Lam.). *Exs. Fl. Austr. Hung.* 988, teste R. & C. With some hesitation I put this large flowered and robust plant (4-8 dcm. alt.) under the above name, but as I have

this large liguled form from other British localities, provisionally I place it here. The specimen, which again drew my attention to it, was gathered in 1914, near Kirkcudbright, by Miss DAUBNEY, who thought it was a hybrid of *Millefolium* and *Ptarmica*, and the Rev. A. Woodruffe-Peacock kindly sent it to me. No trace of *Ptarmica*, however, could be found in it, although the ligules are quite large and conspicuous. Linnaeus' description of his *Achillea magna* is "Foliis bipinnatis subpilosis laciniis linearibus dentatis; similis *A. Millefolii*, sed duplo major." The synonym quoted from Bauhin is "*Millefolium maximum umbella alba*," and the habitat is given "Western Europe." The authors of *Flore de France* make no allusion to the size of the ligules.

1356 (7). CHRYSANTHEMUM MAXIMUM DC. Alien, Eur. Near Watergate, Newquay, Sept. 1913 (See *Rep.*, 473, 1913), C. C. VIGURS. *Index Kew.* gives the authority for *C. maximum* as Ramond in *Bull. Soc. Philom.* ii., 140, 1800.

1363 (2). MATRICARIA DISCIFORMIS DC. Prod. vi., 51 = *M. corymbifera* DC., *l.c.* vii., 297 = *Chrysanthemum disciforme* C. A. Mey Verz. Pfl. Cauc. 75. Alien, S. W. Asia. Edinb. Boston Docks, Lincoln, 1912, ex Rev. E. A. WOODRUFFE-PEACOCK. This has also been found in Germany and Montpellier.

1363 (3). MATRICARIA SUFFRUTICOSA (L.) Druce. (*M. multiflora* Fenzl). Alien, S. Africa. Galashiels, Selkirk, 1913, plentiful, Miss I. M. HAYWARD. Det. A. THELLUNG.

1365 (3). CENIA TUBERCULATA Pers., var. DISCOLOR Harvey. Alien, S. Africa. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD. Det. A. THELLUNG, who puts it under *Cotula*.

1383 (2). ARTEMISIA LUDOVICIANA Nuttall Gen. ii., 143, var. GNAPHALODES (Nuttall) as sp. Alien, N. Amer. Dalton-in-Furness, Lanc., 69 b., 1913, W. H. PEARSALL. Named for me by Dr THELLUNG.

Gen. 327 (2). ERECHTITES Rafin. Fl. Ludov. 65, 1817 (*Neoceis* Cass.).

1389 (4). ERECHTITES PRENANTHOIDES DC. and 1389 (5), E. QUADRIDENTATA DC. Prod. vi., 297. Alien, Austral. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD.

1393. SENECIO AQUATICUS × JACOBAEA. Like *aquaticus* in the large terminal leaf lobe and few flowered corymb. Like *Jacobaea* in the much cut upper leaves. Fruits hispid. Cliffs, N.-W. of Scalloway, Shetland, W. H. BEEBY in *Hb. S. Lond. Inst.* It is possible that my *S. aquaticus*, var. *dubius* (*Fl. Berks*, p. 294), which had achenes slightly hairy, may be a hybrid, but in the facies it is nearly that of *aquaticus*.

1408 (7). SENECIO PTEROPHORUS DC., var. SUBSERRATUS (DC. sub. *polyanthemo*) Thell. comb. nov. = var. *apterus* Harvey. Alien, S. Africa. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD. Det. A. THELLUNG.

1413 (3). XERANTHEMUM INAPERTUM Mill. Alien, Europe S. = *X. erectum* Presl. Introduced with Esparto grass. Musselburgh, v.-c. 83, 1913. J. FRASER, *Trans. Bot. Soc. Ed.* 234, 1914.

1425 (2). CARDUUS ARGENTATUS L. Alien, Asia. Stranraer, Wigton, J. FRASER.

1477 (2). CARTHAMUS DENTATUS Vahl Symb. Bot., i., 69. Alien, Asia Minor. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD.

1689 (2). ARBUTUS ANDRACHNE L. Alien, Europe S. Pine coppice, Leith Hill, Surrey, H. H. CARTER, ex W. H. GRIFFIN.

1696. ERICA MACKAYI × TETRALIX Ostenfeld. See *Int. Phyt. Excurs.*, p. 59. To this hybrid probably belong the plants alluded to in the following note. "Seven specimens selected from others communicated by Mr Mackay . . . In order to show that *Mackaii* passes into *Tetralix* by intermediate forms, which illustrate the gradual change of habit and character." H. C. Watson in *Rep. Bot. Soc. Lond.* ex. *Phyt.*, 500, 1846.

1734 *c.* LYSIMACHIA PUNCTATA L., var. VERTICILLATA Syme, E. B. vii., 147. Roadside in Glen Clova, Forfar, Dr G. LAWSON.

1748 (2). FRAXINUS ORNUS L. Alien, S. Eur. Coppice, Warlingham, Surrey, A. BEADELL, 1914, ex W. H. GRIFFIN.

1751 (2). VINCA HERBACEA Waldst. & Kit. Alien, Europe. Roadside, East Grinstead, Sussex, Miss P. STOCKDALE, 1913 ; Bourton, Dorset, W. HERRIDGE, 1914, ex W. H. GRIFFIN.

1763 *c.* GENTIANA AMARELLA L., var. ISLANDICA (Murbeck). Hills above Hillswick, North Maven, W. H. BEEBY in *Hb. S. Lond. Inst.*

1851 (2). PHYSALIS ANGULATA L. Alien, Tropics. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD, ex *Kew.*

Gen. 447 (3). ALONSOA Ruiz & Pavon Syst. Veg. 150, 1798.

1872 (10). ALONSOA PEDUNCULARIS Wettstein. Alien, S. Amer. Finchley, Middlesex, 1909, J. E. COOPER.

Gen. 447 (2). NEMESIA Vent. Jard. Malm., 41, 1803.

1872 (20). NEMESIA STRUMOSA Benth. Alien, S. Africa. A plant of this was said to have been picked on Pitstone Hills, Bucks., by a schoolboy. It was sent in June 1912 by Miss BERRILL. I visited the hill later on, but could find no trace of it.

1873 (3). LINARIA MACEDONICA Griseb. Spicil. Fl. Rumel., ii., 19. Alien, E. Europe. Sandhills, Burnham, Somerset, 1913, ex *Herb. Kew.*

1879 (2). LINARIA MICRANTHA Sprengel. Alien, S. Europe. On a wild, uncultivated bank, among heath, furze, &c., by the side of the road leading from the lodge of Fellrigg Park to the Holt road, about two miles from Cromer, Norfolk. *Phyt.* n. s. ii., 511, 1858.

1883 (2). LINARIA RUBRIFOLIA Rob. et Cast., ex DC. Alien, S. Europe. Esparto grass alien. Musselburgh, 1913; Edinburgh 83; J. FRASER, *Trans. Bot. Soc. Ed.*, 234, 1914.

1892 *c.* SCROPHULARIA AQUATICA L., var. APPENDICULATA Mérat Fl. Paris, 242. Via Gellia, Derbyshire, A. H. WOOLEY-DOD in *Rep.* 486, 1913. This is described in *Fl. France*, xi., 92, as "Feuilles munie à leur base de 2 lobules ± grands presque opposés."

1895 (2). SCROPHULARIA PEREGRINA L. Alien, Europe. Timperley, Cheshire, Rev. T. STEPHENSON, ex W. H. GRIFFIN.

1904 (2). VERONICA SPURIA L. Alien, Europe. Great Parndon Wood, far from houses, Essex S., Misses TROWER, 1910, vide sp.

1906 (2). VERONICA LONGIFOLIA L. Alien, Europe. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD. Sand dunes, near Liverpool, towards Southport, Lancashire, 1912, Dr W. A. LEE, ex *Kew.*

× CHENOPODIUM HAYWARDIAE MURR. GALASHIELS, SELKIRK.
COLL., MISS I. M. HAYWARD, F.L.S. SEE REPORT, 334, 1913.

× CHENOPODIUM HAYWARDIAE MURR. GALASHIELS, SELKIRK.
COLL., Miss I. M. HAYWARD, F.L.S. SEE REPORT, 334, 1913.

1988. MENTHA ROTUNDIFOLIA Huds., var. VELUTINA Quid? Isle of Arran, BALFOUR in *Phyt.*, 413, 1845.

2016 *b*. CLINOPODIUM VULGARE L., var. DIMINUTUM Eng. Simon. "Plante réduite dans toutes ses parties ; verticilles pauciflores." Rouy *Fl. Fr.* xi., 337, 1909. Ditcham Park, Hants, R. S. ADAMSON. See *Rep.* 490, 1913.

2104 *b*. HERNIARIA CILIATA Bab., var. c. ANGUSTIFOLIA Pugsley. Slender and lax in habit, with stem pubescent all round and almost pilose at the nodes. Leaves small, narrowly elliptic or oblanceolate, subacute, ciliate. Sepals ciliate. Ruan Minor, Cornwall, 1840, W. Borrer in *Hb. Br. Mus.* as *H. glabra.* St. Aubin's Bay, Jersey, Dr Playfair, 1902, and of an earlier date in *Hb. Br. Mus.* See H. W. PUGSLEY in *Journ. Bot.*, 331, 1914.

2110 *b*. AMARANTHUS RETROFLEXUS L., var. DELILEI (Richt. & Lor.) Thell. in *Viert. Nat. Ges. Zurich* 1, ii., 442, 1907. Alien, N. Amer. Tweedside, Selkirk, 1911, Miss I. M. HAYWARD. Det. A. THELLUNG.

2131 (3). × CHENOPODIUM HAYWARDIAE Murr. See *Report*, 334, 1913. "Four or five examples of the beautiful new hybrid *Chenopodium hircinum* × *striatum* mihi I have designated as *C. Haywardiae.* A. *C. hircino* differt foliis largius sinuatis lobo medio magis protracto, lateralibus angustioribus erectis, foliis laete v. saturate viridibus margine purpureo, caule purpureo - striato. Glomerulis parvis ut in striato sed dense farinosis."—Dr MURR. See *Allgem. Botan. Zeitschrift* n. 1-2, Jan.-Feb. 1914, p. 25.

2124. CHENOPODIUM PRAEACUTUM Murr, var. MURALIFORME Murr. "Foliis sat parvis, ovato-lancelotis acutis, acute dentatis, supra perobscure viridibus subtus cano-farinosis nervis tenuibus nigris." *Allgem. Bot. Zeit.*, 25, 1914. This came from the Mill, Galashiels, found by Miss I. M. HAYWARD, and I put it as a sub-var. of *album*, under var. *praeacutum.*

2145 *b*. ATRIPLEX TATARICUM L., var. INTEGRIFOLIUM (Moq.) Gürke. Alien, Whiston, S. Lancs., 1913, Rev. M. TOCHEY, ex W. G. TRAVIS.

2210 (4). RUMEX BROWNII Campd. Mon. Rumex, 64. Alien, Australia. Galashiels, Selkirk, 1909, Miss I. M. HAYWARD. See *Rep.*, 350, 1908.

2210 (8). RUMEX FLEXUOSUS Soland. ex Forst. Prod. 90. Alien, New Zealand. Galashiels, Selkirk, Miss I. M. HAYWARD.

The Cambridge British Flora, Dr Moss, vol. ii., 1914, contains, among others, the following mostly new species, varieties, and hybrids, for the descriptions of which the *Flora* should be consulted :—

2289. POPULUS HYBRIDA Bieb. = P. CANESCENS × TREMULA. p. 7. Cambridge, Suffolk, Herts.

2292. POPULUS ITALICA × NIGRA. p. 9. Planted near Cambridge.

2293. POPULUS DELTOIDEA × NIGRA. (a.) *serotina*; (b.) *canadensis*. p. 12.

P. DELTOIDEA × NIGRA var. BETULIFOLIA = *P. Lloydii* Henry. p. 11. Herts., &c.

2268. SALIX FRAGILIS var. LATIFOLIA Anders. p. 18. Hunts. Leaves 2.5-3 cm. wide. This is the *E. B.* plant.

2270. SALIX TRIANDRA, var. AMYGDALINA Bab. This variety, which Linton and White ignored, is now added on page 23.

2281. SALIX ARBUSCULA ? × RETICULATA Camus. p. 40. Ben Lawers, R. Brown, 1793.

2275. SALIX CAPREA, var. SPHACELATA (Sm.). Once again restored. Linton and White rejected it. p. 53.

2272. SALIX DAPHNOIDES, var. ACUTIFOLIA Doell. This is the Great Ayton plant. p. 59.

2272 (2). SALIX INCANA Schrank. Alien, Europe. Near Ambleside. p. 60. A single bush.

2273. SALIX VIMINALIS, var. LINEARIFOLIA Wimm. & Grab. Suffolk, Cambridge, Hunts., Salop. p. 61.

SALIX VIMINALIS × CINEREA = S. HOLOSERICEA Wimm.

2271. SALIX PURPUREA, var. HELIX Koch. Again restored on page 66. No locality given.

2262. QUERCUS SESSILIFLORA, var. PUBESCENS Loudon. p. 74. Commoner in the west of Britain. Dr Graebner tells me Ehrhart described as well as named this species before Salisbury, but I have not yet been able to verify the statement.

2259 *b*. CARPINUS BETULUS, var. PROVINCIALIS Gren. & Godr. p. 79. See *Flora Berks.*, p. 448.

2256. BETULA PUBESCENS, var. ALPIGENA Blytt. Cheviot, Scotland. p. 83.

Var. MICROPHYLLA E. S. Marshall. Carnarvon, Salop, Yorkshire, &c. p. 84.

2245. ULMUS NITENS, var. HUNNYBUNI Moss. Essex, Cambridge, Hunts. p. 90.

Var. b. SOWERBYI Moss. Norfolk, Cambridge, Hunts. p. 90.

2176. POLYGONUM HYDROPIPER × NODOSUM. Cambridge, Hunts. p. 118.

2179. POLYGONUM MINUS, var. SUBCONTIGUUM Wallich. The *P. minus* of Curtis *Fl. Lond.* i., t. 77, p. 122.

2198. RUMEX CRISPUS, var. PLANIFOLIUM Schur. Muddy estuaries. p. 139. The *R. elongatus* Ley, not of Gussone, which was distributed through the Club in 1882.

2202. RUMEX CONDYLODES (*R. nemorosus*) × PULCHER. Sussex. p. 147. See *Rep.*, 34, 1872-4.

2206. RUMEX LIMOSUS × OBTUSIFOLIUS. Cambridgeshire. p. 148.

2117. CHENOPODIUM RUBRUM L. has as new vars. to our list var. *blitoides* Wallr., var. *glomeratum* Wallr., and var. *spathulatum* Rouy. p. 164. *C. rubrum* is one of our most plastic species and most readily responds to conditions of soils and exposure. It is very doubtful if these varieties are more than states or forms.

2144. ATRIPLEX PATULA, var. ANGUSTISSIMA Gren. & Godr., var. LINEARIS Moss & Willmott. p. 173; var. BRACTEATA Westerl. p. 174.

2147. ATRIPLEX HASTATA, var. MICROTHECA Rafn. p. 176. Babington had this in the *Manual*, 253, 1843.

2166. SUAEDA MARITIMA, var. FLEXILIS Rouy. p. 184. Var. *procumbens* Syme is rejected.

2168. SALSOLA KALI, var. GLABRA Dethard. South England, &c. p. 185.

Gen. 549 (3). HYDRILLA Richard in *Mém. Inst. Par.*, xii., 1811; ii., 61, 1814. Stem elongated, loosely branched, the branches partly forming elongate oval winter buds. Leaves 2-8 in each whorl, dentate, with two lanceolate or linear fringed axillary scales. Flowers monoecious (or ? dioecious). Male spathe (not yet seen by us) almost globular, pointed, furnished with prickly tubercles, splitting irregularly into two lobes at the tip. Flowers solitary, shortly stalked, deciduous at time of fruiting. Sepals linear-lanceolate. Petals narrower and rather shorter. Female spathe tubular, two-lobed at the mouth. Flowers solitary. Stigma undivided. Asch. & Graebn. *Syn. Fl. Mitt. Eur.*, i., 398.

2298 (3). HYDRILLA VERTICILLATA Presl Bot. Bemerk. 112, 1844, Caspary, in *Monats. Ahad. Besl.*, 40, 1857. * Teste Durand et in Pringsh. *Bot. Jahrb.*, i., 494, 1858, var. POMERANICA (Reichb.) comb. nov.

Udora occidentalis Koch *Syn.*, 669, 1837. Not *Serpicula verticillata* Pursh on which Koch based it.

Udora pomeranica Reichb. *Fl. Germ. Exsicc.* n. 2142; *Ic. Fl. Germ. et Helv.*, vii., 31, t. 59, f. 104, 1845.

Anacharis pomeranica Peterm. *Fl. Deutsch.* 529, 1849.

Hydrilla dentata Casp., var. *pomeranica* Casp. in *Bot. Zeit.*, 805, 1853.

H. dentata Casp. (*l.c.*) 56, 1854, et 901, 1856.

H. verticillata, var. *gracilis* Casp. in Pringsh. *Jahrb.* i., 418 et 495, 1858 ?

Description :—Plant pale green, slender, brittle, loosely branched from the base. Stem elongated, filiform, not 1 mm. thick, with internodes 1-3 cm. long. At the base the whorls are nearer together and the leaves are shorter and broader. Leaves in whorls of 5 (or less frequently of 3 or 4), narrowly linear, 1·5 or sometimes 1·75 cm. long, by 1-1·5 mm. broad; acuminate, pellucid, patent or ascending, with distant, forward-pointing, prickly (many-celled, A. & G.) teeth. Ascherson & Graebner (*l.c.*) describe the flowers as inconspicuous, scarcely 5 mm. in diameter. Fem. fl. with pedicels 2 or 3 cm. long or more. Winter buds solitary in the axils of the leaves, or compressed in a group at the apex, mostly 1·5 cm. long, by 3-4 mm. thick, formed

* The name *H. verticillata* given it by Caspary in *Bot. Zeit.*, 899, 1856, which is quoted by Aschers. & Graebn. (*l.c.*), is not available according to the *Actes*, as it is given in synonymy under *Udora*.

of broadly lanceolate or elliptical, obtuse, cuspidate, dentate leaves; falling off in autumn.

Our British plant differs somewhat from the description of Caspary's var. *gracilis*, which has "foliis ovalibus lanceolato linearibus" and internodes "usque ad 3. longis," by having narrowly linear leaves, and shorter internodes, therefore I use the varietal name *pomeranica*, which was the first appellative given it. This also retains the earliest varietal name, and the plant itself closely approximates to the figure of *Udora pomeranica* in Reichenbach's *Icones* (*op. cit.*).

Although recorded for Russia, Lithuania, and the lake systems of Pomerania, its status as a European plant is not without suspicion of an adventitious origin. Nyman *Consp. Fl. Eur. Suppl.*, ii., 285, 1890, says "Patria hujus plantae est India orient., ubi frequens dicitur."

The British plant may be distinguished from *Elodea canadensis* (which the Asian plant more closely resembles) by its narrower, more acuminate leaves, which are usually five in a whorl, and by its paler green colour.

HYDRILLA.	ELODEA.
Leaves pale green, in whorls of 4, 5, or 6, narrowly linear (1-2 mm.), acuminate.	*Leaves* dark green, in whorls of 3, oval-oblong, (3 mm.) blunt.
Teeth (pluricelled, A. & G.) projecting beyond the margin.	*Serrulations* small, short, unicelled.
Scales fringed.	*Scales* entire.
Plant dies in autumn.	*Plant* remains green till late autumn, and sometimes through the winter.

Hydrilla was first recorded for Britain in the *Lancashire and Cheshire Naturalist* for Aug. 1914 by its discoverer, Mr W. H. Pearsall, who found it in Esthwaite Water, N. Lancashire, 69 b., growing usually with *Naias flexilis* (itself a new plant to England), which it much resembles in facies, but "the *Naias* is much branched above, but the *Hydrilla* very little, its branching being almost entirely below." It grows in water from 5-10 feet, perhaps best at 8 feet. The water is slightly coloured—peaty. As in Britain it is barren, its reproduction is vegetatively by winter buds, which are plentifully produced, and probably these have been transported from Pomerania by aquatic migrants, and we may expect to hear of its

occurrence in other pieces of water in Britain. Esthwaite Water, Mr Pearsall says, has a very large number of aquatic birds—wild ducks, coots, water-hens, as well as the great crested grebe and herons. Associated with it were also *Callitriche autumnalis*, *Potamogeton pusillus* and var. *Sturrockii*. Roxburgh (*Fl. Ind. l.c.*) points out that "when the male flowers are ready to expand the murexed spathe bursts, the flowers are then quickly detached and swim remotely from the parent plant on the surface of the water in search of the female flowers resting on the extremities of the perianth and petals."

The typical *H. verticillata*, var. (a) *Roxburghii* Casp., *l.c.* p. 494 = *Serpicula verticillata* L. fil. *Suppl.*, 416, 1781, et *Herb. Linn.*, Roxb. *Pl. Corom.*, ii., 34, t. 164, 1798 = *Vallisneria verticillata* Roxb. *Fl. Indic.*, iii., 751, 1832. *Hottonia serrata* Willd. *Sp. Pl.* i. (ii.), 814, 1797. *Hydrilla verticillata* F. von Muell. *Fragm. Phyt. Austr.*, i., 94, 1858-9. *Udora australis* F. von Muell. *Second Con. Rep.*, 16. *U. verticillata* Sprengel *Syst.*, i., 170, 1825, p.p., is a native of India, ascending to 1,200 metres in Kumaon, extending into Kashmir, Assam, Ceylon, Java, China, Australia,* Mauritius, Central Africa, on the Nile 2 deg. N. lat. as var *brevifolia*, Madagascar (Hildebr. 3523), but as yet has not been reported from Europe.

Var. CRISPA Caspary, *l.c.* 496. Reichb. *Fl. Germ. Exc.*, 139, 1830. *Udora lithuanica* Bess. MS. in Koch *Syn.*, 669, 1837. *Hydora lithuanica* Andrz. MS. ex. Besser in *Flora Beibl.*, i., 12, 1832. See Reichb. *Ic. Fl. Germ. et Helv.*, vii., p. 31, t. 59, 106. Occurs in Europe as in Lake Selment, near Lyck, in E. Prussia, Lithuania, as well as in Scinde, and China (Kianang).

* Baron F. von Mueller first recorded it as *Udora australis* "in fluvio Murray, Australia (see *Second An. Rep.*, 16). In *Fragm. Phyt. Austr.*, i., 94, 1858-9, he records *Hydrilla* as growing among other Indian aquatics, but apparently omits it from *Fl. Austr.* In Moore's *Handbook N. S. Wales Fl.* it is said to grow "all over the State." Is it adventitious in Australia, having rapidly spread since its introduction, or is it a native?

2326 (2). ORCHIS PRAETERMISSA Druce × MACULATA L., vera. = × O. HALLII mihi. Differs from *praetermissa* (with which, and *maculata*, it grows), by the leaves being spotted and less hooded at the tip, by the bracts being often conspicuous, by the paler flowers with more conspicuous markings, and by the more deeply trifid lip with broader and more conspicuous lateral segments. The plant is often

very luxuriant, but less showy than the hybrid with the basic *O. maculata*, var. *tridentata* Bréb. = × *O. grandis*. 1 Perranwell, Cornwall; 12 Odiham, N. Hants; 22 Cothill, Berks; 32 Hornstock, Northants; 62 Scarborough, York; *Mr Roe*. 69 b. L. Lanc., *Travis*. G. C. DRUCE.

2328. × ORCHIS ALATA Fleury Orch. Rennes, 17, 1819 = ? O. LAXIFLORA × MORIO. St Ouen's, Jersey, 1914, with both parents. Our member, Mr F. W. ATTENBOROUGH, sent me dried specimens, and describes them as seeming to partake of the characters of both species, and that in the Jardin Botanique de Nantes he saw the same plant labelled *O. alata* Fleury. In the dried specimens the chief difference from *O. laxiflora* is in the deeply trilobed lip and the less connivent sepals. Brébisson (*Fl. de Normandie*, ed. 4, 312, 1869) describes it "Tige de 2-4 decim. *Feuilles lancéolées-lineaires, courtes*. Fl. purpurines, larges, en épi allongé, *a divis. chargées de striés plus foncées, non ponctuées*. Sép. supér. non connivents avec les pétals. Labelle assez profondém. trilobé, crénelé, le lobe médian échancré. Eperon à peu près aussi long que l' ovaire. Bract. membraneuses, trinerviées dans le bas; les supér. uninerviées et plus courtes que l' ovaire." It must be borne in mind that *O. palustris* Jacq. was recorded in *Journ. Bot.* 209, 1873, from Guernsey, but that Dr Trimen thought that the spec. were intermediate in character between *laxiflora* and *palustris*. Dr Syme said they were not the *laxiflora* of the Ch. Isles, and may have been this hybrid.

2338. HABENARIA GYMNADENIA (vel. CONOPSEA) × ORCHIS PRAETERMISSA Druce. On June 22, 1914, Mr Stewart A. M'Dowall sent me a specimen of an orchid which had been gathered from a fertile bank by the edge of a wood on the Downs, near Winchester, which he suspected to be a hybrid of the Fragrant with one of the Marsh Orchids. Although the plant was not in a very good condition, there appears to be good reason to adopt this view. In appearance it suggested a small form of my *praetermissa*, such as sometimes occurs on the downs, of which it had the strict habit, the stem about 3 mm. thick, being tinged with reddish-brown, and in the broad spike of pale crimson flowers, while the leaves were upright, hooded and unspotted. An examination of the flower showed that its structure is very similar to that of the Fragrant Orchid of which it had the long narrow curved spur and the general shape, but the slightly scented flower was some-

what larger, of a darker colour, and the labellum was not only larger and faintly marked with striae of a darker tint, but it was more deeply cut, and its margin more uneven. The lateral segment of the labellum is larger, and the middle one prolonged into a bluntish point with waved margins. The bracts are larger—longer and broader—and foliaceous. There can be no doubt, assuming that it is hybrid, that the dominant parent is the Fragrant Orchid, but the other parent is less easy to name. That it is a Marsh Orchid and not the Spotted Orchid is almost certain, from the flower-tint being darker and not lighter than *Gymnadenia*, and the leaves not being spotted. The colour of the flowers eliminates true *incarnata* which also has not, I believe, been found on the downs. It will be remembered that Mr Quirk reported a hybrid of the Fragrant Orchid with *Orchis latifolia* = × *H. Wintoni* (See *Rep. Bot. Exch. Club* 33, 1911), which was said to grow near the two parents. There is, however, a possibility of its having the same parentage as the above (See also *Report of the Winchester Coll. N. H. Soc.* 102, 1911). In the same area Mr Quirk had some very interesting examples of *Habenaria Gymnadenia* and *H. viridis* = × *H. Jacksonii* (Quirk) (*Rep. Winch. N. H. Soc.*, p. 6, 1911), which exhibit definite signs of the presence of the two parents. There was still another curious Orchid which suggested the probable presence of *H. Gymnadenia* with *Orchis pyramidalis* the *H. Anacamptis* Druce (*l.c.*, p. 102). The nomenclature of the Fragrant Orchid offers some points of difficulty. The earliest name was *Orchis conopsea* (spelled *conopea* in *Sp. Pl.*, 1753) by Linnaeus. Had the Vienna Actes been consistent in retaining the oldest trivial in all cases, the specific name of this plant should be either *Habenaria conopsea* or *Gymnadenia conopsea* according to which generic name is adopted. Bentham and Hooker (*Gen. Pl.*) merged the genus *Gymnadenia* into *Habenaria*, and in that genus it is usually called *Habenaria conopsea* Benth. This, however, dates only from 1881, and there already existed at that time a *Habenaria conopsea* of Reichenbach the younger, which he had described in *Bonoplandia* ii., 1854, p. 10, therefore *H. conopsea* is not available for our British plant. In the *Flora of Berkshire*, 479, 1897, I suggested that the British plant should be called *Habenaria Gymnadenia*. If the genus *Gymnadenia* be kept apart, as is the case with those who follow Engler, then the above hybrid is *Gymnadenia conopsea* × *Orchis praetermissa*. Dr F. A. Lees tells me the hybrid also occurs in Bowland, Yorks. G. C. Druce.

Gen. 571 (2). LIBERTIA Sprengel Syst., i., 127, 168, 1825.

2359 (2). LIBERTIA FORMOSA Graham in *Edin. Phil. Journ.*, 383, 1833. Alien, Chili. Teste *Ind. Kew.* North of Ireland, growing wild, Lady EVA HEATHCOTE, ex *Kew.*

2426. JUNCUS MARITIMUS, Lam., var. ATLANTICUS J. W. White. With English description only. Scilly Isles. See *Rep.* 499, 1913. Prof. Lindman thought the specimen sent to him was rather a monstrosity than a true variety, and Mr R. S. Adamson rather a luxuriant form than a true variety. On the Menai Straits I found in 1875 a form with a similarly elongated panicle, but so far as I remember the height of the plant was not more than 3 feet. G. C. DRUCE.

2536. SCIRPUS TRIQUETER L., var. CONGLOMERATUS Reichb. Spikes all sessile, collected into a head, Syme *E. B.*, x., 66. These conditions are probably forms rather than true varieties, *i.e.*, forma *conglomeratus* Reichb.

2542. SCIRPUS SETACEUS L., var. MAJOR Lej. Rev. Fl. Spa, 12, 1824. Cette variété beaucoup plus robuste et plus élevée que l'espèce, n'est pas comme elle disposée en gazon dense, au contraire ses chaumes sont souvent isolés et la racine est bien rampante. A. BENNETT, ex A. Somerville, in *Journ. Bot.*, 143, 1913.

Gen. 639 (2). BECKMANNIA Host Gram. Austr., iii., 5, 1805.

2646 (2). BECKMANNIA ERUCIFORMIS Host. Alien, Eur. Uxbridge, 1911, J. E. COOPER, ex *Kew.*

2669 (2). STIPA POEPPIGIANA Trin. and Rupr. Alien, Chili. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD. "The identification of this is based only on the (somewhat meagre) description in Trinius and Rupr. *Spec. Gram. Stipaceorum.* It must be a very rare plant, because I do not find any mention of its having been collected by any other botanist than the discoverer, Poeppig, who found it in 'Chile-australis Andine pr. Antuco,' a remote mountain district. There is therefore some slight doubt left on the identification of this species, but surely there is no other described *Stipa* to which your specimen agrees better (the panicle of your specimen is reduced in size, not 6 inches)." E. HACKEL, in *lit.*

2669 (3). STIPA CAUDATA Trin and Rupr. Alien, Chile, S. Amer. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD. "As yet this has not been rediscovered in Chili, whence Trinius got it from Lindley (without indication of locality), but a somewhat stouter form or variety of it has been found in Southern Argentina. Your specimen agrees better with Trinius' description than the Argentine specimens do." E. HACKEL, in *lit.*

2669 (10). NASSELLA FLACCIDULA Hackel in *Fedde Report*, v., 154, 1908, var. nova GLOMERATA Hackel. Differt a typo paniculae ramis in parte superiore ab spiculas densissime confertas fere glomeriformibus, arista circ. 12 mm. (in typo 22-25 mm.) longa. Spiculae e viridi et albo (in typo etiam violaceo) variegatae. Hackel in *lit.* The species *flaccidula* is known only from Bolivia (mountain slopes near La Paz), but it is possible that it is only a form of the Peruvian *N. pubiflora* Hack. (*Urachne pubiflora* Trin.). [This plant] does not represent the typical form of the species. Besides the differences in diversities of habit, culm and leaves more slender, the spikelets paler of colour, attributable to the quite different climate of the Scotch station, there are also differences in the form of the panicle, length of the awn, &c., which perhaps may have already existed in the wild state, and which justify the distinction of varieties. But as to the species to which this [and *N. caespitosa*] belong there is not the slightest doubt, and the fact of mountain species of the Andes re-appearing as aliens [in Scotland] is beyond doubt. E. HACKEL in *lit.* Feb. 26, 1914. This plant was figured in the *Report* for 1913 from specimens found at Selkirk on refuse heap by Miss I. M. HAYWARD.

2669 (11). NASSELLA CAESPITOSA Griseb., var. PERUVIANA Ball? sub *Oryzopsis*. Ball in *Journ. Linn. Soc.*, xxii., 58, 1885, mentions a var. *peruviana* of *Oryzopsis caespitosa* Ball, the characters of which seem to agree with your plant, but without having seen it [Ball's spec.] it is difficult to judge. Perhaps it is a distinct variety. [See above]. *N. caespitosa* is a very variable species. (See Spegazzini *Stipeae platenses* sub *Stipa caespitosa* Speg.). He who does not recognise *Nassella* as a genus must merge it into *Stipa*, but not into *Oryzopsis*. [This is a native of] mountain meadows in Western Argentina (prov. of Salta), and has not been found in Chili, but in a somewhat different form at Chicla, in the Peruvian Andes by Ball. [Both are

new aliens to Europe.] E. HACKEL in *lit.* The specimen was gathered at Galashiels, Selkirk, 1913, by Miss I M. HAYWARD.

2692 (3). POLYPOGON CRINITUS Trin. Gram. Unif., 171. Alien, Chile. Colchester, Essex, G. C. BROWN in *Rep.*, 508, 1913.

2715 (3). TRISETUM PANICEUM Pers. Syn., i., 97. Alien, Europe. Waste ground, Hackney Marshes, July 1913, J. E. COOPER.

2725. ARRHENATHERUM TUBEROSUM (Gilib.) Druce. This, after many years' observation, I believe has valid claims to scientific rank, and as such it appears in the *List.*. The suggestion that the onion couch grass is confined to cultivated soils is absurd. It occurs in wild Scottish glens in untilled soil, in fact each species may occur in arable or untilled ground. There is an interesting account by L. M. Underwood (*Journ. Agric. Sci.*, iv., pp. 270-272, 1912), in which he says "seeds of the onion couch grass and of the common oat grass were sown side by side on a variety of different soils to ascertain whether the bulbous form was a response to external conditions. In all cases the bulbous and the fibrous rooting form were reproduced true, thus proving that the bulbous form is hereditary, and independent of habitat." Besides the root characters, the presence of hairs on the stem joints and the inflorescence offer distinguishing features. G. C. DRUCE.

2725 (2). ARRHENATHERUM ERIANTHUM Boiss. and Reut. Diagn. Pl. Hisp., 121. Alien, Spain. With Esparto grass, Musselburgh, Edinburgh, 83, J. FRASER, in *Tr. Bot. Soc. Ed.* 234, 1914.

Gen. 675. AMMOCHLOA Boiss. Diagn. Ser. I., xiii., 51, 1853.

2734 (10). AMMOCHLOA PUNGENS Boiss. Alien, N. Africa. With Esparto grass, Musselburgh, Edinburgh, 83, 1913, J. FRASER, *l.c.*

2735 (3). DANTHONIA RACEMOSA R. Br. Alien, Aust. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD.

2760 *c.* POA PALUSTRIS L., var. GLABRA Aschers. Alien, Eur. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD.

2787 (2). FESTUCA TRACHYPHYLLA Hackel. Alien, S. Amer. Galashiels, Selkirk, 1913, Miss I. M. HAYWARD. This "is surely one of

the numerous Chilian species imperfectly described by Phillippi, and comes very near *F. dumetorum* Phil., not Linn. (which I propose to name *F. trachylepis*, but it has not the minute prickles on the fertile glume of that species)." E. HACKEL, in *lit.*

2789 (3). FESTUCA SETACEA (Parl.) Guss. Fl. Sic. Syn. i., 83, not of Poiret. (*F. Thomasiana* Gay, teste *Ind. Kew.*?) *Vulpia setacea* Parl. *Ann. Sc. Nat. Paris*, 297, 1841. Alien, S. Eur. Leith, J. FRASER, ex *Kew.*

2792 (3). FESTUCA CYNOSUROIDES Desf. Fl. Atlant. i., 88. Alien, N. Africa. With Esparto grass, Musselburgh, Edinburgh, 83, 1913, J. FRASER, in *Tr. Bot. Soc. Ed.* 234, 1914.

2817 (2). BROMUS ADOENSIS Hochst. ex Steud. Syn. Pl. Gram. 362. Alien, Abyssinia. Galashiels, Selkirk, 1912, Miss I. M. HAYWARD. Probably to this also must be referred the specimens named *B. japonicus*, var. *velutinus* in the preceding *Report.*

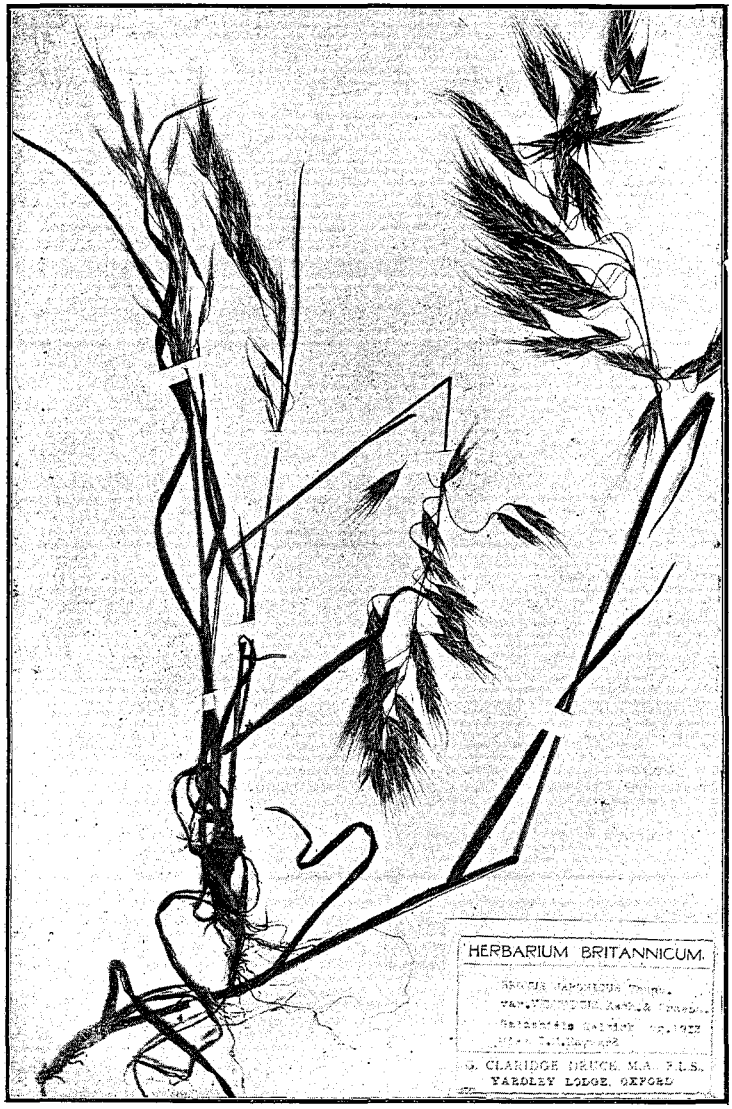
2826 *b*. LOLIUM RIGIDUM Gaud., var. RAMOSUM. Alien, S. Europe. With Esparto grass, Musselburgh, Edinburgh, 83, J. FRASER, *l.c.*

2826 (2). LOLIUM SUBULATUM Visiani Fl. Dalm., i., 91, t. 3. Alien, S. Europe. Leith, J. FRASER, 1912, ex *Kew.*

RECENT PUBLICATIONS.

THE CAMBRIDGE BRITISH FLORA, by C. E. Moss, D.Sc., F.L.S., assisted by specialists in certain genera. Illustrated from drawings by E. W. HUNNYBUN, vol. ii., Salicaceae to Chenopodiaceae, pp. xx., 206, tt. 176. Cambridge, at the University Press, 1914.

The appearance of this volume marks an event in the history of British botany. Its author must be highly congratulated at seeing the beginning of his great labours in print. The preparatory task of fixing upon a definite plan, of the choice of proper varieties of type, selection of paper, and all the hundred and one things necessary to put such an important work attractively before the public, not to speak of the necessarily greater task of bibliographical research and critical study of a large range of fresh and dried specimens, would be



BROMUS ADOENSIS HOCHST. GALASHIELS, SELKIRK.
COLL., MISS I. M. HAYWARD, F.L.S. SEE REPORT, 30, 1914.

a sufficient strain on the most energetic student. We must wish him strength to pursue his struggles, for it is only by struggles that such works are brought to fruition. Naturally in so comprehensive a work botanists may find many things with which they do not agree. It is quite conceivable. Such is the inevitable result of treating of the vegetable kingdom. The author himself may in time adopt different opinions. But he has no hesitation in stating his ideas, nor does he shrink from defending them. On certain points—that of nomenclature notably—while there is much to be said for some of his views, there is also much to be said on the other side. He adopts the Vienna Actes—when it suits him—but the use of small letters for all trivial names is against the recommendations, and gives a some what curious appearance to such a name as *Ulmus nitens*, var. *hunnybuni*. The descriptions of the plants are concise; much more concise than those of the author of the third edition of English Botany who, Dr Moss says, was born "Syme, later he adopted the name Boswell, and still later the name of Boswell-Syme." The fact I believe is that the first change was Boswell-Syme, and it was in later life when he succeeded to the estate at Balmuto that he signed his name Boswell. Although not a Scotsman, I rather dislike seeing Caithness and Mid-Lothian written Caithnesshire and Edinburghshire. I am by no means convinced, despite its label, that the specimen of *Salix reticulata* in *Herb. Holmesdale* (p. 26) was ever gathered on Cader Idris. *Salix reticulata* had been long ago recorded from Wales (See Hudson's *Flora Anglica*), but *S. herbacea* was meant. The safer plan would be to query the Merionethshire record until verified. The hybrid of *Betula alba* × *pubescens* is said by Ascherson & Graebner. to be = *B. hybrida* Bechst. in Diana 180, 1797, but this synonym is not cited in the *Camb. Flora*, p. 82. I do not agree in treating *Ulmus sativa* Miller, as being the same as *U. Plotii*, indeed, Mr Henry (*British Trees*) says *U. sativa* Miller is the English Elm. The specimen in *Herb. Plot* shows that Plot's Elm is not *U. viminalis*. The first record of *Polygonum sagittatum* was seventeen years earlier than the one cited. It may be found as *P. arifolium* in our *Report* for 1889, p. 267, 1890. The name *Polygonum nodosum* Pers. is adopted instead of *P. maculatum* or *P. tomentosum*. Trimen and Dyer (*Journ. Bot.*, p. 34, 1871) say "since then the description neither of *P. nodosum* nor of *P. laxum* clearly characterises the *P. nodosum* of authors, we are forced, if we regard it as of specific rank, to search for another name." Indeed Persoon does

not number it as a species, and marks it with an asterisk, signifying its dubiousness, and adds "an a Persicaria species diversum?" In preface, p. x., *Synopsis* Persoon says "speciebus obscuris, aut quoad se dein dubiis," are asterisked. It certainly lacks the precision of *P. maculatum* (Trim. and Dyer) Bab. *P. laxiflorum* is used to designate the plant we have been so long calling *P. mite.* Petiver's pre-Linnean name for it is not cited, nor is the synonym *P. Braunianum* F. Schultz cited for the hybrid *P. minus* × *Persicaria.* The treatment of *P. minus* does not seem thoroughly satisfactory, and we are unable to follow by it the naming of the specimens by Dr Moss in the *National Herbarium.* Our old *Rumex conglomeratus* Murray appears in a new guise as *R. glomeratus* Schreber, which involves at least six "new combinations," but if priority of name is the influencing reason, Murray's *conglomeratus*, which dates from 1770 (*Prod. Stirp. Gott.*), precedes Schreber's name by a year, and there is thus no reason for the change. *Chenopodium* and *Atriplex* are less satisfactorily treated than some of the preceding genera. The minute work at *Chenopodium* by the specialist Murr is completely ignored, notwithstanding many of his plants have been recorded in the *Reports. Atriplex laciniata* is now rejected for our British plant, notwithstanding Dr Trimen asserted that it had incontestable claims. It is to be regretted that a more characteristic example was not figured, than the miserable scrap which appears. There is an earlier authority for *Atriplex glabriuscula*, var. *Babingtonii* than the one given. It may be found in the *Report*, p. 117, 1911. It is said not to occur in Caithness, but that county may be added to its distribution. Occasionally there is a variance in citation—who ever kept quite accurate?—as for instance on p. 176, when the authority for *Atriplex hastata* is written Rafn *Dann. Fl.*, 239, 1800, and on page 177 var. *calotheca* Rafn *Dan. Fl.*, ii., 248, 1796. Presumably the same book *Danmarks och Holsteens Flora* is meant. On the same page there is a foot-note stating that in the *Dillenian Herbaria* "we say that *A. maritima*, &c., Plukenet *Almagestum* 61, 1696," is *Atriplex glabriuscula*, but our statement is that the plant representing it in the *Dillenian Herbaria* is that species, therefore it is correct only so far as Dillenius' interpretation, which I have no reason to doubt, is concerned. Dr Moss wisely rejects the name *Chenopodium serotinum* as representing *C. ficifolium*, the former plant not being British. He also refers to *Blitum folio subrotundo* of the Dillenian Ray, and says

the description appears to be more applicable to *C. opulifolium*. My reference in the *Dillenian Herbaria* was to Dillenius' own specimens collected near Jack Straw's Castle, which are not *opulifolium*. The two specimens which I referred to Gray's var. (of *album*) *rotundifolium* would now, I think, be put by Murr under his *pseudopolyspermum*. They are quite unlike *opulifolium*. The third is not far away from Murr's *obtusum*, and does not agree with the description on Dillenius' label, *i.e.*, "foliis oblongo integro." I am not aware of any specimen of *C. opulifolium* having been gathered in Britain so long ago as 1724. Examples of *C. album* with blunt, broad, subentire leaves occasionally occur, and some of these come under the *C. pseudopolyspermum* Murr, and there are forms of Murr's *rhombeum* and *obtusum* which might be covered by the descriptions in the *Synopsis*.

Dr Moss has done wisely in including many non-indigenous plants. I hold no brief for Aliens, but it is well to know their earliest arrival, and there is no harm in becoming acquainted with their characters. We do not find that those who are most adverse to their publication are conspicuous for their knowledge of British plants. What is important is to distinguish between those actually adventitious, and those which are indigenous. The fact is that despite a certain constancy there is also a great amount of change going on in the constituents of our flora. For instance, the advent and spreading of *Crepis taraxacifolia* has driven out to some extent the once ubiquitous *C. capillaris*, just as *Veronica Tournefortii* has reduced the numbers of *V. agrestis*. Therefore we welcome the inclusion even of such a distinct alien as the Cape *Mesembryanthemum edule*, which I believe was first correctly identified in the *List of British Plants*, and only regret Mr Hunnybun had not before him a flower in good condition, as his drawing is sadly inadequate in representing its handsome inflorescence. Curiously such a well established and rampant alien, which is likely to spread very widely, as *Polygonum cuspidatum* is not included, nor is there any reference to *Rumex Brownii* which is naturalised near Galashiels. It is one of the few Australian species which occurs with some degree of permanence in Britain. Many additions might be made to the distribution of various plants. For instance, Oxford was long ago recorded for *Rumex sanguineus*, adventitiously doubtless. The ingenuity of the printers might have given us a better plan for showing plant distribution. For instance, a whole page is devoted to *Atriplex littoralis*, when the surface of the

whole of the counties impinging on the coast are shaded as if the plant grew all over them. A small map of the British Isles with a double coast line where the plant occurs would surely be preferable, and when a plant occurs in one or two localities only, one or two stars in the country would indicate its rarity. But these are small matters. Elsewhere are given the chief additions to our British *List.*

A FLORA OF NORFOLK, with papers on climate, soils, physiography, and plant distribution (W. H. Burrell) by members of the Norfolk and Norwich Naturalists' Society. Edited by W. A. NICHOLSON, 81 Surrey Street, Norwich. Demy 8vo, pp. 214, 2 maps. West, Newman & Co., 6/-, 1914.

FLORA ORCADENSIS, containing the flowering plants arranged according to the natural orders by MAGNUS SPENCE, and the mosses by Lieut. JAMES GRANT. Pp. xcv., 148, with maps and portraits, 4/-, 1914. Kirkwall, D. Spence.

SUPPLEMENT TO FLORA ORCADENSIS. MAGNUS SPENCE. pp. 11. W. Peace & Son, 1914. Includes plants recently found by Col. H. Halcro Johnston.

A SUPPLEMENT TO THE FLORA OF SOMERSET. E. S. MARSHALL, M.A., F.L.S. pp. iv., 242, 1914, 7/6. Published by the Somersetshire Arch. and Nat. Hist. Society.

HAMPSTEAD HEATH: Its Geology and Natural History. Hampstead Scientific Society. pp. 328, 3 maps, 11 plates; one of the Cornish Elm. T. Fisher Unwin, 10/6 nett.

BRITISH FLOWERING PLANTS, illustrated by 300 full-page coloured plates by Mrs HENRY PERRIN; text by Professor Boulger. 4to., pp. xlv., vol. i., ii., iii., iv., with glossary and index pp. 55. 1914, Quaritch. The artistic and truthful paintings are of a high order of merit.

GENERA OF BRITISH PLANTS arranged according to Engler's Syllabus der Pflanzenfamilien (seventh edition, 1912), with the addition of the Characters of the Genera. By HUMPHREY G. CARTER, M.B., Ch.B. Camb. Univ. Press. Crown 8vo., pp. xviii + 122. Price, 4/- nett. This work is intended to familiarise students with Engler's system of the classification of plants.

TREES AND SHRUBS HARDY IN THE BRITISH ISLES. W. J. BEAN. In 2 vols., med. 8vo., pp. 1440, with over 250 line drawings and 64 half-tone illustrations, £2 2/- nett. John Murray. The arrangement is alphabetical. After the description of each species a paragraph is given to its native country, history, distinctive peculiarities, based on the author's experience with the finest collection of trees and shrubs in the world, extending over twenty-two years. The introductory part is devoted to general questions of propagation, transplanting, pruning, hybridisation, &c. The illustrations are better than those of some arboricultural specimens recently published, the example sent, that of *Tilia petiolaris*, being very gracefully drawn.

THE STORY OF PLANT LIFE IN THE BRITISH ISLES. Types of the common Natural Orders. Introductory volume. A. R. HORWOOD. 8vo., pp. 268, 73 fig., 1914, 6/6. J. & A. Churchill.

AN INTRODUCTION TO THE STUDY OF PLANTS. F. E. FRITSCH and E. J. SALISBURY. 8vo., pp. 397, 8 plates, 233 figs., 1914, 4/6. Bell & Sons.

WILD FLOWERS. People's Books, No. 117. MACGREGOR SKENE. Sm. 8vo., pp. 92, with 209 woodcuts. Jack, London. 6d nett, 1914. Contains brief descriptions of 200 of the commoner wild flowers.

WILD FLOWERS AS THEY GROW. H. ESSENHIGH CORKE and G. CLARKE NUTTALL. 8vo., pp. vii., 200, 5/-. Cassell, London, 1914.

WILD FLOWERS AND HOW TO NAME THEM AT A GLANCE WITHOUT BOTANY. Col. J. S. F. MACKENZIE. 8vo., pp. 224, 191, 1/-. Hardingham, London.

THE SOUTHERN ELEMENT IN THE BRITISH FLORA. O. STAPF in Engler's *Bot. Jahr.*, vol. l., pp. 509-525, 1914. In this paper the author says Dr Scharff has refuted the idea of the introduction of the Pyrenean element by migrating or gale-driven birds, and that with Engler he believes that their reimmigration took place in post-glacial times, . . . and it happened along with the repopulation of the eglaciated land by a flora advancing mainly from South-Western Europe through Western France. We notice that he omits any reference to the occurrence in Britain of *Spergularia atheniensis*, and that he uses the name *Atropis rupestris* which is a combination based

upon an erroneous supposition of the publication of the *Flora Londinensis*.

SYNOPSIS DER MITTEL-EUROPAISCHEN FLORA. Aschersón & Graebner. P. P. GRAEBNER. 84 and 85 Lief. Band VII. Geraniaceae : Oxalidaceae : Tropeolaceae : Linaceae : Zygophyllaceae : Cneoraceae : Rutaceae. pp. 81-240, 1914, 4 marks. Band V. Amarantaceae (Amaranthus von A. Thellung) 225-304, 1914, 2 marks. In the above important parts the author has adopted the name *Linum anglicum* for our British plant, putting it under *L. alpinum*. The Linnean *L. perenne* he keeps as a distinct species. He rejects the name *L. bienne*, suggested in *Journ. Bot.*, for *L. angustifolium*, but puts it as a variety of *L. usitatissimum*, and he correctly substitutes var. *humile* Pers. for var. *crepitans* Boenn.

ICONES GERMANICAE ET HELVETICAE. REICHENBACH L. & H. G. . . . . Dr G. Ritter Beck von Mannagetta. Tom. 25, p. 5-40, tt. 84-117. Rosaceae. This contains beautiful plates of the species of *Sorbus*. The two varieties of *Pyrus Malus* are kept as distinct species of *Malus*.

DIE RIVIERA. VON ALBAN VOGHT. Berlin. W. Junk Natur-Fuhrer. pp. vi., 466, tt. vi., 1914. This gives an interesting ecological description of the Riviera, as well as a notice of the most interesting cultivated plants in the well-known garden of La Mortola. A set of the plants collected by my friend Herr Voght in the preparation of this work was given to the Oxford Botanic Garden. Herr Voght intended to produce a similar work on the district round Naples.

FLOWERING PLANTS OF THE RIVIERA. A descriptive account of 1800 of the more interesting species. H. STUART THOMPSON. pp. xxviii, 249, 8vo., tt. 24, cold. f., 112, 10/6. Longman, Green & Co.

THE FLORA OF SOUTH AFRICA. RUDOLPH MORLOCH. Vol. i., 4to., 36 cold. plates, 30 plates monochrome. £2 2/- subscription price. Wm. Wesley & Son.

THE NORTH AMERICAN FLORA. Vol. 15, part 1. *Sphagnales-Bryales*. E. G. Britton, June 14, 1913, p. 175. Part 2. *Bryales*. R. S. Williams, Aug. 8, 1913, p. 78-166. Vol. 22, part 5. *Rosaceae*.

Alex. Rydberg, Dec. 23, 1913, p. 389-480. Vol. 10, part 1. *Agaricaceae.* W. A. Merrill, July 28, 1914, p. 76. Vol. 29, part 1. *Ericales.* Aug. 31, 1914, by various authors. In this the genus *Uva-ursi* Miller, 1754, is used for *Arctostaphylos* Adans.

PHYTOGEOGRAPHIC SURVEY OF NORTH AMERICA. J. W. HARSHBERGER. pp. 780, 1 map, tt. 18, fig. 32. Engelmann, Leipzig, 1911, £2 2/-. This volume of the *Vegetation der Erde* is written in English and is a wonderfully compressed mass of valuable information. The bibliography itself extends to 46 pages.

ROCKY MOUNTAIN FLOWERS. F. E. & E. S. CLEMENTS. pp. 400, t. 25 cold., 22 uncold. H. Wilson, New York. Three dollars.

THE CLIMAX FOREST OF ISLE ROYAL AND ITS DEVELOPMENT. W. T. COOPER. *Bot. Gaz.*, p. 1-44, 115-140, 182-235, 1913, 55 fig. and map. A valuable contribution to the ecological botany of the forest of North Eastern America.

FOCKE WILHELM OLBERS. SPECIES RUBORUM Monographiae generis Rubi Prodromus, in BIBLIOTHECA BOTANICA. Stuttgart 1914, parts i. and ii., pp. 274. We must congratulate Dr Focke, the great authority on European Brambles, on the completion of his many years' labours at this thorny genus. He has not only corresponded with British Botanists, but himself has visited Britain on more than one occasion, and has had the advantage of being in touch with our great batologist, the Rev. W. Moyle Rogers, for many years. The *Monograph* has some defects. First the numbering of the species is misleading the numbers 365, 6, 7, 8, and 9 have no species representing them. Later on 10 numbers are duplicated, so that the total numbered species is not 429 but 434. Again such a well-known Bramble as *corylifolius* is not numbered ; nor so far as can be found are the endemic *castrensis*, *lacustris*, or *durescens* mentioned, nor the more critical (perhaps) *Powellii*, *durotrigum*, *Bucknalli*, *adornatus*, *horridicaulis*, *hostilis*, *fusco-ater*, *divexiramus*, *serpens*, *Kaltenbachii*, *minutiflorus*, *saxicolus*, *tereticaulis* and *glareosus*. *R. myricae* and *phyllothyrsus* disappear from our List, and he suggests *orthocladus* Ley is a hybrid = *Sprengelii* × *plicatus*. He substitutes the name *R. orbifolius* for *R. danicus* : *sub-incanus* for *mollissimus* : *furvicolor* for *melanoxylon* : and *macrostachys* for *anglicanus*, to which I believe our own specialist offers no

objection. Dr Gilbert, in *Journ. Bot.*, made special reference to the probably hybrid origin of some of our more definite Bramble species on p. 280, 1912, and now Dr Focke says "Species et prospecies, quarum origo hybridogena e Rubus vestitis suspicari potest," and enumerates 16 species. These include *macrophyllus* (which he suggests is *vestitus* × *sulcatus*. In Britain this occurs plentifully in localities which now yield no *sulcatus*): *Balfourianus (vestitus* × *caesius)*: *pyramidalis (vestitus* × *Lindleianus)*, and so on. The nomenclature is in several instances open to criticism, *i.e.*, he uses *vestitus* for *leucostachys*: *vulgaris* for *Lindleianus*: *discerptus* for *echinatus*, in the latter case Lindley described *echinatus* in 1829, while *discerptus* was not established until 1859. A more glaring case is the use of *R. suberectus* in place of *R. nessensis*, unless, of course, sentiment comes in to retain a name more generally used. *R. chlorothyrsus*, *R. festivus*, and *R. egregius*, var. *plymensis* are additional species to Britain, although in the latter case the type has not as yet been found. Our British Brambles enumerated by him come under 60 numbered species.

THE JOURNAL OF ECOLOGY. Vegetation and Mobile Ground, as illustrated by *Suaeda fruticosa* on Shingle, F. W. Oliver and E. J. Salisbury, vol. i., p. 249. The Vegetation of the Eastern Moorlands of Yorkshire, Frank Elgee, vol. ii., p. 1. Forests of Western Caucasus, E. A. Rübel, vol. ii., p. 39. Notes on Danish Vegetation, W. G. Smith, p. 65-70. This gives a charming account of the visit of the International Association of Botanists to Denmark in 1913, when Professor Warming acted as leader. On the Island of Fanö they were led by Prof. Raunkiaer. West Jutland was visited, and Borris Heath, which is an extensive State reserve. Then the Lake District, which stretches from Silkeborg to the Kattegat, was explored. It is a great tourist centre, and boasts the highest mountain in Denmark, the Himmelbjerg, which attains the altitude of 500 feet. This reminds one of the Wigton guide book, which starts a paragraph by an invitation to "ascend the hill before us," which almost rivals the Danish mountain in height. The visitors saw tourists purchase alpenstocks to help in their arduous ascent. After enjoying the hospitality of the capital, the woods, oak and beech, of Elsinore were visited. Then the coast of the Baltic, where the Island of Moen with its chalk cliffs, 470 feet high, were seen, and the open downs afforded *Helichrysum arenarium*. pp. 71-82—Some

Remarks on the Ecology of Lichens, by O. V. Darbishire, illustrated with beautiful photographic reproductions. p. 98—Vegetation of the Wye Gorge at Symonds Yat, by Eleonora Armitage. An excellent, detailed, and suggestive paper. pp. 109-122—On National and International Protection of Nature, by Prof. H. Conwentz, describes the admirable work done in Germany to preserve and maintain interesting faunal and floral areas. The writer gives to France the credit of convoking the first International Congress for the care of nature, and he alludes to the meeting at Berne in 1914, at which Britain was represented by the Hon. N. Charles Rothschild. A photograph shows the sea holly, which is, or was, protected on the whole German coast.

THE JOURNAL OF THE LINNEAN SOCIETY. BOTANY N. 284, Dec. 29, 1913. A revision of the Genus *Symphytum* Tourn., by CEDRIC BUCKNALL. Two text figures. In this excellent Monograph 25 species and several hybrids of *Symphytum* are carefully described, and their history painstakingly traced. The omission of the valid edition of Linnaeus' *Gen. Plant.* as the authority for the genus which is cited as "Tourn." without brackets may shock the whole-hearted supporters of the Vienna Actes. It is not unusual to find that their strongest supporters are the earliest to break them. One misprint occurs: "Otto Kunze" should be Kuntze. De Candolle's rapier thrust in reply to Kuntze's allusion to the "senile De Candolle" was that "Botanists are not devoid of wisdom. They can distinguish Kunze from Kuntze." We heartily hope that Dr Bucknall will not rest upon his laurels, but add to our indebtedness by giving us another Monograph as thorough and useful as this.

TRANSACTIONS OF THE BOTANICAL SOCIETY OF EDINBURGH. Notes on some rare or interesting Orkney plants. Col. H. H. JOHNSTON. pp. 207-226, 1914. Notes on some Scottish plants (aliens from Midlothian, Wigton, &c.), J. FRASER, p. 234, 1914.

THE JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY, edited by F. J. Chittenden, F.L.S., vol. xxxix., 1913. Observations on Indian Primulas, Sir George Watt, p. 196, reprinted from vol. xxix, 1904. Note on Pax's Arrangement of the Genus Primula, F. J. Chittenden, and Synonymy of the European species, pp. 219-227. The primrose appears under the name *P. acaulis* (L.) Hill, the oxlip

as *P. elatior* (L.) Hill, and the cowslip as *P. officinalis* (L.) Hill. *P. scotica* is made synonymous with *P. farinosa*. A new hybrid *P. Bowlesii* Farrer (*P. pedemontana* × *P. viscosa*) from Mont Cenis is here described. European Primulas, Dr John MacWatt; Primula Hybrids in Nature, R. Farrer; Chinese and other Primulas, J. Bayley Balfour; Himalayan Primulas, W. G. Craib; Primulas in the Garden, Miss G. Jekyll, *l.c.*, pp. 98-195. Many beautiful illustrations are given.

Botanizing in Bulgaria, C. F. Ball, *l.c.*, p. 1. An extremely pleasant account of the botany of that little visited country. Vitosh, a mountain 9000 feet high, was ascended. On its top some acres were covered with *Myosotis alpestris*. Among other plants gathered were *Dianthus microlepis*, *Gentiana aestiva*, *Aquilegia lutea* and *Lilium Jankae*, as well as *Ajuga Laxmanni*, which grows to a height of two feet. *Cytisus leucanthus* was gathered on the Shipka Pass. *Haberloa rhodepensis* covered a cliff, and the tufts two or three feet across were a glorious sight. The wild lilac was also found there. Kasanlik was visited. This is the district where the world's supply of otto of roses comes from. This rose garden stretches 80 miles, with about 170 villages devoted to the culture of *Rosa damascena trigintipetala*. A plantation well tended lasts from 15 to 20 years. Two and a half acres (a hectare) produce about three million flowers, which yield about 30 ounces of otto. *Iris mellita* was collected near Zagora. Bellmaken mountains afforded the large-leaved *Geum bulgaricum*, *Pinus Peuke*, and *Rhododendron myrtifolium*. The meadows along the Belliskr stream rival those of Switzerland in the richness of their flora, conspicuous in which are *Polygala major* and *Orchis Simia*. Moussala, the highest mountain (10,000 feet), was climbed. *Pinus montana* is the tree which reaches the highest altitude on the mountain, covering acres of ground. *Primula deorum* was in great beauty. Near the snow *P. minima* formed wonderful masses of flowers, and *Dianthus microlepis* was very showy and plentiful.

Some Flowers of Eastern and Central Africa, Miss M. H. Mason, *l.c.*, p. 8, t. 11. The Literature of the Rose, A. W. Paul, *l.c.*, p. 29. The earliest Monograph quoted is that of Nicholaf Monardes about 1550, which was reprinted in Clusius' *Exoticorum* of 1605. The Conifers of the Lindley Herbarium, Cambridge, R. A. Dümmer, *l.c.*, pp. 63-91. The collection is stated to contain 378

sheets included in 52 genera covers. Vol. xl., part 1, August 1914, contains a paper on the Rogue Wallflower by the Secretary, F. J. Chittenden, and two papers by Prof. Henslow on Evolution by Degeneration, and the Probable Origin of Existing Flowers.

THE GARDEN. p. 528, 1912. Ling and its varieties. White-flowered plants include *alba*, *alba rigida*, *alba Serei* and *Hammondii*. Dwarf, *alba minor*, and *alba pumila*. Red strong-growing plants, *Alportii*, *rubra*, *flore pleno*. Leaf-colour variations include *aurea*, *cuprea*. Dwarf but not free-flowering forms include *Foxii*, *hypnoides*, *minima* and *pygmaea*.

THE JOURNAL OF BOTANY for 1914 contains, among others, the following papers:—Distribution of *Utricularia* in Britain, p. 9, Arthur Bennett. This contains several new county records. Gibraltar Plants, Major A. H. Wolley-Dod, p. 10, includes, *Umbilicus citrinus*, sp. nov.; *U. pendulinus* DC., var. nov. *truncatus*; *Sedum Winkleri*, comb. nov.; *Euphorbia gibraltarica*, N.E. Br. sp. nov.; *Asphodelus serotinus*, sp. nov.; *Rynchospora glauca* var. *pauciseta* Turrill; and *Atropis iberica*, sp. nov. Cumberland and Durham Plants collected by A. Wallis, p. 18. Notes on Teesdale Plants, C. E. Salmon, p. 137. Note on *Symphytum*, E. G. Gilbert, p. 19, suggests that *peregrinum* may be distinguished from *asperum* by a cross-section of the petiole. In *peregrinum* the proportions are $4\frac{1}{2}$ by 4, in the latter they are $3\frac{1}{2}$ by $7\frac{1}{2}$. Plants of Scilly, J. W. White, p. 19, includes a description—in English—of *Juncus maritimus* var. *atlanticus*. This was distributed to our members. (See *Report* p. 499, 1913). The rare *Euphorbia Peplis* was also found. Dorset plants, H. W. Pugsley, p. 40. The Adventitious Flora of a Library Court, G. Goode, p. 46. Refers to the back court of the University Library, Cambridge. Notes on British Plants—(1) *Sagina saginoides*, C. E. Moss, p. 57. The author considers that *S. scotica* is synonymous, and that *saginoides* of British authors is var. *macrocarpa*. (See *Report* p. 63). (2) *Ranunculus obtusiflorus*, p. 115, suggests this name should supplant *R. Baudotii*, and *homiophyllus* Tenore should replace *R. Lenormandi*. (3) The genus *Alsine*, p. 196 suggests that *Alsine* should be separated from the genus *Arenaria*. Index Species in a Flora, Rev. E. A. Woodruffe-Peacock, p. 124. Casual Plants in Middlesex, J. E. Cooper, p. 127, includes *Alonsoa peduncularis*. Notes on some plants of Mid-Perth,

Rev. E. S. Marshall, p. 164, gives a new locality for 'one of Don's reputed discoveries,' *Carex atrofusca*, and a new record for Scotland of *Equisetum litorale*. He believes the var. *sphacelata* to be a good average variety of *Salix caprea*, a statement with which the writer concurs. The Manx Sand-Dune Flora, p. 170. Notes on the Manx Flora, p. 213, J. W. Hartley and J. A. Wheldon. Notes on Dr Focke's Rubi Europaei (sic!), Rev. W. Moyle Rogers. An interesting and valuable contribution from our *Rubus* expert. pp. 179 and 202. *Poa remotiflora* Murbeck in Jersey, C. E. Salmon, t. 532, p. 193. This is the plant I referred to in *Journ. Bot.* 1907, p. 427, and which shortly afterwards Professor Hackel named *P. annua* forma. *Armeria arctica* Wallr., fossil in Britain, Clement Reid, p. 214. This belongs to the pleurotrichous section of the genus, and as yet I have seen no holotrichous Thrift on the Scottish hills. As Dr Reid suggests, critical search should be made to see if *arctica* does not still occur. Miller's Abridgement, Edit. 4, Dr F. N. Williams, p. 217. Correctly claims that he was the first to call attention to this rare work as being available for citation of genera. Alpine Vegetation on Ben-y-Gloe, Perthshire, Albert Wilson and J. A. Wheldon, p. 227. *Hydrilla verticillata* Casp. in England, t. 534, p. 257, Arthur Bennett. *Azolla caroliniana* Willd., W. H. Burrell, p. 269. Alludes to its obscure status in Britain. My own experience bears out his remarks. All the so-called *caroliniana* from Britain which I have seen are young barren plants. Localities said to yield it have only produced *filiculoides* when fruiting specimens have been obtained. *Linaria arenaria* DC. in N. Devon, F. J. Hanbury, p. 276, and Thomas Wainwright, p. 310. *Alchemilla acutidens* Buser, and other forms of *A. vulgaris* L., C. E. Salmon, p. 281. Names a new variety of *acutidens* as *alpestriformis*. Jonathan Stokes and his Commentaries, J. Britten and G. S. Boulger. A very valuable account of the author of the second edition of Withering, which throws much additional light on that excellent botanist, p. 299. *Carum verticillatum* Koch in Dorset, J. W. White, p. 310. Notes on Channel Island Plants, H. W. Pugsley, p. 327. A Flora of Gibraltar, by Major Wolley-Dod, which adds much to our knowledge of the plants of that historic rock, is printed as a supplement.

LANCASHIRE AND CHESHIRE NATURALIST, Sept. 1914. Florulae Furnessiae, its Limitations and its Lessons, W. H. Pearsall, Sept.

1914. I may say that Dr Murr named the tiny form of *Chenopodium rubrum* as "var. *humile* Garcke." I should have been content to leave it under *pseudobotryoides* Syme. I have the same form from Berks. and Bucks., but it speedily increases in size when supplied with more nourishment. Few plants are more responsive to conditions than *C. rubrum*. *Hydrilla verticillata* Casp., W. H. Pearsall, *l.c.*, p. 213.

LINCOLNSHIRE NATURALISTS' UNION TRANSACTIONS, 1913. Notice of Rev. E. A. Woodruffe-Peacock and a paper by him on Dry Soil Pimpernels, p. 110-114.

HERTFORDSHIRE GENTIANS, E. J. Salisbury. Trans. Hertfordshire Natural Hist. Soc., xv., part 3, p. 169, 1914.

THE ŒNOTHERA OF THE SOUTH LANCASHIRE COAST, J. A. Wheldon. Lancashire Naturalist, Sep. 1913, p. 205.

THE HISTORY OF THE OCCURRENCE OF AZOLLA IN THE BRITISH ISLES, A. S. Marsh. Proc. Camb. Phil. Soc., xvii., part 5, pp. 383-6. Reprint. A point arises as to whether undoubted *caroliniana* did come to England in 1883. (*Sc. Gossip*). Was that plant not immature or barren *filiculoides*? All the instances when *caroliniana* has been reported to me have been found to be *filiculoides*.

EPIPACTIS ATROVIRIDIS IN GLOUCESTERSHIRE, Rev. H. J. Riddelsdell. Proc. Cotteswold Nat. F.C., xviii., part 2, pp. 159-162, 1914.

WEITERES ZUR ADVENTIFLORA VON GROSS BRITANNIEN, Dr J. Murr. Allgem. Bot. Zeitsch., p. 25, 1914. Records *Chenopodium striatum*, *C. pseudostriatum*, *C. interjectum*, *C. pseudoborbasii*, *C. bernburgense*, *C. trigonophyllum*, *C paniculatum*, and var. *laciniatum*, var. nov. *muraliforme* (foliis sat parvis, ovato-lanceolatis acutis, acute dentatis, supra perobscure viridibus subtus cano-farinosis nervis tenuibus nigris), *C. striatum-lanceolatiforme*, *C. hircinum* and var. *subtrilobum* Issler, *C. hircinum* × *album*, *C. hircinum* × *striatum* = *C. Haywardiae*, *C. anthelminticum* and *C. graveolens*.

REPORT OF THE WELLS NATURAL HISTORY AND ARCHAEOLOGICAL SOCIETY, 1913. Contains photograph of the Glastonbury Thorn in flower taken on December 30, 1912.

IRISH NATURALIST. Botanists of the north of Ireland; includes many valuable biographical notes by Canon H. W. Lett, p. 18, 1913. *Helosciadium Moorei*, Rev. H. J. Riddelsdell. A valuable paper on this plant, which he considers to be a hybrid, p. 1, 1914. *Falcaria vulgaris* in Co. Down, Canon H. W. Lett, p. 20. *Erythraea littoralis* in Co. Derry, Rev. C. H. Waddell, p. 21. British forms of *Helosciadium*, Rev. H. J. Riddlesdell, p. 100.

THE NATURALIST, 1914. H. F. Parsons' obituary notice, F. A. Lees, p. 8. *Hypericum Desetangsii* at Richmond, York, p. 10. *Utricularia ochroleuca*, Strensall Common, in Hb. G. Stabler, p. 33. *Poa irrigata* Lindm., in Britain, G. C. Druce, p. 126. *Taraxacum balticum* Dahlst., in Britain, G. C. Druce, p. 126. J. A. Martindale, obituary notice, p. 157. *Orchis praetermissa* Druce, G. C. Druce, p. 189. W. West, obituary notice, p. 227. This contains a detailed list of West's papers and publications.

TRANS. DUMFRIES AND GALLOWAY NAT. HIST. AND ANTIQ. SOC., Nov. 1913. Some Galloway plants, James Fraser.

ETUDE SUR LES SPERGULARIA, M. l' ABBE F. HY in Rev. Gen. Bot. XXV., 145-152, 1913.

LES EROPHILA DC., MARANNE Is. Bull. Soc. Bot. Fr., lx., 1913, pp. 276-281, 345-353, 379-389, 422-425.

VRIES, HUGO M., L'Œnothera grandiflora de L'Herbier de Lamarck. Rev. Gen. Bot., xxvi., bis p. 151, 1914, Paris.

GATES, R. R., Breeding experiments which show that hybridisation and mutation are independent phenomena. Zeitschrift für induktive Abstammungs—und Verer bungslehre, Band xi., Heft. 4, 1914, pp. 209-279, fig. 25. Berlin. The author holds that mutation in Œnothera is a process sui generis, and that no amount of hybrid combination and splitting, Mendelian or otherwise, is sufficient to account for it.

CARDAMINE PRATENSIS AND C. DENTATA Schultes (Emend.). Botaniska Notiser, 267-288, 1914. CARL LINDMAN. The author cites *E.B.* t. 776 for *C. pratensis* (planta crassa), and the plants sent out by Kerner (*Fl. Exs. Austr-Hung.*) as *C. palustris* Peterm.

C. dentata is kept as a distinct species. It is the *C. pratensis* var. *speciosa* Hartm. Handb., ed. 1832. He gives as formae—f. *isophylla* Peterm., f. *heterophylla* Peterm., and f. *lapponica*.

RUMEX PALUSTRIS Sm. Zur Kenntnis der gattung Rumex, von. SV. MURBECK in *Bot. Notis.* 201, 1913. Dr Murbeck uses the above name in preference to *R. limosus* Thuillier, and believes it to be a true species. He puts under the hybrid *R. conglomeratus* × *maritimus* the plant called by Trimen *Warrenii* (*Journ. Bot.*, 161, 1872).

INDEX FILICUM SUPPLEMENTUM, 1906-12, CARL CHRISTENSEN. pp. 133, 1913, Hafniae. An earlier reference than that quoted for *Dryopteris remota* will be found in the *List of British Plants* of January 1908. The publication of this valuable supplement is due to the generosity of Prince Roland Bonaparte.

LES CHARACEES DE FRANCE, M. l' ABBE F. HY. Bull. Soc. Bot. de France. Tome soixantième (quat. ser. Tome, xiii.) 1913, Mémoires 26. Eleven species of *Nitella* are described, one only of which, *N. ornithopoda*, is not in Britain. The three species of *Tolypella* are all British. Our *Lychnothamnus stelliger* is put in the genus *Nitellopsis* Hy. *L. barbatus*, which has been found in Isere, has not been reported in Britain. *Lamprothamnus alopecuroides* is retained for our *Chara papulosa*. There is a *Charopsis Braunii* Kutz. Sixteen species of *Chara* are described, the name *C. ceratophylla* Wallr. being used for *C. tomentosa* L. Species not yet recorded as British are :—*C. asperula* Thur., *C. galioides* DC., *C. sabauda* from the Lac de Bourget, *C. strigosa* Braun, and *C. imperfecta*. Under *C. major* Vaillant are grouped *C. hispida* L., *C. rudis*, Braun and *C. horrida* Wahlstedt.

MILDEWS, RUSTS, AND SMUTS : a Synopsis of the Families Peronosporaceae, Erysiphaceae, Uredinaceae, and Ustilaginaceae, by George Massee, assisted by Ivy Massee, pp. 229, 5 plates, 1913, 7/6. Dulau & Co.

THE BRITISH RUST FUNGI (Uredinales) : their Biology and Classification, W. B. Grove, M.A. 8vo, pp. xii, 412, 1913, 14/- net. Camb. Univ. Press.

A HISTORY OF BOTANY IN THE UNITED KINGDOM FROM THE EARLIEST TIMES TO THE END OF THE NINETEENTH CENTURY, J. REYNOLDS GREEN, Sc.D., F.R.S. 8vo, pp. xii, 648, 1914. J. M. Dent, London and Toronto. Unfortunately Dr Green did not live to see the volume published. It was prepared for press by his friend Prof. Harvey-Gibson. The *History* is a capital résumé of the progress of botany in Britain until the time of Ray. A fair and wide purview is given, as was to be expected from its compiler. The treatment of the subject during the last century is more closely connected with official or academic botany, and systematic British botany has scarcely received adequate consideration. For instance, there is no reference to Boswell Syme and his important edition of *English Botany*, where are to be found the most complete descriptions of British plants yet given. No allusion is made to our local Floras, nor to their writers. One or two points of criticism may be offered. The date of the foundation of the Oxford Garden is correctly given, but there appears to be an error as to the date of the ceremony on St James Day, which should be (teste Vines) not 1632 but 1621. The appointment of Bobart the elder was made by Lord Danby, and we have been unable to find if Tradescant was ever employed at the Gardens. The statement that Sibthorp's Herbarium is at Oxford should be limited to his *Herbarium of Greek Plants*. Merrett is spelled "Merret." There is no reference to William Cole, the author of *Adam in Eden*. Smith's *Flora Britannica*, p. 225, is confused with *The English Flora*. Possibly, had Dr Reynolds Green been spared, he would have given a bibliography in addition to the "Chronological Table" which is included. The index is good, and the whole work is eminently readable.

AN ACCOUNT OF THE MORISONIAN HERBARIUM in the possession of the University of Oxford, together with biographical sketches of Morison and the two Bobarts and their work, and the early history of the Physic Garden, 1619-1720, by S. H. VINES, M.A., F.R.S., and G. CLARIDGE DRUCE, Hon. M.A., Oxford. At the Clarendon Press, 1914, pp. lxviii., 350. This work includes the identification of the numerous specimens described in the *Historia Universalis Oxoniensis*. I may take this opportunity of stating that the major and more important part of this volume is due to Professor Vines. The date of publication was, I believe, February 2, 1914. The new combinations

include *Sesbania Lesban* (L.), p. 6, *Centaurium spicatum* (Pers.), *Kentranthus augustifolius* (DC.).

GELDART Miss ALICE M. Sir James E. Smith and some of his friends. Presidential address. Trans. Norfolk and Norwich Naturalist Soc., vol. ix., pp. 643-692, 1914. A valuable account of biographical details connected with the East Anglian botanists, including not only the author of *English Botany*, but of Pitchford, Bryant, Rose, James Crowe, T. J. Woodward Forby, and William J. Hooker.

PITARD, M. C. Exploration Scientifique DU MAROC, organisée par la Société de Geographie de Paris. Premier fasicule botanique, 1912. Masson et Cie, 1913, pp. 180, tt. ix.

A NATURALIST IN WESTERN CHINA WITH VASCULUM, CAMERA, AND GUN, Ernest H. Wilson. In 2 vols., with 101 full-page illustrations, 1913, 30s net. Methuen & Co. On this journey the author collected over 5000 species.

CAMPING IN CRETE, with notes upon the animal and plant life of the island, Aubyn Trevor-Battye. 8vo., pp. xxi., 308, 10/6 net. Witherly, London.

SELBORNE MAGAZINE, April 1914. The Protection of the Cape Flora, by A. Handel Hamer, gives a vivid picture of the beauties of the Cape flora, and the efforts which are being made by legislation to prevent the destruction of the beautiful species which grow there, and which at one time threatened the destruction of the rarities of Table Mountain. On the recent visit to the Cape of some members of the British Association, I was delighted to find that large areas had been protected, and it was now penal to gather the Silver Leaf and other species in the vicinity of Cape Town. As a member of the executive of the Society for the Preservation of Nature Areas, I found that the nation was already converted, and under the administration of my kind hosts, Lord and Lady Buxton, who are both keenly interested in the matter, there is no likelihood of the subject being neglected. It was delightful, too, to see that Australia was equally alive to the importance of the subject. One of many enjoyable experiences was the visit to the very extensive natural

parks at Adelaide and at Melbourne, in the latter of which one of our members, Mr Cheesman, found several species of Myxomycetes new to the Australian Flora. These areas are beautiful in themselves, are very diversified, and are rich in both fauna and flora.

OBITUARIES.

ALFRED RUSSEL WALLACE, LL.D., D.C.L., F.R.S., was born at Usk, Monmouth, Jan. 8, 1823, died at Broadstone, Dorset, Nov. 7, 1913. He was educated at Hertford Grammar School, and became a land surveyor and architect. In his early days he was much interested in British plants, of which he made a collection, and in 1842 went to the Amazon with Bates, exploring the district of the Rio Grande in 1851. In 1853 he published his *Travels on the Amazon* and *The Palms of the Amazon.* In 1854 he went to Singapore, and spent nearly nine years in the Malay Archipelago, an account of which he published in 1869. Here he independently formulated a theory of Natural Selection (published in 1870), and in 1876 his valuable work on the *Geographical Distribution of Animals*, followed in 1878 by *Tropical Nature* and in 1879 by his *Australasia.* In 1880 he produced the fascinating work, *Island Life*, of which a second edition appeared in 1895. His work on *Darwinism* appeared in 1889, and *The Wonderful Century: Its Successes and its Failures*, in 1898. He received the medal of the Royal Society in 1868 and the Darwin-Wallace medal of the Linnean Society in 1898. He also received the distinguished Order of Merit. He was President of the Land Naturalisation Society. In 1866 he married Annie, daughter of the distinguished bryologist, William Mitten, of Hurstpierpoint. One of the features of the Darwin celebration at Cambridge was the sending of a telegram of good wishes from that great and distinguished gathering to Wallace, Darwin's friendly rival and co-discoverer of the part that natural selection played in evolution.

CHARLOTTE ELLEN PALMER, born at Ladbroke, Warwickshire, died February 27, 1914, aged 84 years, buried at Odiham. Father and mother, Rev. Charles and Lady Charlotte Palmer. Miss Palmer began collecting British plants at Lighthorne, Warwickshire, in 1850, and she was the earliest authority for a large number of Warwickshire plants, and many of her records are to be found in the

Flora of that county. In 1872 with her elder sister she removed to Odiham, in North Hampshire, and in that rich botanical district she worked with great care and assiduity. A large number of records to district xi. of Townsend's *Flora of Hampshire* are due to her industry. The Isle of Wight, Bournemouth, and the New Forest were also zealously searched. She was fortunate enough to discover *Eriophorum gracile* near Odiham, and near Bettws-y-Coed, at Coed Fyddon she found a marsh violet which suggests the hybrid of *epipsila*. In the Isle of Wight she found a pansy which was named *V. banatica*. In the eighties, when their nephew, Mr Bolton King, was at Balliol College, I had the pleasure of making the acquaintance of the Misses Palmer at their home with its beautiful garden at Odiham. I paid them many visits, and had the opportunity of seeing some of Miss Charlotte's discoveries in the place where she gathered them. They were delightful hostesses, kind, with a genuine sense of humour, and a delightful keenness. The elder sister was as interested in her garden and in philanthropic work as her younger sister was in botany, and it was very pleasing to see the mutual affection and respect which existed between them.

In 1907 Miss Charlotte Palmer was good enough to give me her large herbarium. This included a collection of plants made by her grandmother, the Countess of Aylesford, wife of the fourth Earl, who died in 1812. She was born in 1781 and died in 1832. This herbarium consists of specimens collected by Lady Aylesford. From these she made her water-coloured drawings, which were preserved in several folio volumes, and number more than a thousand sheets. These were purchased by Quaritch at the Aylesford sale, and disposed of to the Earl of Dartmouth, whose wife was a grand-daughter of Lady Aylesford. These specimens of plants were in many instances preserved by her daughter, Lady Frances Finch, who gave them to her niece, Miss Palmer. They also include 119 specimens collected by George Don, which have been alluded to in my memoir of that botanist. The collection also contained a specimen of *Cephalanthera rubra* collected by Sir H. Paul in 1818; *Galium Witheringii* from the Bishop of Carlisle, Dr Goodenough; specimens from the Warwickshire botanist, the Rev. W. Bree; from William Borrer, John Dickson, Mrs Holbech, Hon. Daniel and Lady Maria Finch, George Anderson, and others. The collection also included the plants of Miss Elizabeth Townsend, of Honington Hall, Warwickshire, which

she collected in Bucks., Northants., Warwickshire, &c., as well as plants given her by W. G. Perry, Albert Hamborough, and Frederick Townsend, who was her brother. Miss Palmer's collection also contained many plants collected by her nephew, Mr Bolton King. A valuable item of the collection was a set of Sole's Mints which illustrated his *Menthae Britannicae*. His own volume of that work, which he meant to find a home in the Linnean Society, was also in Miss Palmer's possession. She offered it to that Society at the price she paid for it, but it was declined, and it is now in my possession. It contains many MSS notes by Sole which may form the subject of a subsequent paragraph.

On one of my visits in 1897 Miss Palmer pointed out to me an *Epilobium* near Odiham which proved to be *E. Lamyi*, new to the county, and we had an expedition to Ewshot to see *Cervicina hederacea*, which had a humorous incident. The two sisters drove me out in a brougham to a lane near Ewshot, about 10 miles from Odiham, in order to visit a small pond on the borders of which the delicate *Campanula* grew. The day was drizzly, and Miss Palmer decided to stay in the carriage. We soon found the pond and the plant, but the rain increased, and as I wanted to search the pond margin, which looked attractive, Miss Charlotte decided to rejoin her sister, limiting me to half an hour, as they had to be home in time to be the hostesses of some philanthropic gathering. Time rapidly sped, and when I looked up to my amazement nothing was to be seen. The mist had come down so that I could not see more than a few yards ahead. I walked round the pond, but was utterly unable to find the path by which I had reached it. I was in a nice predicament. If I met anyone what could I ask? I had not the faintest knowledge of the district. To ask for Miss Palmer's carriage was absurd. I wandered about for the best part of an hour, when, the mist lifting a little, to my delight I saw Miss Charlotte trudging down a muddy lane, as I expected, in search of the wanderer. I met her with a thousand apologies, and asked, "Are we far from the carriage?" "What will Miss Palmer say?" Her reply was, "I don't know where we are, for I have lost my way too." Fortunately she knew the road by which we came from Odiham, and on meeting a cottager I was soon enabled, although sadly late, to find the carriage, to make our apologies and excuses, inadequate as I felt them to be. We were pardoned, but I had to do penance in the afternoon by assisting to

entertain people—who were not botanists—and to make it right with the housekeeper. In all my travels and wanderings over misty moorlands, or among lonely mountains, I had never lost my way before in such a helpless manner.

Last year I called upon the sisters at Odiham and found them busy in arranging stamps in their album, for they had become enthusiastic philatelists, and at that time they were in good health and spirits. I had a severe but not sour criticism on my party's legislation, little as I was responsible. It was the last time I saw Miss Charlotte, but one will not readily forget the clever, shrewd, kindly face, nor the patient industry which characterised her.

JOSEPH ANTONY MARTINDALE, the eminent British Lichenologist, who was born at Stanhope, Durham, July 19, 1837, died at Stavely, April 3, 1914. He worked assiduously at the *Flora of Westmoreland*, and traced out the old records with praiseworthy industry. His name is commemorated in *Ephebeia Martindalei* Crombie. He added to the British Flora *Gyrophora sporochroa* from Langdale Pikes in 1889, and prepared a list of Westmoreland Lichens, and a list (see *Report Westmoreland Nat. Hist. Soc.*) of Westmoreland and Lake Lancashire Plants, 1023 in number, of which he estimated 897 were native, or definitely plants of that area; and also 360 Mosses, 118 Hepatics, 500 Lichens, and 138 Fungi. In this list 253 plants recorded in pre-Linnean times are included and their history traced. He was President of the Kendal Natural Society in 1912. See also Obituary note in *Naturalist*, 157, 1914, and by E. M. Holmes in *Journ. Bot.* 1914.

HENRY FRANKLIN PARSONS, M.D., F.G.S., born at Frome, Somerset, 1846, died at Croydon, October 14, 1914. He was Medical Officer of Health at Goole, and became Medical Inspector to the Local Government Board, taking up his residence at Croydon, where he took great interest in the local Natural History Society of which he became Vice-President. He was a frequent contributor to its *Transactions*. A paper on the *Flowering of Spring Plants* appeared in 1897, the *Flora of the Commons near Croydon*, February 21, 1899, and again on November 21, 1911, which gave a valuable list of Flowering Plants and Mosses, and one on *London Casual Plants* in 1906.

During his residence at Goole he was an active member of the Botanical Record Club, and added many new records to South-east and

South-west Yorks. In 1875 he contributed to the *Naturalist* (new series i., 115) a paper on *The Maritime Plants of the West Riding of Yorkshire*, and in 1879 a *Report of the Botanical Section of Yorks Nat. Union for 1878* in its *Transactions* (series e., pp. 9-50). He also assisted Dr F. Arnold Lees in the *Flora of West Yorkshire*.

His Herbarium will be deposited in the Grangewood Museum, Croydon.

JOSEPH REYNOLDS GREEN "was born at Stowmarket on December 3, 1848, and was educated at a private school at St Ives. Ultimately he became associated with his father in business, and only retired to devote himself to scientific pursuits in 1881. In the meantime he had taken his bachelor's degree in Science at London. In the same year, 1881, he went up to Trinity College, Cambridge, was elected to a Major Scholarship in 1882, and was placed in the First Class of Part I. of the Natural Science Tripos in 1883, and in the First Class of Part II. in 1884 (Botany and Physiology). He took his M.A. in 1888, and his Doctorate in 1894. From 1885 to 1887 he held the post of Senior Demonstrator in Physiology in the University under the late Sir Michael Foster, was Rolleston Prizeman of the University of Oxford in 1890, and President of Section K (Botany) of the British Association in 1902. From 1887 to 1907 he was Professor of Botany to the Pharmaceutical Society of Great Britain, while in 1902 he was elected a Fellow and Lecturer of Downing College, Cambridge. From 1907 to the present year he held the Hartley Lectureship in Plant Physiology in the University of Liverpool.

In addition to many original papers contributed to the Royal Society (to which he was elected in 1905) he published the following works:—*A Manual of Botany* (1895); *The Soluble Ferments and Fermentation* (1899; translated into German in 1901); *Introduction to Vegetable Physiology* (1900); *Primer of Botany* (1910); and a *History of Botany from 1860 to 1900* (1910).

Of the value of his scientific work I am not qualified to speak, but I wish to place on record the conviction of all who knew him well that in his private life he uniformly displayed those qualities of patience, persistence, open-mindedness, and modesty, which are the best qualifications for any seeker after truth in every field of learning."—G. E. GREEN in the Preface, p. vii., to J. R. Green's *History of Botany in the United Kingdom*, 1914.

The Editor, Prof. R. J. HARVEY GIBSON, adds "what Derham said of John Ray, may with equal appropriateness be said of Reynolds Green":—"In his dealings no man more strictly just; in his conversation no man more humble, courteous and affable." I may add that some of his early physiological work was done at the Jodrell Laboratory under Dr Scott, and there he prepared his excellent study of the Ferments. For several years when I was on the Examining body of the Pharmaceutical Society, I was brought into close relations with Green, whose fairness, and what has been aptly termed his open-mindedness, struck one as distinguishing features in his character. He was much liked and respected by his pupils, and although not a lover of Field Botany, did not (as at that time was not infrequent among professional botanists) despise it. We had another bond of fellowship since we were both Masons; he was a sincere and enthusiastic member of the Craft, in which he won distinguished honours and for which he did yeoman service.

WILLIAM WEST, F.L.S., of Bradford. I do not much relish the attempt to give a pen-picture of a thirty years' intimate for those who knew him not personally, so high and delicately-hung was my respect for, and appreciation of, his character—one in a thousand, and singularly self-contained and above anything envious or petty. When I knew him first in the early seventies he "ran" a chemist's shop in Horton Lane, Bradford, and was absorbed in viewing things through the enlarging eyes of a binocular microscope. Without gush or convivial warmth, he did not greatly attract at once. His being was aloof and complex (to me), for, to begin with, he was a musician! and an inborn genius as to acquiring languages. A mathematic mind, too, was his, not sympatica, to whom a quadratic equation was ever a nebula unallowing imagination or a strain of sentiment any part in it. Dark-haired and eyed, with a Semitic cast of face, a mobile mouth, and a violinist's fingers, his hold on my flower-faces' enthusiasm grew stronger with acquaintance made and cemented in walks abroad over moor and field. Plein airistes, both of us, through the flower or flowerless seasons, alike bent on collating facts of little things or big, what time my (and J. W. Davis's) *West Yorkshire* was in the making. A profounder lover of truth no man ever was. For a fact to be "suspect," or a record false in the putting forth, was enough to set it aside as worth no minute of time in the sifting. At first I had the

larger store of facts to be considered in relationship, but soon, with a more alert intelligence and a tighter memory, as West, finding the gaps in our knowledge, began to study the mosses first, and then the fresh-water *Algae*, he drew ahead of me in specialised dexterity (microscope ever to his eye) and adventured into those regions of the marvellously small that perhaps lie at the basis of biologic evolutionary structure. Then his shop business began to "fail" him. A placid, madonna-like lady, his wife, passed away. A bright, almost precociously-clever elder son, Willie, died out in India suddenly of some dysentery or other, and he fell naturally (but not, I fancy, of set choice) into the chair of botany teacher at the Bradford Technical Schools, which post he retained, valued—even loved—by his pupils in long succession, until his death. What he "died of" I do not know, and it matters not. He lived and made a name for acute thoroughness, and his *Algae* monographs, vastly improving on Hassell, Ralfs,—all his predecessors, live, and will continue to testify to what he was. In his later years he was fearfully over-worked, and perhaps "Syllabus" and "Curricula" might most fittingly have been assigned as that "cause" for which the general public have so much curiosity. In letters, for five years back, scribbled in all sorts of places; on mountain tops, on inn tables in the Highlands, or from the Dovre fields of Scania, in the intervals of well-won holidays, due to timely Association grants, the burthen of his arraignment of the "conditions" of life was always on similar lines: "All work and no play"—also little *pay*. His task, veritably that of a modern scholastic Sisyphus, rolling the stones of successive sessions so far with one class, to begin again the same traverse with another lot the next. An able teacher, I believe, and yet a pity! Such men are not born to teach, surely!

F. Arnold Lees.

William West, F.L.S., born at Workhouse, near Leeds, February 22, 1848, died at Bradford, May 14, 1914. He qualified as a pharmacist in 1870, and commenced business at Bradford in 1872. He had married in 1874 Hannah Wainwright, and his family consisted of two sons and a daughter. The elder son, William, matriculated and joined St John's College, Cambridge (see *Journ. Bot.*, 353, 1901), where I made his acquaintance, and found him a most intelligent and industrious field botanist, and although his health broke down he was a distinguished student. After taking a second-class he went out to India, but what was likely to have been a

most successful career was prematurely closed by his death from cholera in 1901. The second son, George, is Professor of Botany at Birmingham University, and was closely connected with his father's brilliant algological researches.

William West, the elder, became Lecturer on Botany at Bradford Technical College, where later on he also taught biology and pharmacology. In 1877 he became secretary to the Yorkshire Naturalists' Union, and was its president in 1879. At the Bradford meetings of the Association he was secretary of Section K. In his early days he was a keen field botanist, and one of his papers, (*Naturalist* 1881-2) gives a graphic account of his visit to Scotland, when in the space of a few days he ascended Ben Nevis, Ben Lawers, and Ben Mac Dhui, a proof of his energy and power of endurance. With his son algological research was carried on in an indefatigable manner, and in 1900-01 a list of the *Algae* of Yorkshire was completed. About that time I made West's acquaintance. I was visiting West Inverness in search of *Carex Buxbaumii* at Arisaig, and returning triumphant, caught up West, who had been out for *plankton*. It was raining as it can rain on that western coast—the water literally ran in at our neck and out at our heels—but West's delightful cheeriness was not dispelled even by this climatic condition, and the homeward trudge and our evening repast and rest afterwards was made happy by his bright conversation and wide range of thought. Not only Britain but the whole world brought grist, in the shape of specimens, to his mill, as he became an acknowledged authority on his subject. His magnum opus is the *Monograph of the British Desmidiaceae*, of which four volumes have appeared—1904-5-8-11. Two others yet await publication. The *Plankton Researches* appeared in the *Proceedings of the Royal Society* in 1909. In the recent survey of the Clare Island flora, he added 585 species of *Algae* to the Irish list; 55 for the first time as British, and 11 new to science.

He was a frequent contributor to the *Naturalist*, contributing papers on the *Autumn Flora of Whernside* in 1877 (with F. A. Lees); *The Rose of Towton Battlefield* in 1877; *Bucks. Lichens*, p. 69; and *Additions to the West Riding Flora*, p. 60 (1880), 1879; *The Principal Plants of Malham*, p. 25, &c., 1883; *Plants of the Bradford District*, p. 178, 1885; *A Year's Botanical Work*, p. 60, 1886; *Additions to the Flora of W. York*, 1808; *Goodyera repens in Market Weighton*, p.

312, 1888; *Sedum Rhodiola*, p. 139, 1891. For a very complete biographical list of his papers see the interesting memoir by Mr Roebuck in the *Naturalist*, p. 257, 1914.

JOHN KNOX, born in Kirkcudbright in 1831, died at Forfar, July 8, 1914. He was educated for the teaching profession, and had his first appointment at Crieff, which he held until 1866, when he became parish schoolmaster at Forfar, an office which he held for many years. As a master he was strong, conscientious and painstaking, and the influence of his firm and capable mind left an impress on the minds of hundreds of pupils who passed under his care, and at the termination of his lengthy mastership the public appreciation of his services for 43 years found expression in a tangible form, and he was also allowed to continue in the occupation of the Schoolhouse. When he was only twenty-two years of age he was ordained elder at Crieff, and he stated that for over 60 years he had never allowed a year to go by without being present at a Communion, either as hearer, participator, or administrant. In 1913, on his completing his sixtieth year of eldership, he was presented with a purse of sovereigns and an address by his colleagues, which expressed their warm appreciation of his service. For nearly 50 years he served as session-clerk. In his early life he developed a strong love for botany, and when a demand for its teaching arose he, at the age of 59, sat for an examination and obtained the certificate to teach the subject under the Science and Art regulations. He became a member of the Perthshire Society of Natural Science, and started a botany class at Forfar, out of which grew the Forfar Field Club, of which Knox was the heart and soul. In conjunction with three brother dominies, Abram Sturrock, of Rattray; James Stewart, of Aberlemno; and Walter Graham, of Rescobie, a systematic working of the district was inaugurated, especial attention being paid to the series of fresh-water lochs near Forfar and those in the Vale of Strathmore around Blairgowrie. In 1880 he read a paper on *The Life and Labours of George Don* to the Perthshire Society, and this he published in the *Scottish Naturalist* for 1881. This attracted my attention, and in 1882 I called on him at Forfar. His personality was a striking one—tall, over six feet, and well built, his clear intellectual qualities soon impressed one, as did his keenness about the local flora, which he knew intimately. There, too, I made the acquaintance of Graham and Sturrock, and

they accompanied me to the loch of Rescobie, where Knox showed me the curious submerged flowering Batrachian, then called *confervoides*, the alliance of which with *circinatus* seemed to me probable. Graham then took me to see *Caltha radicans*, one of Don's reputed discoveries, which he had found in a neighbouring marsh. The rare *Corallorrhiza* was also pointed out to me as one of the trophies of their work. The following year I took another opportunity of visiting Forfar, and having had the misfortune to dislocate an ankle, loch dredging was an acceptable form of work Knox and Sturrock accompanied me to the Dunkeld Lochs, where I saw the pondweed which Sturrock had found in Marlee Loch, which Bennett named after him. There, too, we saw *Naias* and *Elatine hexandra*, and a great series of pondweeds. Craighall was visited in order to obtain *Polygontum verticillatum*, and in a noose of rope I was let down the conglomerate cliff of Craighall to gather *Lychnis Viscaria*, which I might, if I had then known, have reached from the roadside in Glen Farg. They were very happy days, and a friendship grew up between us which death alone terminated. Sturrock died young; then Graham, with his fund of witty stories, passed away; but Knox remained an evergreen. Riddelsdell and I explored Restennet with him subsequently, and I know how much Knox's strong and sterling qualities commended themselves to my clerical friend. At Knox's request I published a more detailed examination of Don's botanical work in the *Scottish Naturalist* for 1884, as the opportunity had been given me of seeing the specimens sent by Don to Lady Aylesford, which are now in my possession. Knox had convinced me of the *bona fides* of Don, which these specimens bore out, and I felt convinced that his traducers had no grounds for their opinions. It was pleasing subsequently to learn that one so well capable of forming an opinion, Professor J. H. Balfour, also held the same view. In 1902, when I was President of the British Pharmaceutical Conference at Dundee I took the subject of the *History of Scottish Botany* for my address, and again did what I could to rescue Don's memory and to give him credit for his very remarkable botanical work. This enlisted the sympathies of my Dundee friends, who handed over the balance, after the expenses of the meeting had been defrayed, to Mr Knox, who had long desired to see erected at Forfar some memorial to the man who had done so much for the botany of his native county, yet who had died almost of starvation in their midst.

Knox went at the matter in his earnest way, and in a short time a sufficient sum was raised to carry out his project. Local difficulties respecting a site, however, arose, and a considerable delay occurred, so that it was not until 1910 that a monument was erected in the Parish Churchyard at Forfar to the long-neglected townsman, whose reputation Knox had done so much to clear. Through his kindness and self-effacement I was allowed the honour to unveil it on Sept. 8, 1910. At the ceremony itself and afterwards at the more convivial gathering which was presided over by the local laird, my old respected fellow-worker at the Botany of the Glen Spean Hills, Mr E. H. Robertson of Burnside, it was very evident that Knox was held in great respect and affection by his fellow-townsmen, to whom he had set the example of steadfast work, of devotion to duty, and of an enthusiastic love of nature and her exponents.

William Barbey, the owner of the Boissier Herbarium at Chambésy, which he so generously endowed, and where he so hospitably entertained botanists of all nationalities, died November 18, and was buried at Valeyses sous Rances, Canton Vaud, Suisse, on November 21, 1914. Not only was he a generous patron of Botany, but he rendered distinguished service to his country. We are very delighted to be able to add the following note from the eminent conservateur of the Herbarium, M. G. Beauverd, "Madame William Barbey-Boissier et ses enfants se proposent de continuer, pour le moment du moins, la tradition scientifique créée pour leur père et grand-père, M. Edmond Boissier, puis reprise et étendue par M. William Barbey. Ils ont l'honneur du communiquer cette decision aux correspondants suisses et étrangers d l'Herbier Boissier. L'activité de cet herbier se poursuivra donc dans les mêmes conditions que précédemment, servant ainsi la memoire et les intentions du défunt."

We have also to mourn the death of our members, Mrs Foord-Kelcey, of Kimble Vicarage, Bucks, a keen and zealous worker, who supplied me with many records of Bucks. plants; and of Mr P. H. Allen, of Woodhead Hall, near Cheadle, Staffordshire, who died at Pembroke College, Oxford, on August 6th, 1914, after a few days' illness. He had made a collection of British Plants.

NEW COUNTY AND OTHER RECORDS.

20. RANUNCULUS ACRIS L., var. PUMILUS Wahl. Mr Beeby's Shetland plants (*Herb. S. Lond. Inst.*) are quite different from mine gathered on the Cairngorms, which are true *pumilus* of Wahlenberg. So far this is the only known locality.

25. R. REPTANS L.? Loch Brandy, Forfar, 90 (see *Trans. Bot. Soc. Edin.*, xiii., 93).

33. R. OPHIOGLOSSIFOLIUS Vill. Marshy meadow, Dorchester, Dorset, 9, Mr RONALD GOODE, teste E. G. BAKER, in *lit.* 1914.

40. R. HETEROPHYLLUS Web. Cumnor, Berks., 22; Otmoor, Oxon., 23; Marsh Gibbon, Bucks., 24; Eye, Northants., 32; Crowland, Lincoln S., 53, G. C. DRUCE; Galashiels, Selkirk, 79; Abbotsford, Roxburgh, 80, Miss I. M. HAYWARD.

41. R. PELTATUS Schrank. Stranraer, Wigton, 74; Selkirk, 79.

42. R. BAUDOTII Godr. Carmarthenshire, 44.

45. R. LENORMANDI F. Schultz. Midlothian, 83.

48. CALTHA RADICANS Forst. Ben Lawers, 88, at 2000 feet, E. S. MARSHALL in *Journ. Bot.* 164, 1914. This much extends its known altitudinal range. *C. radicans* is already recorded from Strath Tummel, 88 (see *Ann. Scot. Nat. Hist.*, 248, 1905). I have found it also in Tweedside, 78; East Perth, 89; Argyll, 98; East Ross, 106; Sutherland, 107.

51. HELLEBORUS VIRIDIS L. Native. Basildon, Berks., 22; Nuffield, Oxon., 23.

52. H. FOETIDUS L. Native? Basildon, Berks., 22; Cornbury, Oxon., 23; Chilterns, Bucks., 24.

68. ACONITUM NAPELLUS L. Naturalised. Welford, Berks., 22; Stroud, Gloucester, 33.

83. PAPAVER LECOQII Lam. Beauly, S. Hants., 11 (but see *Fl. Hants.* 21); near Walden, Essex N., 19; near Ramsey, Hunts., 31; Gloster W., 34; Perth E., 89.

106. FUMARIA PURPUREA Pugsley. Richmond, N.W. Yorks, 65, *Hb. C. Bailey*, ex Pugsley, *Journ. Bot.* 50, 1913; Drummore, Wigton, 74, J. FRASER, *l.c.*

108 (3). F. PARADOXA Pugsley. Forest Parish, Guernsey. Plentiful in a small field, H. W. PUGSLEY, *Journ. Bot.* 328, 1914.

109. F. BASTARDI Bor., var. HIBERNICA Pugsley. Cobo, Le Gouffre, Guernsey, H. W. PUGSLEY, *l.c.* Portpatrick, Wigton, 74, J. FRASER, *l.c.*

116. MATHIOLA INCANA Br. Newquay (see *Fl. Cornwall*); Dawlish, S. Devon, 3; Braunton, N. Devon, 4; Ramsgate, Kent E., 15; Hastings, 14; still plentiful, Sussex E. Probably these are all of adventitious origin.

124. RADICULA SYLVESTRIS Druce. Roxburgh, 80.

125. R. AMPHIBIA Druce. Blackwater, N. Hants., 12 (see *Flora*).

128. BARBAREA VERNA Asch. Alien. Portpatrick, Wigton, 74, J. FRASER, *l.c.*

143. CARDAMINE AMARA L. N. Hants., 12 (see *Flora*).

145. C. FLEXUOSA With. Haddington, 82: Argyll, 98.

158. ALYSSUM MARITIMUM Lam. Alien. Near Welwyn, Herts., 20, J. E. LITTLE.

167. COCHLEARIA OFFICINALIS L. Mid Perth, 88.

170. C. GROENLANDICA L. Gourock, Renfrew, 76, J. E. MATHESON, 1846 (!).

178. WILCKIA AFRICANA F. v. Muell. Alien. Ware, Herts., 20; Boston, Lincoln, 54.

183. SISYMBRIUM SOPHIA L. Slough, Bucks., 24; Tintern, Monmouth, 35.

185. S. ORIENTALE L. Alien. Hitchin, Herts., 20, J. E. LITTLE. Albecq, Guernsey, 1912, W. C. BARTON.

218. BRASSICA JUNCEA Coss. Alien. Par, Cornwall, 1, C. C. VIGURS. Slough, Bucks., 24; between Edworth & Langford, Beds., J. E. LITTLE.

226. DIPLOTAXIS TENUIFOLIA DC. Extinct in 32, the walls of Northampton Castle on which it grew being now demolished.

233. CORONOPUS DIDYMUS Sm. Alien. Reading, Berks., 22; Gerrard's Cross, Bucks., 24, G. C. DRUCE; Dunbar, Haddington, 82, Miss I. M. HAYWARD.

240. LEPIDIUM RUDERALE L. Boston, Lincoln N., 54, WOODRUFFE-PEACOCK.

240 (2). L. NEGLECTUM Thell. Alien. Par, Cornwall, 1912, C. C. VIGURS.

246. L. SMITHII Hook. Lincoln N., 53, WOODRUFFE-PEACOCK; Elgin, 95.

247 (4). L. DENSIFLORUM Schrad. Alien. Pyrford, Surrey, 17, 1910, Lady DAVY and G. C. DRUCE; Barcombe Mill, E. Sussex, 14, 1906 (as *virginicum*), T. HILTON in *Hb. Druce.*

249. THLASPI ARVENSE L. Lincoln S., 53, WOODRUFFE-PEACOCK.

268. RAPISTRUM RUGOSUM All. Alien. Near Warnham, Sussex, 1914, A. WEBSTER.

288. HELIANTHEMUM CHAMAECISTUS Mill. Merioneth, 48, PAMPLIN in *Hb. Druce.*

291. VIOLA STAGNINA Kit. Menmarsh, Oxon., 1914, P. M. HALL. Originally found on Otmoor in 1812, *Hb. Ox.*

293. V. SYLVESTRIS Kit. Co. Down. (See Carrothers in *Irish Naturalist*, 99, 1913.)

var. PUNCTATA Druce. Kingsley Bottom, 13; Upham, S. Hants., 11; Swanage, Dorset, 9, P. M. HALL; Bradenham, 24; Whittlewood, 32, G. C. DRUCE.

296. V. CANINA L. Brickhill, Beds., 30; Harleston, Northants., 33; Sligachan, Skye, 104, G. C. Druce.

var. PUSILLA Bab. Hayling Island, 11, P. M. HALL.

298. V. ODORATA L., var. PRAECOX Gregory. Woodstock, Oxon., 23; Hayling Island, S. Hants., 11, with var. DUMETORUM and SUBCARNEA, P. M. HALL, vide sp.

299. V. HIRTA L., var. VARIEGATA Greg. Unhill, Berks., 22, P. M. HALL.

var. PROPERA Gill. Kingsley Bottom, W. Sussex, 13; Upham, S. Hants., 11, P. M. HALL.

var. FOUDRASI. Swanage, Dorset, 9; Kingsley Bottom, W. Sussex, 13, P. M. HALL.

var. OENOCHROA Gill. Kingsley Bottom, W. Sussex, 13, P. M. HALL.

300. V. CALCAREA Greg. Kingsley Bottom, W. Sussex, 13, P. M. HALL. A new locality.

301 (2). V. EPIPSILA Ledeb. Cliburn Moss, Westmoreland, 69, P. M. HALL, 1914, in *lit.*

308. POLYGALA VULGARIS L., var. BALLII Ostenf. Walls, Shetland. W. H. BEEBY (as *vulgaris*), *Hb. S. Lond. Inst.*

318. DIANTHUS DELTOIDES L. In a neglected field at Pardown, near Oakley, N. Hants, 12, Miss M. A. SCOTT, 1914, ex Dr D. H. SCOTT. The habitat, as Dr Scott states, does not suggest its being adventitious, therefore his daughter's discovery confirms this plant for the county (see *Flora Hampshire*, ed. 2, p. 72).

338. SILENE CONICA L. Alien. Sandy ground, Frilford, Berks., 22, 1914, Miss NANCY LINDSAY. A recent introduction, but now likely to spread in this suitable neighbourhood.

343. S. ANGLICA L. Alien. Barrow-in-Furness, L. Lancs., 69 b, W. H. PEARSALL, in *lit.*

344. S. QUINQUEVULNERA L. Near Braunton, S. Devon, 4, 1914, W. A. HARFORD, vide sp.

359. "LYNCHNIS DIOICA, var. B, a rare and singular variety," G. DON in *Hb. Edin.*, teste J. FRASER, who says "the leaves look more like *alba*, capsules not ripe enough to show recurved teeth. Still it might be *L. Preslii*." Mr Chester sent from Kettering, 32, a glabrous *L. alba* in 1912. The type occurs in Roxburgh, 80.

378. STELLARIA NEMORUM L. Near Stranraer, Wigton, 74.

382. S. DILLENIANA Murr. Gloucester E., 33, DRUCE. Plentiful Esthwaite Water, L. Lancs., 69 b., W. H. PEARSALL, in *lit.*

399. SAGINA NODOSA Fenzl. Wellingborough, 32, GERARD, 1633.

401. S. SUBULATA Presl. Rhidorroch, W. Ross-shire, 105.

403 (2). S. SCOTICA Druce. Dr Moss (*Journ. Bot.* 57, 1914) has suggested that *S. scotica* is type *S. saginoides*, of which the British plant hitherto called *saginoides* is var. *macrocarpa*. The evidence he brings forward is not convincing, since *scotica* is much more closely allied to *S. procumbens* than to *saginoides*, which is much more frequent in Scandinavia than *scotica* (100 to 1). Dr Lindman writes 12th December 1914:—"*Saginoides* was quite plainly distinguished and perfectly known before Reichenbach published his *Icones*, vol. v., and Reichenbach confused it, wrongly describing the true *saginoides* as var. *macrocarpa*. The early authors, O. Swartz, G. Wahlenberg, Smith, Presl, Fl. Danica, and Pollini, used *saginoides* in the correct form, but by varying names.

405. S. CILIATA Fr. Roadside, Selkirk, 79, Miss I. M. HAYWARD.

405 (2). S. REUTERI Boiss. Herts., 20; Oxon., 23; Bucks., 24; Northants., 32. Usually in the brick paving of railway stations.

413. SPERGULARIA SALINA Presl. Merioneth, 48, 1885, PAMPLIN in *Hb. Druce*; Ware, Herts., 20. Adventitious.

418. CLAYTONIA SIBIRICA L. Alien. Roadside bank, Gomshall, Surrey, 17, in plenty, W. H. GRIFFIN.

426. HYPERICUM HIRCINUM L. Alien. Chillington, S. Devon, 3, Rev. J. MILLER, vide sp.

434. H. ACUTUM Moench. Frequent near Sawrey, L. Lancs., 69 b., W. H. PEARSALL.

435 (2). H. DESETANGSII Lamotte. Banks of the Lune, Caton, W. Lancs., 1900, J. A. WHELDON (see *Journ. Bot.* 18, 1914); Richmond, York, LEES, in *Nat.* 10, 1914.

449. LAVATERA TRIMESTRIS L. Alien. Warlaby, Northallerton, York, 1884, J. E. LITTLE, vide sp.

463. TILIA PLATYPHYLLOS Scop. Brecon, 42, probably native. Alien, Lincoln, 53, 54, WOODRUFFE-PEACOCK, 23, 24, 32.

467. LINUM ANGUSTIFOLIUM Huds. Cambridge, 29, H. W. GRAVESON. Professor Graebner, in *lit.*, rejects the suggested name *L. bienne* for this species which he believes refers to a form of *usitatissimum*.

475. GERANIUM VERSICOLOR L. Alien. Roadside bank near Noke, Oxon., 23, 1914, Miss N. GRIFFIN.

476. G. NODOSUM L. Alien. Rubbish heap, Warlingham, Surrey, 17, 1914, A. BEADELL, ex W. H. GRIFFIN.

505 *b*. OXALIS CORNICULATA L., var. PURPUREA Parl. Alien. Eton, Bucks., 24.

593. MELILOTUS OFFICINALIS Lam. Barmouth, 48, 1885, PAMPLIN; Roxburgh, 80.

596. M. ARVENSIS Wallr. Berks., 22; Oxon., 23; Bucks., 24; Northants., 33.

619. TRIFOLIUM STRIATUM L. Barmouth, Merioneth, 48, 1885, PAMPLIN.

638. T. FILIFORME L. West Mayo, EARL OF GAINSBOROUGH, in *Irish Nat.* 119, 1913.

641. ANTHYLLIS VULNERARIA L., var. BICOLOR (Rouy & Fouc.). Cornwall, J. W. HART, vide sp.

var. COCCINEA L. Caithness, 109.

665. SCORPIURUS SUBVILLOSUS L. Alien. Fortis Green, Middlesex, 21, J. E. COOPER, *l.c.*

676. CICER ARIETINUM L. Alien. Hitchin, Herts., 20, 1914, J. E. LITTLE; Cavendish Dock, Barrow-in-Furness, L. Lancs., 69 b, W. H. PEARSALL.

677. VICIA SYLVATICA L. Peebles, 78.

684. V. PSEUDOCRACCA Bert. Alien. Crouch End, Middlesex, 21, J. E. COOPER.

687. V. BITHYNICA L. Alien. Ware, Herts., 20; Iver and Slough, Bucks., 24; Stranraer, Wigton, 74, DRUCE; in wheat, Struby, Lincoln, S. ALLETT, ex WOODRUFFE-PEACOCK.

691. V. LUTEA L. Alien. Hitchin, Herts., 20, J. E. LITTLE; Hackney Marshes, 21, J. E. COOPER, *l.c.*; Iver, Bucks., 24; Oxon., 23; Cothill, Berks., 22.

700. V. LATHYROIDES L. Barmouth, Merioneth, 48, 1885, PAMPLIN, *l.c.*

710. LATHYRUS SYLVESTRIS L. Ilfracombe, 4, 1896, DRUCE; Lincoln, 53, 54, WOODRUFFE-PEACOCK.

740. PRUNUS INSITITIA L. Near Monks Wood, Hunts., 31.

750. RUBUS NESSENSIS Hall (*R. suberectus* Anders.). Badby Wood, Northants., 32, 1914, L. CUMMING, named by W. M. ROGERS.

788. R. SILVATICUS Weihe. Badby, Northants., 32, L. CUMMING.

804. R. LASIOCLADOS Focke, var. ANGUSTIFOLIUS Rogers. Badby Wood, 32, L. CUMMING.

844 (2). R. GLAREOSUS Rogers & Marsh. Broxbourn, Herts., 20, Miss TROWER; Near Stokenchurch, Bucks., 24.

865. R. SERPENS Weihe, forma. Badby Woods, Northants, 32, 1914, L. CUMMING.

883. GEUM RIVALE, with INTERMEDIUM. Northants., 24, DIXON; Bucks., 24.

895. POTENTILLA ARGENTEA L. Alien. Waste ground, Barrow, L. Lancs., 69 b, W. H. PEARSALL.

896. P. INTERMEDIA L. Alien. Peppard, Oxon., 23, Miss RIDLEY; Forfar, 90, R. H. CORSTORPHINE.

902. P. PROCUMBENS Sibth. Monks Wood, Hunts., 31; Brecon, 42.

910. ALCHEMILLA ARGENTEA Don. (*A. conjuncta* Bab.). A specimen ex root from Ben Lawers, 88, J. MORLEY, 1871, in *Hb. Druce.*

914. AGRIMONIA ODORATA Mill. Lincoln N., 54, WOODRUFFE-PEACOCK; Selkirk, 79, Miss I. M. HAYWARD; Fife, 85; Bucks., 24; Northants., 32.

925. ROSA SYSTYLA Bast. Oxon., 23; Bucks., 24; Beds., 30; Hunts., 31.

946. R. HIBERNICA Sm. Speyside, Easterness, 96.

1000. PARNASSIA PALUSTRIS L. Lincoln S., 53, WOODRUFFE-PEACOCK; Devon N., 4; and Braunton as the var. *condensata* Travis and Wheldon.

1004. RIBES ALPINUM L. Llanderfel, 48, PAMPLIN, 1878, in *Hb. Druce.*

1010. SEDUM FABARIA Koch. Cornwall, 1 and 2; Berks., 22; Oxon., 23; Bucks., 24.

1040. CALLITRICHE AUTUMNALIS L. Esthwaite Water, L. Lancs., 69 b, W. H. PEARSALL; Spot Loch, Dunbar, 82, COWAN in *Rep. Wats. Exch. Club* 394, 1912-13.

1049. EPILOBIUM TETRAGONUM L. Bucks., 24; Beds., 30; Hunts., 31.

1052. E. ROSEUM Schreber. 76; Mid-Perth, 89.

1072. CIRCÆA LUTETIANA L. Peebles, 78. var. INTERMEDIA (Ehrh.) 107.

1090. BUPLEURUM ROTUNDIFOLIUM L. Barmouth, Merioneth, 48, 1884, PAMPLIN; Lincoln, 54, WOODRUFFE-PEACOCK; Wigton, 74.

1104. CARUM VERTICILLATUM Koch. Rough marshy meadow on the border of Slape Heath, between Stoborough and Arne, Dorset, 9, T. H. GREEN (see *Journ. Bot.* 310, 1914).

1137. OENANTHE LACHENALII Gmel. Wittering, &c., Northants., 32.

1142. SILAUS FLAVESCENS Bernh. Brecon, 42.

1153. HERACLEUM VILLOSUM Fisch. Alien. Roadside bank, Gomshall, Surrey, 17, A. BEADELL, ex W. H. GRIFFIN.

1176. ADOXA MOSCHATELLINA L. Llanderfel, Merioneth, 48, 1884, PAMPLIN, *l.c.*

1183. LINNAEA BOREALIS L. Near Lyndhurst, S. Hants., c. 1863 (*Fl. Hants.* 193, 1904). See *Country Life* 610, 1911, A. MACDONALD, for a confirmation. Probably originally planted there.

1194. GALIUM ERECTUM Huds. Tring, Herts., 20; Berks., 20 (see *Flora*); Northants., 32.

1196. G. ASPERUM Schreber. Alien. Ironstone and clayey bank, Slipton Pits, Northants., 32, 1914, G. CHESTER, vide sp.; Frilford Golf Course, Berks., 22, LADY DAVY. Doubtless usually, if not always, introduced with grass seed into its localities in the Midlands.

1201. G. TRICORNE Stoke. Alien. Ballast, Barrow-in-Furness, L. Lancs., 69 b, W. H. PEARSALL; Stranraer, Wigton, 74, 1907.

1215. VALERIANA OFFICINALIS L. (*Mikanii* Syme). Teesdale, Durham, 66, C. E. SALMON in *Journ. Bot.* 138, 1914; Devon S., 3; York S.W., 63.

1242. GRINDELIA SQUARROSA Dunal. Alien, America. Rubbish heap, Hertford, 20, H. PIERSON, ex W. H. GRIFFIN; Twyford Mill Yard, Miss TODD, vide sp.

1246. CALOTIS CUNEIFOLIA R. Br. Alien. Tweedside, Selkirk, plentiful, 1913, Miss I. M. HAYWARD. A beautiful composite.

1266. FILAGO APICULATA G. E. Sm. Oxon., 23.

1275. GNAPHALIUM SYLVATICUM L., var. ALPESTRE Druce. Tingwall, Shetland, 112, W. H. BEEBY in *Hb. S. London Inst.*

1310. BIDENS TRIPARTITA L. Galafoot, Selkirk, 79; Dryburgh, Roxburgh, Selkirk, 80, Miss I. M. HAYWARD.

1337. DIOTIS MARITIMA Cass. Sea coast in very small quantity, E. Sussex, 13, 1914, AUBREY O. HARRISON. A most interesting discovery; the extreme rarity accounts for the locality not being given.

1344. ANTHEMIS RUTHENICA Bieb. Alien. Hythe Quay, Colchester, Essex, 19, G. C. BROWN; Brean Down, Somerset, 6.

1356 (6). CHRYSANTHEMUM SEROTINUM L. Alien, S. Eur. Arbroath, Forfar, 1913, R. H. CORSTORPHINE. Det. A. THELLUNG. This name replaces *C. uliginosum* Pers., and *Pyrethrum uliginosum* W. & K.

1356 (7). C. MAXIMUM DC. Alien. Watergate, Newquay, Cornwall, 1, 1913, C. C. VIGURS (see *Report* 473, 1913).

1363 (2). MATRICARIA CORYMBIFERA DC. (*Chrysanthemum disciforme* C. A. Mey). Alien. Boston Docks, Lincoln, WOODRUFFE-PEACOCK.

1398. SENECIO VERNALIS W. & K. Alien. Mildenhall, W. Suffolk, 26, 1913, W. C. BARTON, vide sp.

1402. S. CINERARIA DC. Alien. Near Braunton, N. Devon, 4, W. A. HARFORD, vide sp.

1404. S. SPATHULIFOLIUS DC. The Mickle Fell habitat where the plant is barren is in Westmoreland, 69, teste C. E. SALMON in *Journ Bot.* 138, 1914.

1422. CARDUUS NUTANS L. Near Forfar, 90, G. C. DRUCE and J. KNOX.

1454. CIRSIUM PALUSTRE Scop., var. FEROX Druce. Scalloway, Shetland, 112, W. H. BEEBY in *Hb. S. Lond. Inst.*

1477. CARTHAMUS TINCTORIUS L. Alien. Warlingham, Surrey, and Iver, Bucks., A. BEADELL, ex W. H. GRIFFIN.

1488. PICRIS ECHIOIDES L. Gala, Selkirk, 79, Miss I. M. HAYWARD.

1489. P. HIERACIOIDES L. S. Wilts, 8.

1494. CREPIS BIENNIS L. N. Hants., 12; Wycombe, Bucks., 24; Badminton, Gloucester, 34.

1502. C. TARAXACIFOLIA Thuill. Odiham, N. Hants., 12, C. E. PALMER; Lincoln, 53, 54, WOODRUFFE-PEACOCK; Bucks., 24; Beds., 30; Gloucester E., 33; Flint, 51; Chester, 58.

1542 *b*. HIERACIUM BOSWELLI W. R. L. Glenade Cliffs, Leitrim, 800 feet, 1913 (teste E. F. Linton), W. C. BARTON, in *lit.* New to Ireland.

1663. TRAGOPOGON PRATENSE L. Peebles, 78, Miss I. M. HAYWARD.

1666 *b*. JASIONE MONTANA L., var. MAJOR Koch. Clovelly, Devon N., COUNTESS FORTESCUE and W. A. HARFORD, vide sp.; Brandon Cliffs, Co. Kerry.

1667. CERVICINA HEDERACEA Druce. Cree Hill, Kirkcudbright, 73.

1679. LEGOUSIA SPECULUM-VENERIS Fisch. Alien. In oat stubble, Ingleby, near Lincoln, C. E. PADDISON, ex WOODRUFFE-PEACOCK.

1685. VACCINIUM MYRTILLUS L. College Wood, S. Oxon., 23, May 1914, Hon. Mrs HANBURY TRACY. Very rare in Oxford, not recorded for the last 50 years.

1687. OXYCOCCUS QUADRIPETALUS Gil. Maer y Clawdd and Berwyn Mountains, Merioneth, 48, W. PAMPLIN in *Hb. Druce.* On Ben Lawers, Mid-Perth (already recorded for 88), G. E. MACONCHY and F. LAIDLAW, in *lit.*

1691 (3). GAULTHERIA SHALLON Pursh. Alien. Leith Hill, Surrey, 17, H. J. RIDDELSDELL in *Journ. Bot.*, 250, 1914.

1712. HYPOPITYS MONOTROPA Crantz. Chesterton Wood, Warwick, 38, BOLTON KING, 1905.

1719 (3). LIMONIUM SPICATUM Kunze. Alien. Walton, Liverpool, 1913, J. A. WHELDON. Det. A. THELLUNG.

1736. LYSIMACHIA NUMMULARIA L. Dolvorwyn Wood, Montgomery, 47.

1755. CENTAURIUM VULGARE Rafn. Portstewart, Co. Derry, C. H. WADDELL in *Irish Nat.* 21, 1914.

1757. C. PULCHELLUM Druce. Seaton sandhills, Durham, 66, A. WALLIS, see *Journ. Bot.*, 18, 1914.

1763. GENTIANA AMARELLA L., var. CALYCINA Druce. Burrafirth Sand, Shetland, 112, W. H. BEEBY in *Hb. S. Lond. Inst.* Mr Beeby writes on the label "approaches *G. subarcticum* Murb., but the calyx is too short."

1767. NYMPHOIDES PELTATUM Kuntze. Cowbit, Lincoln S., 53.

1783. OMPHALODES VERNA Moench. Alien. Buttercrambe Woods, N.E. York, 62. Wild and rampant, H. STANFIELD, ex F. A. LEES, in *lit*, 1914.

1800 (2). ANCHUSA OCHROLEUCA Bieb. Alien, E. Europe. Cothill, Berks., 22, DRUCE; Fishergate, Sussex, ex *Kew*.

1831. VOLVULUS SEPIUM Medic. Tay side, Perth E., 89; Thurso, Caithness, 109. Probably of garden origin in both instances.

1849. SOLANUM TRIFLORUM Nutt. Alien. Wapping wharf, Bristol, N. Somerset, 6, J. W. WHITE in *Rep. Wats. Exch. Club* 402, 1912-13.

1882. (2). LINARIA ARENARIA DC. Alien. On June 2, Mr W. A. Harford, and independently the Countess Fortescue and Mrs Drummond, sent me this plant which was gathered in a new locality, *i.e.* in the Braunton Burrows, about a mile north of the lighthouse and

on the west side not far from the sea. There was a good deal on one sand heap, but it was not elsewhere observed. Mr F. J. Hanbury (see *Journ. Bot.*, 276, 1914) found it on August 17 at the Saunton end of Braunton Burrows (probably the same locality). I concur with Mr Wainwright's suggestion (*l.c.* p. 310) that this new locality is owing to the presence of the plant at Westward Ho! The original locality was on the south side of the Creek near Westward Ho! I visited this spot and reported that, unless intentionally sown, it did not appear to have been accidently introduced. As a matter of fact I subsequently discovered that a friend and neighbour of mine had many years ago brought seeds of this yellow *Linaria* from Brittany and sowed it at Westward Ho! Its occurrence in this new locality suggests that someone else has copied his example. He assures me that he only sowed it in one place. It is possible that by more natural means it may have been brought from Westward Ho! *Artemisia Stelleriana*, which grows on the North Bull, and is supposed to have come from Lord Ardilaun's garden, occurs also across a creek, and is on the leeward side of the dunes, so that seeds or portions of the plant must have been blown or carried across the water.

1899. MIMULUS MOSCHATUS Dougl. Alien. Haughton Wood, Alford, Aberdeen, W. WILSON in *Journ. Bot.*, 107, 1914.

1943. EUPHRASIA KERNERI Wetts. Ingleborough, N.W. York, 65, C. E. SALMON in *Journ. Bot.*, 140, 1914.

1953. RHINANTHUS RUSTICULUS Druce. Glen Ennich, Easterness, 96, 1914, Rev. J. ROFFEY, in *lit.*

1954. R. STENOPHYLLUS Schur. Ribblehead, M.W. York, 64, C. E. SALMON, *l.c.*

1966. OROBANCHE MAJOR L. (*elatior* Sutt). S. Lincoln, 53, WOODRUFFE-PEACOCK; near Cheddington, Bucks., 24.

1969. O. PICRIDIS F. Schultz. Near Streatley, Berks., 22; near Goring, Oxon., 23.

1970. O. AMETHYSTEA Thuill. Aldeburgh, Suffolk E., 1912.

Gen. 466. UTRICULARIA L. Mr Arthur Bennett (*Journ. Bot.*, 9, 1914) gives some additions to the comital distribution of *Utricularia* to those already given in *Top. Bot.* or its *Supplement*. U. VULGARIS L.

60 Lanc. W., *Flora*. 104 Ebudes. U. MAJOR Schmidel. 92 S. Aberdeen, *Trail*. U. OCHROLEUCA Hartm. 11 S. Hants., *Mennell Hb.* [I gathered this near Bournemouth in 1904]. 62 York N.E., *Martindale*. 73 Kirkcudbright, *Coles* sp. 87 Perth W., *Hb. Perth*. 90 Forfar, *Hb. Edin*. 91 Kincardine, *Hb. Edin*. 92, *Trail*. 97 Westerness, *Macvicar* sp. 99 Dumbarton, *Watt* sp. 101 Cantire, *Ewing* sp. 102 Ebudes S., *Somerville* sp. 103 Ebudes M., *Macvicar* sp. 105 Ross W., *Hb. Salmon*. 106 Ross E., *Hb. Mennell*. 110 Hebrides, *Shoolbred* sp.

1976. U. MAJOR Schmidel. Moccas, Hereford, 36, A. LEY (as *vulgaris*) in *Hb. Bailey*. See *Rep.* 1872. Pond near Burbage Wood, F. J. MOTT, 1881, in *Hb. Bailey*. Ponds on Coniston Moor, &c., L. Lancs., 69 b, W. H. PEARSALL.

1977 (2). U. OCHROLEUCA Hartm. Ennerdale, Cumberland, 70, C. E. SALMON, *l.c.*; Strensall, York, *Hb. Stabler*; Coniston, L. Lancs., 69 b, J. COMBER. To this must be referred all Mr W. H. Beeby's gatherings from Walls, Spygie Loch, Roeness Hill, Shetland, 112, which should therefore be queried for *intermedia*. E. Sutherland, 107.

1978 (2). U. BREMII Heer. Dr H. Glück (*Rep. Wats. Exch. Club*, 404, 1912-13) is reported to have said "That he had never seen true *U. Bremii* from Great Britain." That may be so far as the mainland is concerned. When he was staying with me, he named as *U. Bremii* specimens collected by me near Killarney, Co. Kerry, in 1875. Mr Lumb's gatherings from Bigland Moss had larger flowers than *U. minor* of the south, and at first I thought it might be *Bremii*, but the receipt of fresh flowers enabled me to refer it to *minor*. (It was recorded as *U. Bremii* in *Journ. Bot.*, 316, 1912.) Dr Glück also named it *minor*. It is worth further study, as the flowers are distinctly larger than ordinary *minor*.

1988. MENTHA ROTUNDIFOLIA Huds. Forfar, 90. Removes "extinct" in *Top. Bot.*, R. H. CORSTORPHINE; Swindale, Westmoreland, MARTINDALE, 69, see *Journ. Bot.*, 140, 1914.

1997. M. GENTILIS L. Dovedale, Derby, 57, 1912, G. C. DRUCE, see *Fl. Derby*, 237. Alien, var. HACKENBRUCHII Briquet. Galashiels, Selkirk, Miss I. M. HAYWARD.

1999. M. RUBRA Sm. Portpatrick, Wigton, 74, J. FRASER, *l.c.*

2009. SATUREIA HORTENSIS L. Alien. Near Carmarthen, 44, D. HAMER, 1912.

2025. SALVIA NEMOROSA L. Alien. Par, Cornwall, 1, 1910, G. C. DRUCE. Named at Kew.

2032 (2). S. VIRGATA Ait. Alien, Europe. Ware Gravel Pits, Herts., 20, 1910, Misses TROWER and G. C. DRUCE. Named at Kew with the remark, " the calyx is more hairy than usual."

2039. DRACOCEPHALUM PARVIFLORUM Nutt. Alien. Chilsham, Surrey, 17, A. BEADELL, ex W. H. GRIFFIN.

2056. STACHYS AMBIGUA Sm. Isle of Wight, 10; Peebles, 78; Berwick, 81; Midlothian, 83.

2069. LAMIUM MACULATUM L. Alien. Near Haileybury, etc., Herts., 20, J. E. LITTLE.

2072. L. HYBRIDUM Vill. Bucks., 24; Beds., 30.

2090 (2). PLANTAGO CORONOPUS, var. SABRINÆ Baker and Cardew. I brought home roots from the Steep Holme, and although the plant has increased in size and in the elongation of the leaves, yet the facies and characters remain distinct. I have dissected the ripe fruit and find as Miss Cardew and Mr Baker did, *Report* 28, 1911, that its alliance is with *Coronopus*, not with *Serraria* which in appearance it closely resembles. Evidently it should be raised to specific rank as *P. sabrinae* (Baker and Cardew) comb. nov.

2091 *d.* P. MARITIMA L., var. LANATA Edmonston (var. *hirsuta* Syme). A good variety, differing from Hooker & Arnott's var. *minor*. Hills near Balta Sound, W. H. BEEBY in *Hb. S. Lond. Inst.*

2120. CHENOPODIUM HYBRIDUM L. North Hants., 12.

2122. C. MURALE L. North Hants., 12, C. E. PALMER; Stranraer, Wigton, 74.

2125. C. LEPTOPHYLLUM Moq. Alien. Chilsham, Surrey, 17, 1914, A. BEADELL, ex W. H. GRIFFIN.

2126. C. FICIFOLIUM Sm. Par, Cornwall, 1; Berks., 22; Beds., 30; Northants., 32, G. C. DRUCE. Selkirk, 79, Miss I. M. HAYWARD. Common about Peterborough.

2129. C. POLYSPERMUM L. Alien. Boston, Lincs. N., 54.

2140. ATRIPLEX NITENS Schrank. Alien. Warlingham, Surrey, A. BEADELL, *l.c.*

2150. A. LACINIATA L. Dunbar, Haddington, 82, Miss I. M. HAYWARD (!).

2176. POLYGONUM TOMENTOSUM Schrank (*maculatum* Bab.). Devon S., 3; Ramsey, Hunts., 31; Wigton, 74; Selkirk, 79.

2196. RUMEX LONGIFOLIUS DC. (*domesticus* Hartm.). Urswick Tarn, L. Lancs., 69 b, W. H. PEARSALL.

2198. R. ACUTUS L. Berks., 22; Bucks., 24.

2215. DAPHNE MEZEREUM L. Berks., 22; Northants., 32.

2216. HIPPOPHAE RHAMNOIDES L. Alien. Tweedside, Melrose, 80, Miss I. M. HAYWARD.

2230. EUPHORBIA CYPARISSIAS L. Alien. Cambridge, 29, H. GRAVESON, ex Dr Moss; Barrow, Cark, L. Lancs., 69 b, W. H. PEARSALL.

2243. MERCURIALIS ANNUA L. Alien. Eton, Bucks., 24; Northants., 32.

2267. SALIX PENTANDRA L. Northants., 32; Westerness, 97.

2295. EMPETRUM NIGRUM L. Berwyn, 47, PAMPLIN in *Hb. Druce.*

2303. CORALLORRHIZA TRIFIDA Chat. Whitemuir, Selkirk, 79, Miss I. M. HAYWARD (a locality given long ago in *Berw. Proc.*).

2306. LISTERA CORDATA Br. Berwyn, 47, 1882, PAMPLIN, *l.c.*

2317. HELLEBORINE MEDIA Druce. Threlkeld, Cumberland, 1914, G. ADAIR. With very pale flowers.

2318. H. PURPURATA Druce. Wilts. S., 8.

2323. ORCHIS USTULATA L. Urswick and Dalton, L. Lancs., 69 b, W. H. PEARSALL.

2326 (2). O. PRAETERMISSA Druce. Par, Cornwall, 1; Millook, Cornwall, 2; near Holsworthy, N. Devon, 4; near Fawley Birches, 24, G. C. DRUCE; Lullingstone, Kent, *Hb. Hume*; Pudmore, Frensham, H. T. G. WATKINS; Ockham, Surrey, C. E. BRITTON; near Scarborough, 62, Mr ROE; L. Lancs., 69 b.

2332. ACERAS ANTHROPOPHORA Br. Near Winchester, 2, Canon VAUGHAN, in *lit.*

2340 *c.* HABENARIA VIRIDIS Br., var. OVATA Druce. Unst, Shetland, W. H. BEEBY in *Hb. S. Lond. Inst.* Exactly the Caithness plant.

2349. IRIS PSEUDACORUS L., vera. Millook, Cornwall W., 1914.

2378. LEUCOJUM VERNUM L. By and near a brook between Bishop's Lydeard and Williton, Somerset S., 5, 1914, Miss M. A. HELLARD, ex E. S. MARSHALL in *Journ. Bot.* 153, 1914.

2379. L. ÆSTIVUM L. Banks of Suir, S. Tipperary, R. A. PHILLIPS in *Irish Nat.* 143, 1913.

2407. MUSCARI RACEMOSUM Lam. and DC. Native. Chadlington, Oxon., 23.

2417. FRITILLARIA PYRENAICA L. Alien. Two localities, one about 2 miles from Eastbourne, the other about 7 miles west of that place, Sussex E.; one unlocalised specimen from Berkshire, 22, 1914, F. J. RICHARDS. It would be very interesting to trace the origin of these specimens which were named at Kew.

2433. JUNCUS SUBNODULOSUS Schrank. Odiham, N. Hants., 12.

2441. J. TENUIS Willd. Between Seathwaite Vale and Duddon side, 69 b, R. S. ADAMSON and W. H. PEARSALL, ex F. A. LEES; Lilliput, near Poole, Dorset, 9, C. B. GREEN, ex J. W. WHITE in *Journ. Bot.*, 340, 1914; by wharf on canal, Chalford, Gloster, 34, E. M. TODD, 1914, vide sp.; Cheshire, 58, CHARLES BAILEY in *Report*, 500, 1913. Doubtless adventitious in all cases.

2442. J. RANARIUS Nees. Weston-super-Mare, Somerset N., 6.

2451. JUNCOIDES NIVEUM (L.) = *Luzula*. Rothiemurchus, Easterness, 96, 1914, Rev. J. ROFFEY, in *lit.*

2485. POTAMOGETON FLUITANS Roth. Near Peakirk, Northants., 32, 1914, G. CHESTER, vide sp.

2489. P. ALPINUS Balb. Esthwaite Water, 69 b, and var. ANGUSTIFOLIUS A. and G. Rusland, L. Lancs., 69 b, W. H. PEARSALL.

2493. P. GRAMINIFOLIUS L., var. LONGIPEDUNCULATA Mérat. Esthwaite, L. Lancs., 69 b, W. H. PEARSALL, in *lit.*

2502. P. PERFOLIATUS L., var. CORDATO-LANCEOLATUS (Mert. and Koch). Loch Boardhouse, Birsay, Orkney, 111, MAGNUS SPENCE *Fl. Orcad.*, 9, 1914.

2503. P. CRISPUS L., var. SERRATUS (Huds.). Esthwaite Water, L. Lancs., 69 b, W. H. PEARSALL, in *lit.*

2507. P. FRIESII Rupr., forma LATIFOLIA. Market Harborough, Leicester, 55, 1914, G. CHESTER.

2508. P. PUSILLUS L., var. STURROCKII (A. Benn). Esthwaite Water, L. Lancs., 69 b, W. H. PEARSALL.

2517 (2). ZANNICHELLIA GIBBEROSA Reichb. S. Briavel's, Gloucester W., 1910, C. BAILEY, vide sp.

2523. NAIAS FLEXILIS Rost. and Schmidt. Esthwaite Water, L. Lancs., 69 b, 1914, W. H. PEARSALL, in *lit.* A most interesting discovery, adding it to the English flora.

2529. ELEOCHARIS UNIGLUMIS Schult. Near Oxford, both in Berks., 22, and Oxon., 23.

2531. E. ACICULARIS Br. Fenland, near Eye, Cosgrove, &c., Northants., 32.

2539. SCIRPUS PAUCIFLORUS Lightf. Bagshot Heath, Surrey, 17. Lady Davy showed me this previously recorded but rare Surrey species in 1914.

2554. SCHOENUS NIGRICANS L. Near Winslow, Bucks., 24.

2561. CAREX VESICARIA L. Bucks., 24; Grendon, &c., Northants., 32.

2565. C. LASIOCARPA Ehrh. Urswick Tarn, L. Lancs., 69 b, W. H. PEARSALL, in *lit.*

2570. C. HELODES Link. Black Park, Bucks., 24.

2578. C. EXTENSA Good., var MINOR. North Hill, Westray, Orkney, 111, 1913, H. HALCRO JOHNSTON. Removes "lost" in *Top. Bot.*

2600. C. ELATA All. In the meadows, Easton, N. Hants., 12. Luxuriant.

2601. C. GRACILIS Curtis. Easton, N. Hants., 12.

2604. C. GOODENOWII Gay, var. JUNCEA Fr. Urswick Tarn, L. Lancs., 69 b, W. H. PEARSALL.

2607. C. ELONGATA L. Blackwater, N. Hants., 12.

2614 *b*. C. MURICATA L., var. LEERSII (Schultz). Dursley, W. Gloucester, 34, Miss E. TODD, vide sp.

2615. C. PAIRAEI F. Schultz. Easton, N. Hants., 12; near Pyrford, Surrey (with Lady Davy); Maidstone, Northants., 32.

2619. C. DIANDRA Schrank. Urswick Tarn, L. Lancs., 69 b, W. H. PEARSALL.

2620. C. DISTICHA Huds. Urswick Tarn, L. Lancs., 69 b, W. H. PEARSALL.

2639. SETARIA VIRIDIS Beauv. Alien. Oxford, 23; Slough, Bucks., 24.

2653. PHALARIS MINOR Retz. and 2654. P. PARADOXA L. Aliens. Field, Purwell, Hitchin, 20, J. E. LITTLE; Stranraer, J. FRASER.

2658. ANTHOXANTHUM ARISTATUM Boiss. Alien. Field, Purwell, Hitchin, Herts., 20, J. E. LITTLE.

2667. ALOPECURUS AEQUALIS Sobol. Beds., 30.

2700. APERA INTERRUPTA Beauv. Alien. Freshfield, S. Lancs., 59, W. G. TRAVIS in *Journ. Bot.*, 217, 1914. On sandy and cindery soil along the margin of the road. In such a habitat near Wittering, Northants., 32, H. N. DIXON. Wall-top at Marcham, Berks., 22.

? 2759 (2) POA IRRIGATA Lindm. Dog's Bay, Galway, W. C. BARTON in *Rep.* 512, 1913. New to Ireland. Prof. Lindman would like to see more specimens, as he is rather disposed to consider the one sent him to be *subcaerulea*.

2765. P. COMPRESSA L. Railway track, Castle-Douglas, 73, J. FRASER; Selkirk, 79.

2773. GLYCERIA PLICATA Fr. Beds., 30; S. Lincs., 53; Wigton, 74; Peebles, 78. var. DECLINATA (Bréb.), Lawers, Mid-Perth, 88, E. S. MARSHALL, *Journ. Bot.*, 168, 1914; Giggleswick, 64; High Force, C. E. SALMON, *Journ. Bot.*, 141, 1914.

2783. FESTUCA SYLVATICA Vill. Craig Rhiwastle, Brecon, 42, 1860, A. LEY.

2812. BROMUS INTERRUPTUS Druce. Failand, N. Somerset, 6, J. W. WHITE in *Report* 513, 1913.

2819. BRACHYPODIUM PINNATUM Beauv. Bucks., 24.

2832. AGROPYRON DONIANUM F. B. White. Mid-Perth, 88. Our member, Dr F. Laidlaw, found in 1914, this very rare species, hitherto only known from one locality, in some quantity on another mountain of the Breadalbane group.

2850. HORDEUM MARINUM Huds. Alien. Kettering, Northants., 32, G. CHESTER, vide sp.

2867. × EQUISETUM LITORALE Kühl. Loch Tummel, 88, E. S. MARSHALL in *Report* 575, 1913.

2874. E. VARIEGATUM (Schleich.) Weber. Glen Cahir, Ballyvaghan, Co. Clare, 1908, G. C. DRUCE. Probably an unnamed variety, approaching *Wilsoni*. Sheaths quite different from type.

28[illegible] POLYSTICHUM ACULEATUM Roth. Penorant Llandilo, Merioth, 47, PAMPLIN; Dolvorwyn Woods, Montgomery, 48, 1882, *Hb. Luce.*

394. P. LONCHITIS Roth. Wart Hill, Hoy, Orkney, 111, [illegible]; H. HALCRO JOHNSTON, confirmatory record. Teesdale, York, [illegible], C. E. SALMON in *Journ. Bot.*, 141, 1914.

2902. DRYOPTERIS OREOPTERIS Maxon. Coniston Moor, L. Lancs., 69 b, W. H. PEARSALL.

2922. PILULARIA GLOBULIFERA L. Cefridwysarn, Merioneth, 48, 1882, PAMPLIN in *Hb. Druce.*

2923. AZOLLA FILICULOIDES Lam. Alien. *Report* 515, 1913. Between Sandwich and Minster, Kent, 1914, C. P. WORSFOLD and V. E. MURRAY.

CORRECTIONS, ETC.

Report 1912, p. 186. ASPLENIUM LANCEOLATUM, var. SINELII. "To Mr J. Sinel . . . belongs the honour of having first discovered and recognised this pretty fern, which is exactly intermediate between *lanceolatum* and *microdon*, and forms a perfect connecting link between those forms." The contrasting features of *lanceolatum*, *Sinelii*, and *microdon* are then shown in a tabular form. The characters of "*A. lanceolatum* (*Sinelii*)" are given, and Robinson adds—"Fronds have been submitted to our best authorities . . . all declare it to be a new and very distinct variety." This was my reason for citing it as var. *Sinelii* Robinson. That, too, was apparently at one time Mr Britten's view as in the *Journal of Botany*, 244, 1880 (in which vol. it is also indexed as *Asplenium lanceolatum*, var. *Sinelii*), he writes "under this name [written as above] Mr J. F. Robinson describes (in Hardwicke's 'Science Gossip' for July) a new and very distinct variety of *Asplenium lanceolatam* . . . We cannot express any opinion as to its distinctness, as neither Mr Moore nor Mr Baker have seen specimens, nor have we been able to obtain any." My note (*op. cit.*) was inserted in order to give Mr Sinel's own statement respecting the discovery of this fern, which I was enabled to obtain through the kindness of Mr Marquand.

In criticising the *Report*, Mr Britten (*Journ. Bot.*, 338, 1915 [illegible]) writes —"A good example of enthusiasm for the creation of new na[illegible]mes is afforded by *Asplenium lanceolatum*, var. *Sinelii*; of this a single [illegible] plant was found in Jersey by Mr Sinel, who has never, after repeated sea[illegible]rch, seen it again; the record is based on a note by J. F. Robinson in *Science Gossip* for 1880. When the variability of *A. lanceolatum* is remembered, it seems hardly justifiable to bestow a name upon a plant which only occurred once, is only known from descriptive phrase, and has not been seen by the namer." In the *Journal of Botany*, 361, 1913, Mr Britten writes—"Mr Druce complains that we have misrepresented him by crediting him with this name. We have looked up J. F. Robinson's note on which Mr Druce's remarks are based, and cannot find that he [Robinson] published the plant as a variety. . . . The first combination [sic] of the names is that by Mr Druce, to which we referred. . . . We fail to see how the plant can be quoted otherwise than as *Asplenium lanceolatum*, var. *Sinelii* Druce."

On this no other comment need be made than to disclaim the credit of naming it as a variety. If the publication in *Science Gossip*, (*l.c.*), is not valid, then it must date from Britten in *Journ. Bot.*, 244, 1880. Mr Britten's remarks upon "a good example of enthusiasm for making new names" appear to be singularly misplaced and uncalled for; perhaps he may yet crown his labours by giving us a *General Index* to the *Journal of Botany*, which certainly seems to be needed.

Report 1912, p. 211. No. 1045. LYTHRUM HYSSOPIFOLIA L. The locality although near Barroden was, the Rev. E. A. Woodruffe-Peacock tells me, on the Northants side of the Welland, for which county it is already recorded. The Rutland record must be deleted.

Report 1888, p. 220. No. 1366. CHRYSANTHEMUM CORYMBOSUM L. (*Pyrethrum* Willd.) On the Quay, Bangor, J. GRIFFITHS. Dr Thellung names my specimen *Tanacetum vulgare* L.

Report 1913, p. 488. No. 1960. MELAMPYRUM PRATENSE, var. ERICETORUM Oliv.? Grassy knoll, Inch Garth, near Keltneyburn, Mid-Perth, W. A. SHOOLBRED. More recently definitely referred to Oliver's *ericetorum* by C. E. Salmon. As stated in the *Report* (*l.c.*) I hesitated to refer it to Oliver's plant, and sent the Perthshire specimen to M. Beauverd, who is critically studying the *pratense* group. The colour of the flowers removes it from *M. hians*. He writes as

follows :—" Owing to illness it is only to-day that I have been able to examine the *Melampyrum* which accompanied your kind letter of February 7. In my opinion it is a new form which cannot be referred to the var. *ericetorum*: it seems to me to approach the sub.-sp. *hians*, nevertheless I cannot be positive on this point: in order to be certain it would be necessary (1) to examine the colour of the corolla in a fresh state : (2) to make a biometrical study of the population on an average of several stations. Your new plant is remarkable by the form of the calyx with long subulate teeth, and still more by the stamens being much shorter than in the var. *ericetorum* ($1\frac{1}{2}$ mm. against $2\frac{1}{4}$ mm. in var. *ericetorum*) : the paraphyses, however, are of the same dimensions, reaching $\frac{1}{2}$ mm. in the two superior lobes.

In a general way the *M. pratense* of Great Britain seems to me to present several races which are sensibly differentiated from those of the continent. Moreover, the descriptions of var. *montanum* and var. *ericetorum* have been interpreted in different ways by different collectors: and these descriptions give rise to confusion: the pubescence upon which they are based not being a sufficiently precise character. As I shall have shortly new materials for comparison, I hope to be able to mark out the limits of these various races, and, after having seized the characters of the typical forms, to return you, with notes, the valuable specimens which you have been so kind as to send me, and for the too long retention of which I must again beg of you to excuse me. With very cordial salutations,—I remain your devoted friend.—GME BEAUVERD."

2102 (2). PARONYCHIA BONARIENSE DC. This, teste Dr Thellung, 1914, in *lit.* is P. BRASILIANA DC., and to it he also refers the P. CHILENSIS DC., recorded in the *Report* 1911, p. 29, which must therefore be deleted.

2131 (3). CHENOPODIUM HIRCINUM Schrad. See *Report* 1898, p. 586. The plant from Milverton, Warwick, H. BROMWICH, 1898, named *C. ficifolium* (*l.c.*), which a recent examination showed me was not that species has been referred to Dr Murr, who names it as above. This is probably the earliest British record.

2160. SALICORNIA RAMOSISSIMA Woods. See *Report* 1913, p. 493. Dr C. E. Moss determined D. Lumb's specimen from Dunnerholme as above.

2774 *d.* GLYCERIA DISTANS Wahl., var. PULVINATA. See *Report* 1913, p. 345. This variety was inserted, owing to its inclusion in the *Rep. Wats. Exch. Club* for 1911-12, p. 367, on the authority of Mr Arthur Bennett. From the *Report* of the same Club 1912-13, p. 378, it appears there is great diversity of opinion as to what its right name is, but the one point of agreement of the critics is that it is not *pulvinata* Fries, which may therefore disappear from our lists. Hackel hesitates to give the above plant a name, and Stapf thinks it is a form of *maritima*.

Report 1913 :

p. 309, No. 247 (12). For "SAGITTALATUM," read "SAGITTULATUM."

p. 326, No. 1259 (10). For "Australia," read "Africa S." 1262 (4). Add as a synonym "*Erigeron linifolius* Willd."

p. 332, No. 2035. For "(2)," read "(3)."

p. 339. In line 8 from bottom, insert "Lip" before "broader."

p. 364. Line 9 from top for "*British Plant List*," read "*Dillenian Herbaria*, 225, 1907." Line 10 from top for "xlv., 1908," read "lii., 1907."

p. 374. Line 12 from top for "Mr," read "Mrs."

p. 385. For No. "408," read "403," and add Ben na Bourd.

p. 391, No. 1894. For "PRYORII," read "BOBARTII."

The following are earlier publications of the binomial than those given in the *Supplement* :—

p. 417. DESMANTHUS PERNAMBUCANUS Thellung Fl. Adv. Montp. 29, 1912.

p. 417. DYSODIA AURANTIA (L.) Robinson in Proc. Amer. Acad. 507, October 1913.

p. 419. HELIOPSIS HELIANTHOIDES (L.) (as *Buphthalmum* Sp. Pl. 904.) Sweet Hort. Brit. 487, 1827, teste Thellung, vice *H. oppositifolia* (L.) Druce (*l.c.*)

p. 420. LAUNAEA RESEDIFOLIA (L.) Kuntze Rev. Gen. Pl. 350, 1891.

p. 425. TRITICUM SQUARROSUM (L.) Raspail in *Ann. Sc. Mus. Nat.* v., 435, 1826, teste Thellung.

p. 440. PHYLLITIS SCOLOPENDRIUM Newman retains the earliest trivial.

p. 440. CETERACH VULGARE. Sampanio also published this name in *Segundo apendice a Lista das especias Herb. Portug.*, p. 3, on February 1914.

We may add that Dr Thellung says (in *lit.*) that (p. 423) *Inula provincialis* Gouan is, from its locality (Corbieres), on no account *Senecio incanus*. He also, referring to my contention (pp. 406-410), says "that he and Dr Schinz (*Viert. Nat. Ges. Zurich* liii., 1908, p. 520, 1909) pointed out the dangers which would arise from a strict following of Art. 45 (with retro-active power) upon the stability of the nomenclature of genera. Herein, he says, I entirely share your opinions. And so too Miller's *Abridg.*, 1754, and Hill *Brit. Herbal*, 1756, are to be respected throughout for the names of Genera. Compare Schinz and Thellung in *Bull. Herb. Boiss.*, 2nd ser., vii., 1907, p. 567-8, and Schinz and Keller *Fl. der Schweig.*, ed. 3. On the other hand I now, with you, am of the opinion that the casual double names in Hill, Garsault, and Miller, are not to be accepted for the names of species. According to the present standing of the Rules they must of course be regarded as valid."

MIDDLESEX ALIEN PLANTS.

The following additional aliens to vice-county 21 are included on a paper on Casual Plants in Middlesex, by J. G. Cooper, in *Journ. Bot.*, 127, 1914. The nomenclature and numbers are mainly those of the *List of British Plants.* 185. *Sisymbrium orientale* L.; 198. *Erysimum repandum* L.; 200. *Conringia orientalis* Dum.; 247. *Lepidium virginicum* L.; 258. *Vogelia paniculata* Horn.; 261. *Soria syriaca* Desv.; 266. *Rapistrum perenne* All.; 267. *R. orientale* DC.; 339. *Silene conoidea* L.; 354. *S. nutans* L.; 579. *Medicago lappacea* Desr.; 605. *Trifolium lappaceum* L.; 631. *T. parviflorum* Ehrh.; 665. *Scorpiurus subvillosus* L.; 684. *Vicia Pseudo-cracca* Bert.; 701. *V. peregrina* L.; 718. *Lathyrus hirsutus* L.; 721. *L. Cicera* L.; 1201. *Galium tricorne* Stokes; 1306. *Guizotia abyssinica* Cass.; 1327. *Achillea tanacetifolia* All.; 1380. *Artemisia biennis* Willd.; 1383. *A. longifolia* Nutt.; 1426. *Cirsium eriophorum* Scop.; 2065. *Leonurus Cardiaca* L.; 2130. *Chenopodium ambrosioides* L.; 2654. *Phalaris paradoxa* L.; 2650 (2). *P. angusta* Nees; 2658. *Anthoxanthum aristatum* Boiss.; 2689. *Agrostis scabra* Willd.; 2715 (3). *Trisetum paniceum* Pers.; 2737. *Cynosurus echinatus* L.; 2795. *Bromus rigidus* Roth.; 2838. *Triticum triunciale* Rasp.; 2842. *T. cylindricum* C. P. and G.

ALIENS IN WIGTON, ETC., J. FRASER

(*Transactions of the Botanical Society of Edinburgh*, 1914, *and Dumfries and Galloway Nat. Hist. and Antiq. Soc.*, 1913.)

Include among others the following:—197. *Erysimum cheiranthoides* L. Aberfoyle, 87. 228. *Eruca sativa* Mill.; 505. *Oxalis corniculata* L.; 548. *Trigonella Foenum-graecum* L.; 595. *Melilotus alba* Desr.; 597. *M. indica* All.; 707. *Lens esculenta* Moench (the earlier name is *L. culinare* Med.); 1157. *Coriandrum sativum* L.—All from Stranraer, Wigton, 74. 1306. *Guizotia abyssinica* Cass., Portpatrick, 74. 1362. *Matricaria suaveolens* Buch., Dalbeattie, Kirkcudbright, 73; Aberfoyle, 87. 1385. *Petasites ovatus* Hill, Portpatrick, 74. 1443. *Mariana lactea* Hill, Stranraer. 1792. *Symphytum peregrinum* Ledeb., Moffat, 72; Portpatrick, 74, 1912; Kirkfield bank, Stoneybyres, 77; Romaurio Bridge, Broomlee, Kipperfield Loch, 78; Ashiestiel, 79; North Berwick, East Linton, 82; Braid Hills, Slateford, Cramond, &c., 83; Carlowrie, West of South Queensferry, 84; Blair Athol, Tay below Perth, 89. [Also Tayside, Perth, 88, Druce]. 1798. *Anchusa sempervirens* L., Castle Kennedy, Portpatrick, &c., 74. 1834. *Convolvulus althaeoides* L. 1835. *C. tricolor* L., Stranraer, 74. 1883. *Linaria minor* Desf., Railway, Castle Douglas, 73. 1886. *L. Cymbalaria* Mill., Portpatrick, 74; Creetown, 73. 1989. *Mentha alopecuroides* Hull, S. of Creetown, Douglas Hall, 73; Morroch Bay, Ferally Bay, Portpatrick, 74. 1990. *M. longifolia* Huds., Drummore, Portpatrick, 74. 1993. *M. piperita*, var. *officinalis*, Port of Spittalburn, 74. 2191. *Polgonum cuspidatum* Sieb. and Zucc., Portpatrick, &c., 74. 2363 (4). *Tritonia crocosmiflora* Nichols, Portpatrick, &c., 74. 2390. *Asphodelus fistulosus* L. 2653. *Phalaris minor* Retz. 2654. *P. paradoxa* L., and var. *praemorsa* Coss. and Dur. 2668. *Alopecurus utriculatus* Soland. 2681. *Phleum subulatum* A. and G. 2718. *Avena barbata* Brot. 2718 (2). *A. sterilis* L. 2726. *Gaudinia fragilis* Beauv. 2758. *Poa Chaixii* Vill. 2784. *Festuca heterophylla* Lam., Yester Grounds, 82. 2794. *Bromus rigens* L. (*villosus* Forsk.). 2809. *B. arvensis* L. 2821. *Lolium temulentum* L., Stranraer, 74.

2210 (9). RUMEX ALTISSIMUS Wood. Alien, N. Amer. Ridge Hill, Stalybridge, Lancs., 1914, F. COLLIER, ex W. G. Travis. Named at Kew.

BOOKS IN PREPARATION.

THE VEGETATION OF YORKSHIRE. Its History and Associations on the lines of Botanical Survey, based on the Geologic and Phyto-palæologic remains: being an examination into the sources, the presence or passing of the Floristic Constituents—their When and How and Where: being also a Supplement to previous "Floras" of York, and a list of the Localities and Species, newly classified, new to the County or some of its river basins since 1888, by F. ARNOLD LEES. The Brambles by A. E. Bradley. Demy 8vo., about 500 pages. Subscription 12/6 net. London: A. Brown & Sons, 5 Farringdon Avenue, E.C. This important work is unfortunately being held up, owing to the inadequacy of the response to subscribe copies. May we press upon our members to support the publication.

THE FLORA OF NOTTINGHAMSHIRE by Professor CARR is nearing completion.

A NEW FLORA OF SHROPSHIRE is offered to subscribers at 10/6. Orders may be sent to Mr E. S. Cobbold, Church Stretton, Salop.

FLORA OF OXFORDSHIRE. The second edition by G. CLARIDGE DRUCE is in preparation, being published by the Clarendon Press, Oxford. Subscription price 15/-.

THE FLORA OF BUCKINGHAMSHIRE by G. CLARIDGE DRUCE is also in preparation by the Clarendon Press. Subscription price 15/-.

PERSONAL NOTES.

Mr E. W. HUNNYBUN, who is making a series of drawings of British plants for the *Cambridge British Flora*, would be much obliged if members would assist him in obtaining some of his *Desiderata*, a list of which, with other information, will be gladly supplied by him. He will defray the cost of transmission and supply tins for the plants.

MISS BERTHA REID, 26 Ardilaun Road, Highbury N., Prof. J. PERCIVAL, The Pyghtle, Northcourt Avenue, Reading, and R. Y. STAPLEDON, Esq., Agricultural Dept., University College of Wales, The

Fangan, Llanbadarn, Aberystwyth, would be much obliged if members will kindly supply seeds and fruits of British plants. Members willing to assist are asked to communicate with the foregoing members direct. Mr Stapledon especially wishes for *Leguminosae, Umbelliferae, Compositae*, and *Scrophulariaceae*. Miss REID would also like fresh examples of the British orchids (without roots).

LADY DAVY, Wintergreen Wood, Pyrford, Surrey, wants fresh specimens of *varieties* of the British orchids.

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*, named by Rev. W. M. Rogers.

F. J. HANBURY, Esq., Brockhurst, East Grinstead, is anxious to have seeds or roots 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*.

The Society is greatly indebted to the Director and Staff of the Royal Gardens, Kew, and to the Keeper and Staff of the British Museum Herbarium for much assistance, as well as to our foreign experts. Mr F. N. Williams, Mr E. D. Marquand, and the Rev. F. Bennett have also very kindly rendered assistance.

The Society is greatly indebted to Miss HAYWARD for generously supplying the plates in the *Report* for 1913, and to R. H. CORSTORPHINE, Esq., and Prof. WEISS for their kind donations.

We must offer our sincerest congratulations to "the father" of the Club, Mr J. GILBERT BAKER, of Kew, on his attaining his eightieth year on January 13, 1914. To no one does the Club owe a greater debt for all his services to it for many years. May all happiness attend him in the future.

Members having any spare copies of the *Report* for 1912, or any copies of *Reports* anterior to 1879, are asked to kindly send them to the Secretary, who will defray the cost of transmission.

Will members kindly endeavour to induce their botanical friends to join the Society.

May I add that any opinion expressed in the preceding pages is purely personal and necessarily in no way assumes to carry with it the authority of the Society.

With best wishes, I am yours very sincerely,

G. CLARIDGE DRUCE.

SUPPLEMENT TO BOTANICAL SOCIETY REPORT FOR 1914,

BY

G. CLARIDGE DRUCE, M.A.

PART I.—EROPHILA.

Attention was called to the forms of this genus, which differs but slightly from *Draba* in having much more deeply bifid petals, but which Bentham and Hooker kept as a distinct genus in their important *Genera Plantarum*, at the meeting of the Botanical Exchange Club at Thirsk (see *Phytol.* 501, 1858) by our hon. member, Mr J. Gilbert Baker, who gave brief diagnoses of *E. brachycarpa*, *E. glabrescens*, *E. hirtella*, *E. stenocarpa*, and *E. majuscula*. M. Jordan himself verified *majuscula* and *brachycarpa* gathered in Yorkshire by Mr Baker. Baker, however, felt himself unable to give specific rank to these 5 species. Jordan described about 200 species, but Rouy and Foucaud in *Flore de France* grouped all the French forms under 8 names.

Since members have been sending specimens to the Society recently, perhaps it may be well to give a translation of the clavis, and to its more recent exposition by an able, painstaking, and enthusiastic student of the genus, namely, M. Is. Maranne, who made an important communication to the Bulletin de la Société Botanique de France in 1913, vol. xiii., n 5, from which the following translation has been made in a somewhat abbreviated form. I have to thank our member, Mr Marquand, for kind help in the matter. It will be seen M. Maranne is content to enumerate 68 species.

One must first say that the standard of preparation of specimens sent in for examination must be immensely raised before they are of the slightest use in a scientific sense. (This is also true of *Taraxacum*). With *Erophila* it is necessary to gather specimens in the flowering stage, to take accurate measure of the expanded flowers, to note the colour of the leaves, and whether blotched or not, the colour of the petals, and then to dry the specimens quickly under considerable pressure, so as to ensure the leaf-shape being properly displayed.

Later on in the fruiting stage specimens should be carefully collected of the same form, and these dried under moderate pressure, so as to ensure the proper shape of the silicule being seen. The number of seeds in a loculus should be noted. It is advisable to collect specimens from a habitat in which one form only grows. Single specimens are useless to send to experts. At least twenty should be in each packet. Great difficulty will be experienced in working with a clavis. In these critical plants, there is no hard and fast line, or definite characters. They differ from each other in degree only. A *clavis* always presents pitfalls. Again, it must be borne in mind that many of our British plants may not occur in France, hence these descriptions will not fit them.

M. Maranne gives this introductory paragraph:—"The genus *Erophila* includes a number of plants which differ by their habit, their size, the form and size of their seed pods, the form of the leaves, their pubescence, and their colour, and it is quite possible to distinguish these different species although they present among themselves many intermediate forms. For that purpose it is necessary to fix the limits of species taken as types and bearing well marked characters. This is what we have endeavoured to do at the outset of our work. Nevertheless, certain precautions are needful in the study of the group. It is not to be expected that a species can be determined by the examination of a single specimen—on the contrary, several specimens must be gathered, and chosen in various states of development. When the species grow in more or less dense tufts, it is easy to take a pinch here and there, and thus one is more likely to obtain certain variations of the same species. But if the plants are isolated and scattered here and there, each plant becomes a perfect puzzle, and it is then that we need the idea of the conventional type of the species, viz., that all forms are to be referred to one type species when they possess the largest number of characters belonging to that species, for without this precaution many individual plants of *Erophila* would then become themselves varieties or forms demanding a special name. Those forms alone are to be considered as special varieties or species, which differ from the type species, by a *combination of characters which are important and independent of each other*. The determination of the plants depends in some measure on the specimens being moderately young, especially as regards the examination of the leaves, as these vary with the age of the plant, in form, and especially in

colour, many becoming brown or reddish with age. Further it is best to examine freshly gathered specimens, as the characteristic blotches on the leaves of certain species often disappear in drying. The characters drawn from the length of the pedicels in relation to the fruits refer to the *lower* pedicels, and preferably to those of old specimens.

Although the species of *Erophila* present many variations and intermediate forms, it does not follow that one may, in a given locality, gather a large number of these forms. "It is seldom," says Jordan, "that one finds more than three or four species growing mixed together, and there are plenty of places where only one single form is found, pure and without mixture, represented by millions of individuals. Each year one finds in the same locality the forms that were previously seen there, without any difference in their characters." We have been able by observation extending over many years to confirm this, and this proves that in spite of the variability of each species it may continue to multiply for a long period in the same region without any modification, and with only a few slight differences caused by substratum or exposure. This fact alone should suffice to show that species of *Erophila* have as much value as species of other genera of plants. If in fact these species are to be considered merely as variations due to climate, altitude, soil, etc., one ought to meet with all the possible forms in regions presenting all the conditions required for these modifications. Observation sufficiently shows that such is not the case.

We know that there are at the present time 80 species of *Erophila* spread over the two continents between the 30° and 60° parallels of the northern hemisphere. Four species occur in Western and Central Asia, but three of them are French species, and the fourth grows in Greece and Turkey in Europe. For France we enumerate 68 species, of which a few are also found in North America and Northern Africa.

Only the French species are taken into account in the synoptical tables which follow. As far as possible we have indicated only well-marked characters for each species, whilst at the same time pointing out the modifications which very frequently occur, especially in the form of the fruits and of the leaves, because, as already remarked, no single character is constant.

We give no indication of the distribution of the species, as so few botanists have minutely studied them, and they have almost always

been collected in the same regions, therefore their geographical distribution is not sufficiently known, and the few localities which we might have cited would have been of no use whatever."

ABBREVIATIONS.

To save space I have made several abbreviations in the following clavis. The length of the pedicel refers to the lowest one on the plant. The measurements of the *plants* are always in centimetres; those of the *flowers*, *petals*, or *silicules* are in millimetres. The number of seeds are those in each loculus, that is half the number in the entire silicule.

Abbreviations.—*Asc.* = ascending; *atten.* = attenuate or attenuated; *bl.* = blotch or blotched; *cal.* = calyx; *contig.* = contiguous; *ellip.* = elliptic; *ent.* = entire; *fl.* = flower; *gr.* = green; *h.* = hairs; *lanc.* = lanceolate; *lin.* = linear; *loc.* = loculus; *l.c.* = in place already cited; *ls.* = leaf or leaves; *obl.* = oblong; *obov.* = obovate; *obt.* = obtuse; *ov.* = ovate; *ped.* = pedicel; *pet.* = petal; *pl.* = plant; *rot.* = rotund or rotundate; *s.s.* = style short; *sep.* = sepals; *sil.* = silicule; *simp.* = simple; *sm.* = small; *slend.* = slender; *sol.* = solitary; *spr.* = spreading; *st.* = stem; *sub-lanc.* = sub-lanceolate; *sub-orb.* = sub-orbicular; ± = more or less.

ADAPTATION OF THE CLAVIS IN THE FLORE DE FRANCE TO SECTIONS OF EROPHILA.

1.	H. all or nearly all simple (rarely mixed with bifid); sil. ellipt. or obl.; loc. 14-24 seeded	2.
	H. all or nearly all bifid, some trifid, rarely with a few simple h.	3.
2.	Ls. broadish, ov. or obl.-lanc., spreading (flat to the ground); sil. ellip. or obl., slightly atten. or not at base	1 **glabrescens.**
	Ls. lanc., erect or ascending; sil. obl., much atten. at base	2 **hirtella.**
3.	Sil. ov.-sub-orb. or obov.-rotund., very obt.; loc. 8-24	4.
	Sil. of a different shape	5.
4.	Fl. sm. (3); lobes of pet. nearly or quite contig.; sil. ov.-sub-orb., 3 long × 2·5 broad, rounded at top	3 **praecox.**
	Fl. large (3·5-4); lobes of pet. divaricate or divergent; sil. ellip.-obov., 4-7 long × 2·5-3 broad	4 **spathulata.**
5.	Pl. ± robust, with short bi- or trifid h.; fl. large; sep. ov.-rotund.; sil. elongate, large, obt. or obl.-lanc.; loc. 30-40	8 **majuscula.**
	Pl. ± slend., mostly bifid, a few simp. h.; sep. ov. or obl.; loc. 16-24	6
6.	Ls. lanc. or lin.-lanc.; sil. obl.	6 **leptophylla.**
	Ls. ov.-lanc. or lanc.; sil. narrow, lanc. or lin.-obl.	7 **lanceolata.**
	Ls. broader, ov. or ellip.; h. fairly long; sil. obl. or sub-lanc.	5 **vulgaris.**

The 68 species described by Maranne are grouped as follows under the 8 sections of Rouy and Foucaud's *Flore de France*.

Division I.

Hairs all or nearly all simple, rarely a few bifid hairs.

Section I.—GLABRESCENS—St. slend., short, 6-10 cm.; Ls. ± narrow, lanc., obl., or ov.-lanc., with spr. lamina, often recurved at apex; sil. medium size, ellip. or ov.-obl.; loc. 20-24 seeded. 1, *Erophila virescens* Jord. Diagn., 207; 2, *E. nana* Sudre Bull. Ass. Pyren., 5, 1897-8; 3, *E. subnitens* Jord., *l.c.*, 208; 4, *E. spathulifolia* Jord., *l.c.*; 5, *E. vivariensis* Jord., *l.c.*, 210; 6, *E. campestris* Jord., *l.c.*; 7, *E. ambigens* Jord., *l.c.*, 211; 8, *E. medioxima* Jord. in Billot Fl. Gall. et Germ. Exsicc., 1818 (*E. glabrescens* Jord. p.p. Pug. 10, 1852); 9, *E. micrantha* Jord. Diagn. 213; 10, *E. roseola* Sudre Le Monde des Pl., 17, 1912; 11, *E. oblongata* Jord., *l.c.*, 214 (*E. glabrescens* Jord. p.p., var. *erratica* (R. & F.)); 12, *E. rubella* Jord., *l.c.*, 215; 13, *E. procerula* Jord., *l.c.*; 14, *E. chlorotica* Jord., 216; 15, *E. lepida* Jord., *l.c.*, 217; 16, *E. euchloa* Sudre, *l.c*; 17, *E. patula* Jord., *l.c.*, 217; 18, *E. iodophylla* Briquet (*D. glabra*, var. R. & F. 229); 19, *E. minuscula* Sudre, *l.c.*

Section II.—HIRTELLA—St. slend.; ls. lanc. or ov.-lanc., nearly erect; fl. large (5 mm.); sil. ellip., obt. or obov., ± atten. at base, medium size (6); loc. 20-24. 20, *E. hirtella* Jord. Pug. 10; 21, *E. corsica* Jord. in Magn. Scrin. Fl. Sel. 187 (*D. hirtella*, var. *Debeauxii* R. & F. 231.

Division II.

Hairs all or nearly all bi-trifid, rarely a few simp. hairs.

Section III.—PRAECOX—St. slend.; ls. ov. or broadly lanc.; h. mostly bifid, a few simp.; sil. sub-orb. or broadly ov., usually sm., mostly rounded at base and at top; loc. 16-24; 22, *E. brachycarpa* Jord. Pug., *l.c.* 9 (*Draba verna*, var. *rotundata* Neilr. Fl. Nied. Oester. 752, 1866); 23, *E. praecox* DC. Syst. Nat. ii., 357, 1821; 24, *E. Girodi* Sudre, *l.c.*, 3, 1906-7; 25, *E. subrotunda* Jord. Diagn. 220; 26, *E. decipiens* Jord., *l.c.*; 27, *E. Revelieri* Jord., *l.c.*

Section IV.—SPATHULATA—St. slend., few (1-3); ls. broadly lanc. or nearly ov.; h. mostly bifid, a few trifid or simp.; pet. sm., scarcely longer than sep.; sil. broadly obov. or ellip., lanc., atten. at base, rounded or sub-atten. at top, of medium size, but mostly sm. (4-7); loc. 16-24.; 28, *E. obovata* Jord., *l.c.*, 221; 29, *E. confinis* Jord., *l.c.*, 222; 30, *E. breviscapa* Jord., *l.c.*; 31, *E. subintegra* Jord., *l.c.*, 223; 32, *E. pyrenaica* Jord., *l.c.*, 224 (*D. muricola*, var. *Jordani* R. & F.,

l.c., 227); 33, *E. muricola* Jord., *l.c.*, 224; 34, *E. rurivaga* Jord. Diagn. 225; 35, *E. cabillonensis* Jord., *l.c.*, 226; 36, *E. lucida* Jord., *l.c.*; 37, *E. andegavensis* Jord., *l.c.*, 227; 38, *E. lugdunensis* Jord., *l.c.*, 228; 39, *E. fallacina* Jord., *l.c.*; 40, *E. Bardini* Jord., *l.c.*, 229.

Section V.—VULGARIS—St. slend.; ls. ov. or ov.-lanc.; h. short, bifid or trifid; sil. ellip.-obl. or obl.-sub-lanc., 5-6; loc. 16-24; 41, *E. claviformis* Jord., *l.c.*, 230; 42, *E. cuneifolia* Jord., *l.c.* (*Draba claviformis*, var. *cuneata* R. & F., *l.c.*); 43, *E. vulgaris* DC. Syst. ii., 356, 1821, sensu stricto; 44, *E. Ozanoni* Jord, *l.c.*, 231.

Section VI.—LEPTOPHYLLA—St. slend.; ls. lanc. or lin.-lanc., shortly pubescent; h. usually bifid, the others simp.; pet. distinctly larger than sep.; sil. 5-7, obl.; loc. 16-24; 45, *E. dentata* Jord., *l.c.*, 232; 46, *E. furcipila* Jord., *l.c.*, 233; 47, *E. serrata* Jord., *l.c.* (*D. furcipila*, var. *serrata* R. & F.); 48, *E. leptophylla* Jord., *l.c.*, 234; 49, *E. sparsipila* Jord., *l.c.*, 235; 50, *E. vestita* Jord., *l.c.*; 51, *E. affinis* Jord., *l.c.*, 236 (*D. leptophylla*, var. *australis* R. & F., *l.c.*, 223); 52, *E. cinerea* Jord., *l.c.*, 237; 53, *E. propinqua* Jord. in Bull. Bot. Soc. Fr. t. xviii., 920; 54, *E. brevipila* Jord. Diagn., 237; 55, *E. rigidula* Jord., *l.c.*, 238 (*D. vulgaris*, var. *rigidula* R. &. F.); 56, *E. Charbonnelii* Sudre, *l.c.*, 4, 1907-8.

Section VII.—LANCEOLATA (*Draba lanceolata* Neilrich, *l.c.*, 742)—St. thin, slend., usually numerous; ls. lanc. or ov.-lanc.; h. short, bifid or trifid; pet. slightly longer than sep.; sil. ± large, lanc., lin. or lin.-obl.; loc. 30-36; 57, *E. stenocarpa* Jord. Pug. 11, 1852 (*E. americana* DC., *l.c.*, 1821); 58, *E. Krockeri* Andrz. En. Pl. Volh., 82; 59, *E. propera* Sudre, *l.c.*, 5; 60, *E. aurigerana* Sudre, *l.c.*; 61, *E. tenuis* Jord. Diagn., 239; 62, *E. subtilis* Jord., *l.c.*, 240; 63, *E. psilocarpa* Jord., *l.c.*, 241; 64, *E. rubrinaeva* Jord., *l.c.*

Section VIII.—MAJUSCULA—St. 6-20 cm., fairly robust; h. short bi-trifid; ls. mostly ov., broad; pet. much longer than sep.; sil. large, obl., rounded at the top; loc. 30-40; 65, *E curtipes* Jord., *l.c.*, 252; 66, *E. occidentalis* Jord., *l.c.*, 243; 67, *E. brevifolia* Jord., *l.c.*; 68, *E. majuscula* Jord. Pug. 11 (*E. verna*, var. *majus* R. &. F.).

M. MARANNE'S CLAVIS.

1. H. all or nearly all simp., rarely mixed with bifurcate h.; sil. 20-24 seeds ..... 2.
   H. all or nearly all bi-or trifid, rarely mixed with a few simp. h. 22.
2. Ls. erect; sil. ellip.-obl., much narrowed at base ..... 3.
   Ls. spreading; sil. ov., ellip.-ov., or obl.; ls. ov. or obl.-lanc., sometimes lin. ..... 4.

3. Ls. toothed, lanc.; petiole rather wide, bl.; ped. twice as long as sil. (var. 3 times as long); sil. 6 × 2·5 (var. 7 × 1·5-2); pl. 5-10; st. many erect ..... 20 **E. hirtella.**
Ls. ent. or slightly toothed, broadly ov.-lanc., narrowed into a long petiole; ped. as long or nearly as long as sil.; sil. 5·5-6 × 1·5-2; pl. sm., 4 cm.; st. asc. ..... 21 **E. corsica.**

4. Pl. dwarf, 2-4, often reddish; st. filiform, sol., rarely 2-3; fl. sm., 3 mm.; sil. 3·5 × 2; s.s.; ped. scarcely longer than sil.; ls. very sm., lanc., green or reddish ..... 19 **E. minuscula.**
Pl. usually tall; ls. green, rarely violet ..... 5.

5. Ls. all or nearly all violet, very sm., lanc., curved, nearly glabrous; st. filiform, violet; sil. 4 × 2; pl. sm., 4-6 cm. ..... 18 **E. iodophylla.**
Ls. green ..... 6.

6. Fl. large, 6 mm., pure white; sil. 5-6 × 2·5; s.s.; ped. twice as long as sil.; ls. ov.-lanc., usually toothed; pl. 6-7, with many st., diffuse or asc., flexuous ..... 3 **E. subnitens.**
Fl. not more than 5 mm. in diam. ..... 7.

7. Fl. 4-5 mm. diam. ..... 8.
Fl. 3-3·5 mm., rarely reaching 4 mm. ..... 15.

8. Sil. about three times as long as broad ..... 9.
Sil. less than three times as long as broad ..... 11.

9. Sil. large, 6-8; ls. often bl. at base of limb ..... 10.
Sil. 5-5·5 × 2; s. very s.; ped. twice as long as sil.; ls. bright green, lanc. or lin.-lanc., glabrous, or with a few h. on margin, sm.; pl. 7-8; st. slend., erect or spr., sol., or many very variable 11 **E. oblongata.**

10. St. spr., asc., flexuous, sm. (6-7); ls. ov.-lanc., pointed, with many teeth; Sil. 6-7 × 2·25; s.s.; ped. twice as long as sil. ... 6 **E. campestris.**
St. erect, taller; ls. lanc. or lin.-lanc., pointed, much atten. into petiole; sil. 7-8 × 2·5; s. very s.; ped. more than twice length of sil. 13 **E. procerula.**

11. S. long; ls. broadly spathulate, much atten. into petiole ..... 12.
S. very s.; ls. narrow, less clearly spath., equally narrowed to the petiole; sil. twice as long as broad ..... 13.

12. Ls. ov. or obl., usually ent. or with few large teeth, deep or ± brownish gr.; cal. pale reddish; sil. 5 × 3; ped. twice as long as sil. (var. 3 times); st. erect, few, 5-7 cm. ..... 4 **E. spathulifolia.**
Ls. obl.-lanc., ent. or with few teeth, bright gr.; sil. 5-6 × 2·75; ped. flexuous, twice as long as sil.; pl. 8-12; st. many, erect-asc. 5 **E. vivariensis.**

13. Sil. 6 × 2·5, atten. at base; ls. ent., ellip.-lanc., obt., not bl.; st. erect or asc. ..... 7 **E. ambigens.**
Sil. 4·5 × 2·5 ..... 14.

14. Pl. sm., 4-5; st. slend., erect; sil. 4 × 2·5; ped. little longer than sil.; ls. bright gr., not bl. ..... 2 **E. nana.**
Pl. taller, 6-8; st. erect or arcuate-asc., few; sil. 4·5-5 × 2·75; ped. twice as long as sil.; ls. lanc., deep gr., hispid, petiole narrower, reddish. 8 **E. medioxima.**

15. Sil. about 3 times as long as broad; s.s.; ped. twice as long as sil.; cal. reddish; ls. lanc. or lin.-lanc. acute, greyish gr.; sil. 5 × 2; pl. 4-6; st. few, slender; sil. 5 × 2 ..... 12 **E. rubella.**
Sil. about twice as long as broad ..... 16.

16. Fl. rosy; ls. lanc., atten. into the reddish petiole; sil. 4-4·5 × 2-2·5; s. long; ped. twice as long as sil.; pl. 5-6; st. slend., few. 10 **E. roseola.**
Fl. white ..... 17.

17. Sil. 3·5 × 1·75-2; s.s.; ped. twice as long as sil.; fl. sm.; pl. sm., 4-5; st. slend., erect; ls. pale gr. ..... 16 **E. euchloa.**
Sil. more than 4 mm. in diam. ..... 18.

18. Ls. deep gr. ..... 19.
Ls. greyish or yellowish gr. ..... 21.

19. Pl. very dwarf; st. diffuse, asc.; fl. pure white; sil. 4·5 × 1·75; s. very s.; ped. twice as long as sil.; ls. sm., lanc., recurved at apex. 15 **E. lepida.**
Pl. more developed; fl. dull white ..... 20.

20. Sep. brownish-gr. or violet; pet. a little longer than sep.; sil. 4·5-5 × 2·75; s.s.; pl. 6-8; st. erect or asc. ..... 9 **E. micrantha.**
Sep. clear gr.; sil. 4 × 2; s. longer; pl. 6-7; st. slend., sub-erect, flexuous, often numerous ..... 1 **E. virescens.**

21. Ls. lanc. or obl., shortly toothed, or nearly ent., greyish gr., flat, not recurved at apex; sil. 4-5 × 1·75; st. many, very spr.; pl. 5-7 17 **E. patula.**
Ls. lanc. or lin., ent., yellowish-gr., often recurved; fl. yellowish-white; sil. 4-4·5 × 2; s.s.; pet. a little longer than sep.; pl. 8-10; st. many, spr., asc. ..... 14 **E. chlorotica.**

22. Sil. sm., 4 mm., sometimes round, obl.-ov., very obt.; ls. ov. or lanc.; ped. elongated ..... 23.
Sil. more than 4 mm. long, obov., obl. or lanc. ..... 28.

23. Fl. large, 4-5, in short rac.; sil. 4 × 3; s. very s.; ped. 3 or 4 times longer than sil.; ls. ov.-obl., very gr., ent. ..... 27 **E. Revelieri.**
Fl. very sm., 2-3·5 mm. ..... 24.

24. Fl. extremely sm., 2 mm.; sil. 3·25-4 × 2·5-3; s. rather long; ped. thrice as long as sil.; pl. 5-7; st. many; ls. obl., atten. into wide petiole. 24 **E. Girodi.**
Fl. 3-3·5 mm. diam. ..... 25.

25. Sil. twice as long as broad, 4·5 × 2; s.s.; ped. thrice as long as sil. (var. twice as long only); pet. narrowed into a very long claw; pl. sm., 4-6; st. arcuate-asc.; ls. lanc., deep gr., teeth scarcely prominent. 26 **E. decipiens.**
Sil. nearly round ..... 26.

26. Sil. thick, convex, 3·5 × 3; s. very s.; often nearly or quite absent; ped. 2 or 3 times as long as sil.; fl. more than 3 mm.; pl. 5-7; st. spr. or asc.; ls. broad, ov.-obt., ashy gr. ..... 25 **E. subrotunda.**
Sil. flattened, 3 × 2-2·5; s.s.; ped thrice as long as sil.; pet. a little longer than sep.; fl. 3 mm. ..... 27.

27. Pl. 3-6; st. many, erect; ls. obl.-lanc., deep gr., petiole short. 22 **E. brachycarpa.**
St. more slend., fewer; ls. lanc.-lin., clear gr., petiole elongated. 23 **E. praecox.**

28. Ls. ov. or ov.-lanc. with very long h.; sil. obl. or lanc. ..... 29.
Ls. ov. or obl. or lin.-lanc., with short h. ..... 31.

29. Ped. flexuous, often recurved ..... 30.
Ped. not flexuous, twice as long as sil.; sil. 7·8 × 2·75, atten. at base; s. very s.; pl. large, 20-22; st. many, erect or arcuate-asc., often reddish; ls. large and broad; fl. 4-5 mm. ..... 44 **E. Ozanoni** ex p.

30. Ls. narrow, sm., lanc., deep gr., very hispid; fl. 5·5; sil. 7 × 2, atten. at base; s. very s.; ped. twice as long as sil. (var. peds. equal to or a little longer); pl. 8-10; st. erect, slend. 41 **E. claviformis** ex p.
Ls. broad, toothed, cuneate, gr., often bl. with brown; fl. 5-6; sil. 7-8 × 2·5, atten. at base; s.s.; ped. hardly longer than sil. (rarely twice as long); pl. 8-10; stem many, robust, asc. or erect-spr. 42 **E. cuneifolia** ex p.

31. Sil. lin.-lanc. or lin.-obl., 4-5 times longer than broad..... 32.
Sil. ellip. or obl., 2 or 3 times longer than broad ..... 42.

32. Fl. large, 5 mm. or less; sil. narrowed below only ..... 38.
Fl. sm., 3-4; sil. very much atten. at base, nearly from the middle 35.

33. Sil. large, 10 × 2; s.s.; ped. twice as long as sil.; ls. large, ov.-lanc., acute, ashy gr. (or deep gr.), bl. at base with reddish-violet; pl. 8-10; st. robust, asc. or spr..... 64 **E. rubrinaeva.**
Sil. sm., 6-8 × 2 mm. ..... 34.

34. Pl. dull gr., 10-12; ls. short, 2-3 times longer than broad, atten. into short petiole; sil. 6-7 (see § 30)..... 42 **E. cuneifolia** ex p.
Pl. bright gr., large, 15-18; ls. large, 4-5 longer than broad, atten. into petiole; sil. 8 mm. long..... 43 **E. vulgaris.**

35. St. usually spr.-asc., few; ls. obl. or lanc., often bl. or toothed, very hispid; sil. large 7-9 × 1·5-2; s.s.; ped. 2-3 times as long as sil.; pl. strong, 10-18..... 63 **E. psilocarpa.**
St. erect, plant sm..... 36.

36. Ped. equal in length to sil., or a little longer; sil. 6-6·5 × 1·75-2; s.s.; pl. sm., 4-6; st. often sol.; ls. sm., lanc. ..... 60 **E. aurigerana.**
Ped. twice as long as sil.; pl. usually taller with many stems..... 37.

37. Ls. bl. at base; fl. 3·5-4 mm..... 39.
Ls. unbl. ..... 38.

38. Fl. not exceeding 3 mm. ..... 40.
Fl. exceeding 4 mm.; sil. 7 mm. long (see § 72)... 47 **E. serrata** ex p.

39. Ls. deep gr., lin.-lanc., pubescent with bifid h.; sil. 7 × 2; s.s.; pet. scarcely longer than sep.; pl. 8-10..... 61 **E. tenuis.**
Ls. ashy-gr., lanc., densely pubescent with bi-or trifid, often stellate h.; sil. 7 × 2; s. long; pl. 5-6..... 62 **E. subtilis.**

40. Ls. lanc., ent., bright gr.; sil. 5·5-5 × 1·75; s.s.; pl. 6-7 cm. 59 **E. propera.**
Ls. toothed, lin.-lanc. (or obl.), deep gr.; sil. 6-8; s.s.... ..... 41.

41. Sil. very narrow, 7-8 × 1·5-1·75; pl. 8-10; st. one or few, asc. 57 **E. stenocarpa.**
Sil. less narrow, 6-7 × 1·75; pl. 6-8; st. slend., sol.; ls. very sm. 58 **E. Krockeri.**

42. Sil. ellip. or obov., very obt., or rounded at apex..... 43.
Sil. elongated, obl., lin.-obl. or lanc., more or less atten. at apex 66.

43. Each loc. with 10-24 seeds... ..... 44.
Each loc. with 30-40 seeds .... 63.

44. Sil. a little longer than broad, 5 × 3; ped. twice as long as sil. (var. thrice as long); s.s.; pl. variable, 3-8; st. arcuate-asc. or erect; ls. ov. or obl.-lanc., toothed, greyish gr..... 28 **E. obovata.**
(*E. spathulata* is often confounded with *obovata*).
Sil. 2 or 3 times longer than broad..... 45.

45. Sil. 2 or 2½ times longer than broad ..... 46.
Sil. 3 times longer than broad..... ..... 56.

46. Fl. 3-3 5 mm., rarely 4 mm. .... 47.
Fl. 4·5-5 mm..... 53.

47. Pl. sm., 3-6 cm. ..... 48.
Pl. well developed ..... 49.

48. Ls. shining, thick, lanc., toothed, often bl. with brown; pet. scarcely longer than sep.; sil. 4·5-5 × 2·25; s. very s.; ped. twice as long as sil.; st. slend., erect, 5-6 (var. st. short, 3-4, many spr.).
36 **E. lucida.**
Ls. not shining, ov. or obl.-lanc., toothed, sometimes bl. with brown at base, sometimes ent. reddish-brown; sil. 4·5 × 2·5; s.s.; ped. slightly longer than sil.; st. 5-6, many, erect or asc. ..... 30 **E. breviscapa.**

49. Ls. deep gr., obl.-lanc., ent., or with very few inconspicuous teeth; sil. 4·5-5 × 2·5; s.s.; ped. twice as long as sil. (var. thrice as long); h. of the st. simp., of the ls. bifid; pl. 8-9; st. slend., erect, few.
31 **E. subintegra.**
Ls. evidently toothed ..... 50.

50. Ped. 4 times as long as sil.; pet. slightly longer than sep.; sil. 6 × 2·75; s.s.; st. slend., erect, ls. lanc. ..... 35 **E. cabillonensis.**
Ped. thrice as long as sil. ..... 51.

51. Ped. slightly longer than sil. (rarely twice as long); sil. 6 × 3, dull gr. or reddish-brown; s.s.; pet. often rosy; pl. 6-8; st. often many, erect or asc. or spr.; ls. ov., deep gr., with few teeth, petiole bl.
56 **E. Charbonnelii.**
Ped. 2 or 3 times as long as sil. ..... 52.

52. Fl. 3·5-4; ls. ov.-lanc., shortly pointed, ashy-gr. (or deep gr.), atten. into the longer or shorter often bl. petiole; sil. 5·5 × 2·5; ped. twice as long as sil. (var. thrice as long); pl. 7-9; st. erect or asc., fairly numerous ..... 29 **E. confinis.**
Fl. not 3 mm.; ls. ov. or obl.-lanc., greyish gr., distinctly pointed, toothed, atten. into petiole, which is often bl.; pet. slightly longer than sep.; sil. 5 × 2, slightly atten. at base; s.s.; ped. twice as long as sil.; pl. 6-8; st. few or sol., slend. ..... 54 **E. brevipila** ex p.

53. Ped. 3-4 times as long as sil; sil. 5-5·5 × 2-2·5, slightly atten. at base; s.s.; pl. 7-8; st. few, erect, hispid at base only; ls. ent., ov. or obl., ashy-gr. ..... 32 **E. pyrenaica.**
Ped. about twice as long as sil. ..... 54.

54. Ls. ov. or ov.-lanc., petiole sometimes bl.; sil. 6·5 × 2·5; s.s.; pl. 8-12; st. strong, asc. or spr. ..... 55 **E. rigidula.**
Ls. obl.-lanc., deep gr., atten. into the long narrow petiole ..... 55.

55. St. erect, many, strong, 9-11; ls. and petiole for the most part reddish; sil. 6-6·5 × 3-3·5; s.s. ..... 30 **E. fallacina** ex p.
St. spr., shortish, 5-6; raceme short; ls. and petiole not bl.; sil. 6 × 3-3·5; s. mediocre ..... 33 **E. muricola.**

56. Ped. a little longer than sil. ..... 57.
Ped. twice as long as sil.; fl. 4-5·5; s.s. ..... 58.

57. Fl. very sm., 2 mm.; s. very long; sil. 7 × 2, atten. at base; pl. 5-6; st. slend., often sol.; ls. very sm., lanc., ent. or slightly toothed, deep gr.
40 **E. Bardini.**
Fl. large, 5-6; s.s. (see § 30) ..... 42 **E. cuneifolia** ex p.

58. Ls. very gr., petioles very short and reddish (see § 55)
39 **E. fallacina** ex p.
Ls. and petiole broad (limb often lanc.), bl. or not ..... 59.

59. Ls. with strong teeth ..... 60.
Ls. often ent. or with few teeth ..... 62.

60. Ls. ov.-lanc., deep gr., short petiole; sep. obl.; pet. sm., 3 × 1·5 (see § 30).
41 **E. claviformis** ex p.
Ls. ov. or ov.-lanc., bright gr.; sep. ov. ..... 61.

61. St. large, reaching 20 cm., petiole short; pet. 3 × 2 (see § 29). 44 **E. Ozanoni** ex p.
St. sm., 7-8, many; sil. 6·5 × 2·25; pet. 2·5 × 1·5; ls. longly atten. into petiole.. ..... 37 **E. andegavensis.**

62. Sil. 7-8 × 3; ls. ellip.-lanc., deep gr. (var. ls. lin.); pl. 6-8; st. slend., few ..... 34 **E. rurivaga.**
Sil. 5-6 × 2-2·25; ls. ov. lanc., ashy gr. (var. ls. lin.) pl. 6-7; st. erect, slend., few ..... 38 **E. lugdunensis.**

63. Fl. large, 6-7; sil. 7 × 2·5-3; s. rather short; ped. twice as long as sil. (var. thrice as long); pet. 3 times longer than sep; pl. strong, 10-15; st. many, erect; ls. large, ov., broad, atten. into long petiole, pale gr. or greyish ..... 68 **E. majuscula.**
Fl. about 5 mm. diam..... 64.

64. Ls. deep gr., bl. with brown at base, ov. (var. sometimes sm. and narrow, sometimes broad and larger), frequently toothed; sil. 6 × 3; s.s.; ped. twice as long as sil. (var. 3 or 4 times as long); pl. robust, 12-15; st. erect or asc., many ..... 67 **E. brevifolia** ex p.
Ls. bright gr., unbl., ent. or with a few sm. teeth; pl. 6-8..... 65.

65. Ped. as long as sil.; sil. 5-5·5 × 2·5; s.s.; pl. 6-7; st. erect; ls. obl. 65 **E. curtipes** ex p.
Ped. twice as long as sil.; sil. 4·5-5 × 2·5; s.s. (var. style longer); pl. 6-7; st. erect, slend., often sol.; ls. ov. (var. lanc. or lin.-lanc.). 66 **E. occidentalis** ex p.

66. Ls. narrow, lanc. or lin.-lanc., loc., 16-24 seeds..... 67.
Ls. broad, obl., loc., 15-40 seeds ..... 75.

67. Ls. ashy-white; sil. 5·5-6 × 2, atten. at base; s.s.; ped. twice as long as sil.; pl. 6-10; st. erect, many ..... 52 **E. cinerea.**
Ls. more or less deep gr..... 68.

68. Ls. gr., somewhat shining; pet. often roseate; calyx pale violet or rose; sil. 6-6·5 × 2, atten. at base; s.s.; ped. twice as long as sil.; st. erect. 51 **E. affinis.**
Ls. not shining ..... 69.

69. Ls. bl. at base of limb and petiole..... 70.
Ls. not bl. ..... 72.

70. Ls. deep gr., some teeth very projecting, bl. with brown on petiole ending in a lanc. point; sil. 6 × 2·5; s. rather s.; ped. twice as long as sil.; pl. 5-10; st. slend., erect or asc., sol. or many (var. with many spr. st.) ..... 45 **E. dentata.**
Ls. ent. or slightly toothed..... 71.

71. Ls. lin. or lin.-lanc., quite ent., ± pubescent, rarely nearly glabrous, clear gr.; sil. 6 × 2; pl. 6-7; st. erect, many ... 48 **E. leptophylla.**
Ls. lanc. with very sm. teeth, generally glabrous, deep gr.; sil. 5·5 × 2; st. erect..... 49 **E. sparsipila.**

72. Sil. 7 mm. long, atten. at base; s. very s.; ped. twice as long as sil. (var. thrice as long); ls. pointed, toothed, bright gr., pubesc. rare, or short (var. ls. hispid); pl. 8-10; st. erect, slend., many 47 **E. serrata** ex p.
Sil. not more than 6, rarely reaching 6·5 mm. ..... 73.

73. Ls. lanc. or obl., pointed, teeth prominent, very hispid with long h., clear gr. (var. dark gr.); sil. 5·5-6·5 × 2, narrowed at base; s.s.; ped. twice as long as sil.; pl. 7-10; st. slend., erect or asc., sol. or many. 46 **E. furcipila.**
Ls. ent. or obscurely toothed..... 74.

74. Ls. obl. or lanc., deep gr., softly ciliate, pointed ; sil. 5·5 × 2 ; s.s.; ped. twice as long as sil.; pl. 5-8 ; st. erect ..... 53 **E. propinqua.**
Ls. very sm., ellip. or lanc., clear or greyish gr., obt., with soft and dense pubescent calyx, violet or pinkish ; sil. 5·5-6 × 2-2·5 ; s.s.; ped. twice as long as sil.; pl. 6-8 ; st. slend., often sol., rarely in tufts. 50 **E. vestita.**

75. Ls. ov. or ov.-lanc., loc., 15-24 seeds .... 76.
Ls. ov., broad, loc., 30-40 seeds (see § 63) 68 **E. majuscula** ex p.
..... (see § 64) 67 **E. brevifolia** ex p.
.... (see § 65) 65 **E. curtipes** ex p. / 66 **E. occidentalis** ex p.

76. Sil. 5 mm. long ; fl. very sm., 3 mm. (see § 52) 54 **E. brevipila** ex p.
Sil. large, 6.5-8 ; fl. much larger..... 77.

77. Ped. not flexuous ; fl. 4-5 ; sil. 7-8 mm. (see § 29) 44 **E. Ozanoni** ex p.
Ped. flexuous .... 78.

78. Fl. sm., 4 mm.; sil. 6-5 long ..... (see § 54) 55 **E. rigidula** ex p.
Fl. large, 5-6 mm.; sil. 7-8 long... (see § 30) 41 **E. claviformis** ex p. / 42 **E. cuneifolia** ex p.

PART II.—ORCHIS MACULATA L. AND O. FUCHSII.

ORCHIS MACULATA L.

For some years a wrong conception of this Linnean species has been prevalent in Britain, so that it may be well to draw attention to the original description in the *Species Plantarum*, where Linnaeus clearly and precisely indicates the plant he had in view when he established *Orchis maculata*. In so many cases in that work the species is a composite species, often badly defined, with contradictory synonyms differing from each other and from the descriptive name. In some cases they are practically nomina nuda, whose descriptions can only be ascertained by tracing a synonym to some pre-Linnean source. In this instance, however, while citing the long descriptive name from the *Acta Upsala*, 14, 1740, *Fl. Suecica*, 729 (800, ed. 2), and the synonyms "*O. palmata pratensis maculata* Bauh. Pin. 85 ; *O. palmata montana maculata* Bauh. Pin. 86 & Vaill. Paris t. 31, 9, 10 (these figures of the flower only agree fairly well with the description in the *Sp. Pl.*), *Satyrium basilicum femina* from *Dod. Pemptades*, 240, 1583,* he goes on to describe his *O. maculata* "Petala 3 exteriora erecta ; 2 interiora conniventia. Nectarii labium trifidum planum ; lobis lateralibus majoribus crenatis ;

*This is Lobel's fig. from the *Observationes*, 90, 1576, fig. 4 !

intermedo angustissimo, integerrimo." This does not agree with the figure in *English Botany*, t. 632, 1799, but does correspond to the description of *Orchis maculata praecox* described by Webster in his *British Orchids*, the first edition of which was printed in 1886, and the second (now quoted) in 1898. On page 69 the author says, "Tubers palmate, smaller and more deeply divided than in *O. maculata*. Stem 4 to 7 inches in height, with narrow, lanceolate leaves at the base, the upper portion being thickly beset with long, linear bracts. Leaves at the base 2½ inches long by 1 inch broad, stem-clasping and usually spotted. Flower-spike large in proportion to the plant's size, 2 to 3 inches in length, usually dense and conical in shape, and varying in colour from a bright pinky-purple to nearly white. . . Lip wide in proportion to the flower's size, three-parted, the middle lobe small, angular, and hardly an eighth part the size of the lip. . . The following wide differences between this and *O. maculata* may be pointed out. (1) The great difference in size. In a mountain meadow, 700 feet altitude, the average height did not exceed six inches. Elsewhere on the same estate *O. maculata* averages eighteen inches. Transferred to my garden, *praecox* kept the same size. (2) The difference in the time of flowering, *praecox* flowering in April and May, *maculata* in the sheltered parks and woods not generally in flower till July. (3) The difference in soil and situation—*maculata* always lowland, in thin, sheltered woods and copses, or adjoining fields, preferring a cool rich loam. *Praecox* ascends from 500 to 1000 feet, bearing the roughest blasts of bare hillsides, which its dwarf, sturdy habit, closely-set flower spike, short, stiff, acuminate foliage, and strong, wiry stem enable it to do. Damp, boggy meadows amongst *sphagnum*, in company with the butterwort, sundews, and marsh *Pedicularis*, are the favourite abodes; indeed, it is so partial to damp ground that whole patches of it have been destroyed by drainage. (4) Difference in construction. In *maculata* the lower leaf or leaves are always smaller than those further up and rounded at the tips. In *praecox* the reverse is the case. Again, the middle lobe of the lip of *maculata* is longer than the side ones. In *praecox* it is invariably shorter." This article, (which I have abbreviated) under the heading of 'An unnamed British Orchid' (and accompanied by living specimens), was read before the Botanical Society of Edinburgh on June 10, 1886, but as Prof. Dickson considered the plant as a variety of *O. maculata* it is now included as

such, although my own convictions, based on the above description, are certainly strongly in favour of its being regarded as a new and distinct species. The pages of the *Transactions* have been searched in vain for any reference to this paper. In the *Flora of Bournemouth*, 208, 1902, the Rev. E. F. Linton, doubtless unaware of the publication of Mr Webster's *praecox*, since he does not refer to it, describes the same form as *O. ericetorum* as a sub-species or species. Evidently neither Webster nor Linton could have consulted the original description of Linnaeus or they would have seen that their plant and that of the *maculata* of the *Species Plantarum* were practically identical. From time to time, as *praecox* became better understood, English botanists expressed surprise that such a common British plant was not reported from the continent. Had the descriptions in the continental floras been consulted, it could have scarcely escaped attention that the description of *O. maculata* in the majority of them really applied to the Linnean plant, the *ericetorum* of Linton and the *praecox* of Webster. In a few instances the descriptions are either accidentally or intentionally drawn so as to cover both forms, but I have not yet found a description in a modern foreign flora clearly defining the plant which Webster and Linton took to be the type *maculata*. The continental descriptions of *maculata*, as I have said, either definitely or vaguely refer to the Linnean species. For instance, M. Rouy in the *Flore de France*, xiii., 153, 1912, describes it as *maculatus genuinus*, as having a "labelle faiblement 3-lobé, le lobe médian plus petit que les latéraux." Cosson & Germain (*Fl. Env. Paris*, 553, 1845) say, "Labelle large, presque plan, à 3 lobes peu profonds, le lobe moyen entier plus petit que les latéraux." This is practically repeated by Lloyd (*Fl. l' Ouest*, p. 301). Grenier & Godron (*Flore de France*, iii., 296) say, "Labelle . . presque orbiculaire a trois lobes peu profonds, les 2 latéraux larges, crénelés, lobe moyen plus petit entier, aigu ou arrondi," and Boreau (*Fl. du Centre*, ii., 646, 1857) gives the same characters. Gaudin (*Flora Helvetica*, v., 444) says, "Trilobum, glabrum, lobis exterioribus latis, obtusis, crenulatis, medio minori, integro." The plate t. 933 in *Flora Danica* is a not very characteristic figure of the Linnean plant, the middle lobe being too large and the lateral ones not large enough. Bouvier (*Flore des Alpes*, 641) says, "Labelle à 3 lobes, les 2 latéraux crénelés, plus large que le moyen." Archangeli (*Fl. d'Italie*, 659, 1882) gives, "Labello trilobo a lobo

medio ovato quasi acuto, i laterali larghi il doppio di esso." Merino (*Fl. Galicia*, iii., 81, 1909) writes, "Mediano menor y por veces diminuto." The excellent *Flore de France* by the Abbé Coste gives the same description, with which his figure agrees. Willkomm & Lange (*Prod. Fl. Hispan*, i., 170) say, "Labelli purpureo-maculati trilobi lobis lateralibus medio multo latioribus crenulatis." Krocker (*Fl. Silesia*, iii., 21, 1814) gives, "Labellum profunde trifidum, planum, lobis latioribus, majoribus, crenatis, intermedio integro." Persoon (*Synopsis*, ii., 505, 1807) also describes the true plant. Reichenbach (*Ic. Fl. Germ. et Helv.*, xiii., t. ccccvii., fig. 2) gives also the Linnean plant, but his figures 1 and 3 are not typical. On p. 66 he says, "Lobo medio vulgo minore." Koch (*Syn. Fl. Germ.*, 687, 1837) merely says, "Labello trifido," which covers both forms, and this vagueness is retained in the last edition of the same work by Hallier and Wohlfarth. So much for the continental authorities. Let us glance at its British history. Johnson (*Gerard Herbal*, 220, 1633) gives a figure of *Palma Christa foemina*, which shows the broad labellum of true *maculata*, and this figure, which had been previously printed in Lobel's *Adv.*, t. 157, 1576, and *Icones*, t. 188, 1581, is copied in Parkinson's *Theatrum*, 1357, 1640. Bobart (*Morison Plantarum Historiae Universalis Oxoniensis*, iii., 491, t. 13, f. 6) also figures the true plant. Withering (*Nat. Arr. Brit. Pl.*, 544, 1776) too says, "Lateral lobes large and scalloped, the middle one very narrow and entire." The descriptions in the works of Ray, *i.e.*, *Historia*, *Catalogus*, and *Synopsis* are too indefinite, and can only be applied in an aggregate sense. Berkenhout (*Outlines*, ii., 248, 1770) says, "Lateral lobes large, notched, plane." Lightfoot (*Flora Scotica*, 576, 1777) quotes the Linnean description, but also cites Haller's figure, which he says is "bona," while his description is, "three-lobed, the middle one narrower and generally acute or entire." Sibthorp (*Flora Oxon.*, 11, 1794) also cites Haller's figure, which it is true represents the common Oxford plant. The description in Smith's *Flora Britannica* is too vague, but in *English Botany*, t. 632, 1799, the figure of the plant does not agree with the Linnean description, nor indeed with his own, *e.g.*, "Lip three-cleft, flat. The lip is flat, with two large rounded side-lobes and an intermediate sharp small point." A drawing of a flower is given to which this description to some extent applies. Doubtless this figure in the *E. B.* plate was instrumental in giving a wrong idea of the Linnean type. In the

English Flora, iv., 22, 1828, Smith makes *maculata* quite an aggregate species, since he quotes the Linnean name and the figures from Vaillant which Linnaeus had correctly cited as representing his plant and Lobel's *Icones*, 188, 1581, as well as the same plate reproduced in Johnston's *Gerard*, but he also quotes Haller's *Hist.*, t. 32, f. 1, and Vaillant's *Paris*, 152, t. 30, which are practically the same as the beautiful figure t. 112 of "*O. maculata*" in Hooker's *Flora Londinensis*, all of which are the plant to be alluded to hereafter. On the plate in *Fl. Lond.* there is a single flower of true *maculata*, while Hooker's description covers both, *i.e.*, "Labellum large, varying remarkably in figure, sometimes roundish, crenate, bluntly three-lobed (fig. 3); generally obconate three-lobed, the lateral lobes the broadest, entire or emarginate, the intermediate one the longest." The second edition of Withering by Dr Stokes (*Nat. Arr.*, ii., 976, 1787), gives *O. maculata* in an aggregate sense, since he quotes Relhan (*Fl. Cantab.*) whose description, "Labellum latum, medio segmi simplici acute minore," probably refers to the true plant, while Woodward's description, which he also cites, suggests the other. More recently S. F. Gray (*Nat. Arr. Br. Pl.*, ii., 202, 1828) and Lindley (*Synopsis*, 260, 1829) vaguely describe *maculata*, and Hooker (*Flora Scotica*, 251, 1821) curiously gives a description which is probably taken from the plate in his *Flora Londinensis* rather than from a Scottish specimen, where the true *maculata* is the commoner species. In the *British Flora*, 368, 1842, the same author includes both plants in his description, which runs, "Lip plane three-lobed, sometimes obscurely so, . . . its generally deeply lobed lip having the central lobe the longest." In the edition of 1855 of the same work Arnott, on p. 434, repeats this, and with the critical acumen one expects from him when describing British plants, adds the illuminating suggestion that *maculata* is not distinct from *latifolia*, his *latifolia* also including *incarnata*! Babington's (*Manual*, 310, 1847) description suggests *O. Fuchsii*. Leighton (*Fl. Salop*, 428, 1841) is indefinite. Bromfield's (*Fl. Vectensis*, 477, 1856) is an aggregate species. Sir Joseph Hooker (*Student's Flora*, 353, 1870) describes "The lip as broad as long, margins recurved, middle lobe narrower and about as long as lateral, which are toothed." Syme (*Eng. Bot.*, ix., 101) has a description covering both plants. The figure is reproduced from the *E. B.* plate, 632; the solitary flower on it suggests true *maculata*.

The point then arises as to what is the second plant and what is its name. In the preceding remarks stress has been laid upon the lip characters; but the plant of our basic soils in England has other well marked features. It is typically a taller and stronger plant, with broader and stiffer, strongly spotted leaves; with flowers which look smaller than those of true *maculata*, since they are narrower and not so flat, and the labellum is cut into three nearly equal divisions, usually with the middle one as large and much longer than the lateral ones. Normally it is lilac coloured, with well defined dark purple markings; the spike is long, dense, and cylindric. It grows on stiff soils in woods and wood margins, in basic marshlands, and on chalk downs where there are impervious layers of chalk, and in such situations is subject to a small range of variation, except as to the flowers assuming a paler or darker tint, but if there is much humus overlying the basic soils, a widening of the lip and the more unequal size of the lobes will show themselves; indeed, I have seen an almost unbroken change of form between it and true *maculata* when a peaty field adjoins a basic woodland. Whether these intermediates are hybrids between two distinct super-species or whether the variations are due to soil condition has yet to be ascertained. To prove it seed of true *maculata* ought to be sown on basic clay—it takes seven years from the germination of the seed to the flowering stage—and also seed of the other should be sown on peaty soil. The earliest name suggesting our basic plant which I have been able to find is *O. maculata*, var. *trilobata*, which is given (teste Rouy) in the first edition of Brébisson's *Flore de la Normandie* of 1837; in the edit. 4, p. 310, it is described as "épi grêle, fleurs petites, labelle à trois lobes profonds presque égaux." This does not very happily describe our plant, since the spike is not slender, nor are the flowers small, and while the divisions of the lip are subequal, the centre one is the longer. Rouy (*l.c.*) makes *trilobata* synonymous with the var. *Meyeri* Reichenbach (*Icones* xvii., 67, 1851), described as "gracilis laxa elongata, foliis spica elongata, parviflora, labello profunde trilobo, lobo medio producto, calcare angusto," a name which is taken up in a subordinate sense under *O. maculata* by Ascherson and Graebner (*Fl. Mittel-Europ.*, iii., 746). Here also the description is not correct for our British plant, which is not slender, nor lax, nor has it a slender spur. In what grade shall this plant of ours be put? The standard of Bentham would give it varietal rank; that of Syme would place it as a sub-species; while, comparing it with

Rubi, *Hieracia*, *Fumaria* as recently defined, there need be no hesitation in claiming for it full specific rank. Since the varietal descriptions given by Brébisson and Reichenbach, even as elaborated in the works of Rouy and Ascherson and Graebner do not accurately define this plant, I would suggest for it the name *Orchis Fuchsii*. A fairly good representation of it is given in *De Historia Stirpium*, by Leonard Fuchs, 703, 1542, labelled *Satyrium Basilicum foemina*. Kreutz blum Weible. This was given in a reduced form in the smaller edition of *L'Hist. des Plantes*, 1550, printed in Paris, where the plate is marked (p. 486) *Satyrium Royale femelle*. One of the flowers on the spike shows the subequal divisions with the long middle lobe which is characteristic of the plant. There is also a figure of it in Lobel's *Adversaria*, p. 91, fig. i., of 1576, and in his *Icones*, t. 189, 1581, as *Serapias candido flore montana maculata foliis*, which is reproduced in Gerard's *Herbal* of 1597 as *Serapias candido flore*; in Johnson's *Gerard*, p. 222, f. 1, 1633 (he says it is a kind of *Palma Christi*); and also in Parkinson's *Theatrum*, 1360, f. 4, 1640, as *Orchis palmata montana maculata candido flore*. Parkinson also recognises its relationship to his *Orchis palmata foemina*, but the figures of the flowers represent the two species: doubtless the colour was considered by him to be the strong distinguishing feature. There is also an excellent figure in Haller's *Historia*, vol. ii., p. 141, t. 32, f. 1, 1768, and he says, contrasting it with *latifolia*, that the *spica* is more triangular (as it is in the young state), that its flowers are "pallidior, dilute violaceus. . . Labellum profundius trifidum." Sibthorp (*Fl. Oxon.*, 11, 1794) and Smith (*Eng. Fl.*, iv., 22, 1828) cite this plate for their *maculata*, and it is the common Oxfordshire plant. There is another excellent plate labelled *O. maculata* in Reichenbach's *Icones Critica*, vi., t. 566, 1825. In addition to the foregoing may be quoted Smith *E. B.*, t. 632, 1799, and Hooker *Fl. Lond.*, t. 112, in each case excluding the single figure of the flower, and Müller *Orchid.-Arten*, n. 29, 1904, as *O. maculata* Huds.

ORCHIS FUCHSII MIHI.

Description: Tubers palmately cleft, somewhat flattened. Stem solid, 6-24 inches. Lower leaves oval or oblong, usually strongly marked with purplish-black, keeled, but the sides of the leaves recurved from the mid-rib,—that is, the general outline of a transverse section is more or less flattened (in *maculata* the leaves are strongly

keeled and the leaf is narrower). Bracts three-nerved, shorter or sometimes slightly longer than the flowers, usually green. Petals acute or subobtuse, pale lilac, white or purplish-lilac, with darker purple ribs. Labellum deeply three lobed, the lobes subequal, the centre longer and somewhat larger than the lateral, entire. The lateral ones have their outer margin straight or only slightly curved or rounded, slightly crenate or entire. The lip is variously marked with dark purple—obscurely, or in strong clear lines or spots, or hieroglyphically. Spur stouter, enlarged upwards, conico-cylindric. Spike usually dense-flowered cylindric, more rarely sub-pyramidal. Flowers June—Aug. From Kent to Cornwall northwards to Caithness, and in Ireland from Cork to Antrim. Commoner in the Midlands and in the Eastern counties.—*Caulis* solidus, in altitudinem 15—60 centimetrorum crescit. *Folia inferiora* ovata, oblongo-ovata vel oblonga, subobtusa vel ad apicem plus magisve coarctata; plus magisve plana, carinata. *Folia superiora* lanceae modo acuta, maculis atropurpureis insignita. *Bracteae* plerumque breviores sunt quam flores, aliquando aequa longitudine vel etiam longiores, plerumque virides. *Petala superiora* connivent; labrum tribus lobis altius indentatum, quae lobae ut subaequales sunt, ita media longior et aliquanto major quam laterales, et omnes integrae. *Labellum* maculis atro-purpureis interstinctum. *Calcar* firmius formam et coni et cylindri habet, a parte superiori grandescens. *Spica* plerumque densis floribus, cylindri saepius, pyramidis rarius formam refert. *Floret* mensibus Jun.—Aug.

Orchis Fuchsii × maculata. This presumed hybrid exists under two conditions—first, that in which the plant has the strong erect tall stem, broadish leaves, and the general habit of *Fuchsii*, but the flower appears to be much larger from the lip being flat, and with the two lateral lobes large, rounded and often crenate. This occurs on basic soils where there is damp humus. The other plant is *maculata* × *Fuchsii*, which has the weaker habit, the more curved stem, and the more deeply, strongly keeled, and narrower leaves of *maculata*, but with the flowers less conspicuous, owing to the lateral lobes being narrow, while the centre one is as large or larger, and distinctly longer than the lateral.

Orchis Fuchsii × praetermissa. A very tall and handsome plant with a long head of dark, rich crimson purple flowers, often with long bracts; hollow stem; leaves strongly marked with dark purple rings or spots. Sometimes the leaves are unspotted, the outline of the

flowers nearer *praetermissa*, but less darkly coloured, and with the more conspicuous markings of *Fuchsii*, with which it grew. Burgh Fen, Norfolk; Whitewater, Northants.; Cothill, Berks.

ORCHIS FUCHSII × LATIFOLIA. Plants stout erect, spikes large, cylindric, strongly bracteate, flowers large, with prominent lateral lobes to labellum, but in some cases with the middle lobe longer than the lateral, pale purple, with darker markings.

ORCHIS FUCHSII × INCARNATA. With both parents near Winchester. P. M. Hall and R. B. Ullman, see *Report* 338, 1913, as *incarnata* × *maculata*, and *Report Winch. Coll. Nat. Hist. Soc.* 1912-13.

ORCHIS FUCHSII × HABENARIA VIRIDIS, comb. nov. With both parents, Winchester Downs, as *O. maculata* × *Habenaria viridis*, see *Report* 342, 1913. This may be a ternary hybrid of which the original cross was *O. Fuchsii* × *incarnata* crossed with *H. viridis*.

ORCHIS MACULATA L. Sp. Pl., 1753. *O. maculata praecox* Webster Brit. Orch. 54, 1886. *O. ericetorum* Linton Fl. Bournemouth, 208, 1902, as sub-species. Plant rather slender, stem often curved and frequently purplish above, leaves narrower and relatively longer than in *Fuchsii*, strongly keeled and folded, rarely flattened, usually acute, rarely rounded at apex; spike 1-2 inches, usually broadly pyramidal, lengthening in the fruiting stage; bracts usually shorter than the flowers, often purplish; flowers conspicuous, broad, pale, or of different shades of lilac-purple, the markings fainter than in *Fuchsii*, and the margins less distinct, often crenulate. The lateral lobes of the labellum large, rounded, flat, much larger than the median one which is sometimes quite small and rarely as long or longer than the side ones. Spur slender, not enlarged upwards. Flowers April, July, commonly in May.

Habitat: heathery moorlands, heathy ground, peat bogs, and in damp places on silicious soils, locally abundant and ascending to 3000 feet. From Cornwall northwards to the Shetlands and in Ireland. Absent from large areas on the basic soils of the Midlands and Eastern counties.

ORCHIS MACULATA × PRAETERMISSA = O. HALLII. Lip broad, trilobed with hieroglyphic markings, purplish-lilac, more strongly bracteate, and the plant more erect and stiff; spike oblong.

ORCHIS MACULATA L. (sens. strict.) × LATIFOLIA. Spike oblong, thick, with large but not very long bracts; lip broad, trilobed, lateral

lobes large purple, strongly marked with dark purple lines and spots. Stem somewhat flexuous, strong. Leaves broad, flat, faintly spotted. Sligachan, Skye. To this I also put the Rev. E. S. Marshall's gathering [Ref. No. 3540] from Stogamber, S. Somerset, which is nearer *O. maculata.* Others still nearer *maculata* from Hampshire, coll. R. B. ULLMAN and P. M. HALL. See *Report* 338, 1913, as *latifolia* × *maculata*, var. *ericetorum.*

ORCHIS OKELLYI Druce. *Orchis maculata* L., var. *Okellyi* Druce in *Irish Naturalist* 211, 1909. A third member of the *maculata* group is a plant I found locally on the limestone hills of Co. Clare, and by the Rev. E. S. Marshall on the interesting limestone area of Inchnadamph, in Sutherland. My attention was first called to it by P. O'Kelly when I was in Ballyvaghan, in Co. Clare. There it was locally common, ascending to over 1000 feet. Mr O'Kelly had known it for many years and found it remained constant when removed to a different soil, and from its unspotted leaves had called it *immaculata*, but had not described it. The Rev. E. S. Marshall independently found it locally at Inchnadamph [Ref. No. 3240], and Dr Shoolbred at Kylesku, in W. Sutherland, in 1908. Since then I have found it at Toome Bridge, Antrim, and between Omagh and Newton-Stewart, Tyrone.

The plant is from 9-14 inches high; stem erect, or slightly curved, slender but stiff; leaves unspotted, oval lanceolate, flat, slightly keeled, the upper gradually diminishing in size and becoming very narrow and elongated; flowers in a dense oblong-cylindric, blunt, not tapering, spike of pure white flowers, smaller than in *Fuchsii* or *maculata.* The three segments of the labellum narrow oblong, sub-acute, the middle segment longer and as broad as the lateral. Flowers in July. Rarely the flowers have a dot or two of colour near the base of the labellum. The plant is nearer to *Fuchsii* than to *maculata*, and it comes nearer than *O. Fuchsii* to Brébisson's description of his *trilobata* which he records from the calcareous district of Caen. Perhaps in these three plants we have soil-species—(1) *O. maculata*, almost restricted to the acid, silicious areas; (2) *O. Fuchsii*, especially represented on the basic clays and impervious beds of chalk; (3) *O. Okellyi*, a plant strongly calcipete, and restricted to well-drained soils. Whether the intermediate forms which occur are the result of hybridisation as treated here, or are merely variations await, as has been said, scientific experimental culture.