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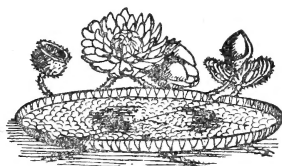
BOTANICAL SOCIETY of the BRITISH ISLES

PROCEEDINGS

VOLUME I

EDITED BY
D. H. KENT

Victoria Regia



Floreat Flora

1954-55

Printed for the Society by
T. Buncle & Co. Ltd., Market Place, Arbroath, Angus

PROCEEDINGS B.S.B.I., VOL. I

ERRATA

- p. 70, line 16 : *For* Sharpness Docks, Bristol (v.c. 34) *read* Sharpness Docks, Gloucester (v.c. 34).
- p. 93, line 23 : *For* GLENDENNING *read* GLENDINNING.
- p. 298, line 7 : *For* *Filipendula ulmarita* *read* *Filipendula ulmaria*.
- p. 419, line 1 : *For* 1928 *read* 1938 : *For* Wein *read* Wien
line 4 up : *For* 1953 *read* 1948.
- p. 428, line 19 : *For* 1930 *read* 1925.
- p. 430, line 41 : *For* 1941 *read* 1934.
- p. 436, line 23 : *For* 1946 *read* 1942.
- p. 445, line 12 : *For* 1912 *read* 1946.
- p. 449, line 20 : *For* Weimarch *read* Weimarck.
line 39 : *For* Whitehead, Dr. F. N. *read* Whitehead, Dr. F. H.
- p. 452, line 2 : *For* (As at *read* (As at 20th April 1955).
- p. 453, line 18 : *Delete* McFarlane, M.
line 30 : *Add* McFarlane, M.
- p. 455, line 25 : *Delete* Elliot, Rev. E. A.
line 32 : *Add* Elliot, Rev. E. A.
line 39 : *For* Whitehead, F. N. *read* Whitehead, Dr. F. H.
- p. 457, lines 17-18 : *For* Bradshaw, Miss M. E. *read* Bradshaw, A. D.
- p. 458, line 42 : *Delete* Braid, Prof. K. W.
- p. 459, After line 20 : insert 99, DUNBARTON. Braid, Prof. K. W.
- p. 460, line 12 : *For* Weimarch *read* Weimarck.
- p. 484, line 15 : *For* *Bechnum spicant* *read* *Blechnum spicant*.
- p. 505, line 4 : *For* Whitehead, F. N. *read* Whitehead, F. H.
- p. 572, line 2 up : *Add* Prof. T. G. Tutin.

DATES OF PUBLICATION

- Part 1, pp. 1-120, April 1954.
Part 2, pp. 121-286, November 1954.
Part 3, pp. 287-470, July 1955.
Part 4, pp. 471-584, October 1955.

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OF THE
BOTANICAL SOCIETY OF THE BRITISH ISLES

Editor : D. H. KENT

Vol. 1

APRIL 1954

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PUBLISHED AND SOLD BY THE
BOTANICAL SOCIETY OF THE BRITISH ISLES
o/o DEPARTMENT OF BOTANY, BRITISH MUSEUM (NATURAL HISTORY),
LONDON, S.W.7
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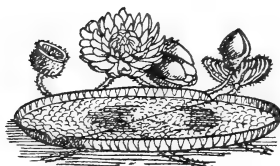
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Continued on inside of back cover

BOTANICAL SOCIETY of the BRITISH ISLES

Victoria regia



Floreat Flora

PROCEEDINGS

VOL. 1 PART 1

EDITOR

D. H. KENT

APRIL 1954

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BRITISH MUSEUM (NATURAL HISTORY), LONDON S.W.7

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EDITORIAL

It has been decided to replace the *Year Book* with a new publication, of which this is the first number. The *Proceedings* will be published twice a year, and will contain such familiar features as Plant Notes, Plant Records and Abstracts from Literature. Each number will also contain papers of general interest on the British flora and, at times, Reports of Officers, Excursions and Exhibition Meetings, as well as book reviews and obituaries.

It is hoped to publish in each number something of interest to every member, whether a beginner or a more advanced student of the study of British plants.

RECENT WORK ON THE MANX FLORA

By D. E. ALLEN

In 1949 the compiling of a full account of the flora of the Isle of Man (v.c. 71) was begun. In the course of this work a considerable number of new and interesting records have been accumulated, and since the results of the Society's Field Meeting (1950) need to be placed on record, this seems a convenient opportunity of bringing them all together in one paper.

A few words about the flora in general might not be inappropriate. The island is only 227 square miles in extent, and the flora, like that of Ireland, is markedly oceanic in character. It bears the closest resemblance to the flora of the two areas that are the nearest geographically, namely, Wigtownshire and eastern Ulster. Even so, there are ten flowering plants and possibly four mosses that occur in the Isle of Man but not in Ireland. A post-glacial land connection must be supposed to account for the comparative richness of the flora and fauna. There are, however, twenty species of flowering plants which are absent from the island, although they occur in most vice-counties surrounding the Irish Sea. These are:—

<i>Thalictrum flavum</i>	<i>Lithospermum officinale</i>
<i>Ranunculus auricomus</i>	<i>Epipactis helleborine</i>
<i>R. trichophyllus</i>	<i>Juncus inflexus</i>
<i>Arabis hirsuta</i>	<i>Scirpus tabernaemontani</i> (Schoenoplectus tabernaemontani)
<i>Hypericum maculatum</i> (H. dubium)	<i>Rhynchospora alba</i>
<i>Geranium lucidum</i>	<i>Poa nemoralis</i>
<i>Euonymus europaeus</i>	<i>Festuca gigantea</i>
<i>Geum rivale</i>	<i>Bromus ramosus</i> (Zerna ramosa)
<i>Parnassia palustris</i>	<i>Agropyron caninum</i>
<i>Vaccinium oxycoccos</i> (<i>Oxycoccus quadripetalus</i>)	

These absentees are mainly inhabitants of calcareous soils or woodlands, both of which are conspicuously lacking in the island. Although the flora can be said to have been reasonably well worked in the past (notably by Edward Forbes, G. A. Holt, P. G. Ralfe, J. A. Wheldon and C. I. Paton), virtually no sign of endemism has been detected, contrary to the experience of the zoologists with the insects. The island's greatest interest to the biologist lies, in fact, in its rôle as the meeting-place of Irish, Scottish and English races of plants and animals, and in reveal-

ing how far these races are able to co-exist. There are also the problems connected with population fluctuation, survival density and genetic drift, inherent in the study of all such islands. There are no truly Lusitanian species except for a single moth, but the island makes up for this deficiency to some extent by harbouring (mainly in the north-west corner) an interesting series of relics of a "Continental" type of distribution, otherwise confined mainly to the South of England. The reason for this must be that the island's flora suffered relatively less than that of either Ireland or Britain from the spread of dense forests and blanket-bog earlier post-glacially.

An unfortunate misconception is prevalent in parts of England that the Isle of Man is a second Blackpool, peopled almost entirely by vast multitudes of holidaymakers. This heresy, combined with the prospect of an often arduous seventy-mile sea voyage, has unhappily deflected many botanists whose visits would have made the island's flora much better known than it is. In order to dispel such illusions, I would recommend a visit to the deserted island in June or September by the excellent and relatively inexpensive air service.

The records which follow are grouped for convenience under four heads:—

I. The Society's Field Meeting, June 25-July 1, 1950 (for full details see *Year Book*, 1952, 32-34). This meeting, based on Douglas, was extremely successful and about 65% of the known flora (over 800 species of vascular plants are recorded) was seen. In addition to the daily excursions by coach, Messrs. E. Milne-Redhead and V. S. Summerhayes made a number of evening sorties by car, and stayed on for a few days' additional collecting after the Meeting had officially ended. Their specimens are deposited in Hb. Kew (K.), while those collected by Miss C. W. Muirhead are in Carlisle Museum (Cl.), by Messrs. P. S. Green and N. D. Simpson in Hb. Univ. Birmingham (B.) and Hb. Simpson (S.) respectively, and by myself in Hb. Univ. Cambridge (C.).

II. September 1-28, 1951. Based on Douglas, I visited all parts of the island and collected extensively.

III. September 11-25, 1952. A week was spent at Port St. Mary, exploring the south-west corner of the island, and a second week at Douglas. The collections made on this and the previous expedition have been divided: new records for the island have been placed mostly in Hb. Manx Museum, Douglas (M.), and the rest in Hb. Univ. Cambridge (C.).

IV. This includes specimens from Hb. Manx Museum or elsewhere that have been re-determined, hitherto unpublished new records, and corrections to Paton's List (1933) and its supplements (1934, 1945). Also included are unpublished

records kindly communicated to me by Mr. J. R. Bruce, the Hon. Marjorie Cross, Mr. E. F. Ladds, Miss M. Quayle, Mr. G. D. Rowley, Dr. D. P. Young and, in particular, by Messrs. R. Howarth (the Society's Local Secretary) and W. S. Cowin, to both of whom I am deeply indebted for much help and hospitality.

New county records are marked with an asterisk, alien species with an obelisk. Records new to *Comital Flora* are marked with §.

6/6. *RANUNCULUS LINGUA* L. I. Curraghs near Sandygate. II. Baldwin Reservoir.

6/7. *R. FLAMMULA* L. I. Very small specimens in dune slack near Rue Point, simulating *R. scoticus* E. S. Marsh. (K.).

†11/1. *AQUILEGIA VULGARIS* L. IV. Tromode Dam (Cowin).

§*22/1. *MECONOPSIS CAMBRICA* (L.) Vig. IV. Damp rocks at cliff foot, Port Soderick (Ladds). Evidently native. Not, apparently, much grown in Manx gardens.

†31/4. *CORYDALIS LUTEA* (L.) DC. II. Old Laxey. IV. Sulby; Glentramman, Lezayre (Howarth).

32/1. *FUMARIA CAPREOLATA* L. IV. Arbory, common (Rowley).

32/4. *F. PURPUREA* Pugsf. I. Ramsey (K.—all specimens in Hb. Kew det. N. Y. Sandwith).

32/9. *F. BASTARDI* Bor. I. Cornfield near Sandygate (K.). Dogmills (K.). III. Port St. Mary.

35/1. *RORIPPA NASTURTIUM-AQUATICUM* (L.) Hayek. I. 8 localities (K., det. H. K. Airy Shaw). Seen since in 13 other localities, mainly near the coast.

35/1. ×1(2). *R. × STERILIS* Airy Shaw. I-III. Collected in 9 localities (K., M., C., det. H. K. Airy Shaw). The other parent, *R. microphylla* (Boenn.) Hyl., has not yet been detected, curiously enough. The hybrid grows in native habitats and does not appear to be a relic of cultivation.

§*35/2. *R. SYLVESTRIS* (L.) Bess. II. Clypse Reservoir, first found by W. S. Cowin (M.).

†42/10. *LOBULARIA MARITIMA* (L.) Desv. III. Gansey dump.

45/5. *COCHLEARIA ANGLICA* L. IV. Paton's specimens from Scarlett (M.) belong to the northern race.

†47/2. *HESPERIS MATRONALIS* L. I. Corraney (K.). II. Ballig. Near Foxdale. IV. Kirkbride, 1931 (Hon. Marjorie Cross).

†48/1. *MALCOLMIA MARITIMA* (L.) R.Br. IV. Railway track, Peel, 1937 (Hb. Young).

†49/6b. *SISYMBRIUM OFFICINALE* var. *LEIOCARPUM* DC. I. Dump, Langness. III. Gansey dump.

49/8. *ALLIARIA PETIOLATA* (Bieb.) Cavara & Grande. III. Glen Down, found earlier independently by W. S. Cowin. Extremely rare: first record for fifty years.

54(2)/1. *RHYNCHOSINAPIS MONENSIS* (L.) Dandy. I, II. Still in two places on Ramsey Mooragh, where Ray found it in 1660, but threatened by building projects.

§*†55/2. *DILOTAXIS MURALIS* (L.) DC. II. Casual on premises of kipper factory, Peel (M.).

§*†60/1. *CORONOPUS DIDYMUS* (L.) Sm. I. Dump, Langness (K.).

†61/5. *LEPIDIUM CAMPESTRE* (L.) R.Br. I. Dogmills (K.). Only one reliable previous record, the older authors including *L. smithii* under this name.

†76/3. *RAPISTRUM RUGOSUM* (L.) All. I. Near Eairy (K., S., Cl.).

87/1. *HELIANTHEMUM GUTTATUM* (L.) Mill. IV. Dickson's plant labelled "Isle of Man" and circulated in 1797 has been hitherto explained away as a misinterpretation of "Mona", intended to denote Anglesey. However, M. C. F. Proctor has drawn attention to the fact that Dickson's specimens represent a form quite unlike the Holyhead subsp. *breweri* (Planch.) Hook. f. and more like the Channel Isles form. The sandy heathland near Ballaugh is a very likely locality, though the species is presumably now extinct. It is interesting to recall that the Cistus Forester (*Procris geryon* (Huebn.)), which is supposed to feed exclusively on *Helianthemum* (and no other species of the genus has been recorded in the island), was taken at Archallagan in 1935.

88/4. *VIOLA RIVINIANA* Reichb. subsp. *RIVINIANA*. II. Maughold (C., det. S. M. Walters). Probably common.

*Subsp. *MINOR* (Murb.) Valentine. II. Cliff-top turf, Banks Howe, flowering regularly every September (det. D. H. Valentine). Probably frequent on cliffs all round the coast.

§*88/7. *V. LACTEA* Sm. IV. Groudle, 1883, G. A. Holt (M., conf. S. M. Walters). Technically an N.C.R., all previous records (accepted by Paton) being errors for *V. canina* L. em. Reichb.

88/34. *V. TRICOLOR* subsp. *CURTISII* (E. Forst.) Syme. IV. Ballaugh, 1878, G. A. Holt (M.). This is the true, small-, yellow-flowered plant, apparently endemic to the British Isles. Most, if not all, of the other Manx records belong to *V. tricolor* L. subsp. *tricolor*. There is no evidence of the very distinct, long-spurred, purple-flowered plant of the Lancashire coast.

§*102/6. *ARENARIA LEPTOCLADOS* (Reichb.) Guss. III. Wall by sea. Kentraugh, a single specimen (M.).

103/2. *SAGINA SUBULATA* (Sw.) C. Presl. I. Near Point of Ayre (S., Cl.). II. The Chasms (M.).

103/7. *S. CILIATA* Fr. II. Ramsey Mooragh (M.).

109/1. *MONTIA FONTANA* L. (det. S. M. Walters).

*Subsp. *CHONDROSPERMA* (Fenzl) S. M. Walters. IV. Douglas, 1888. C. R. Billups (Hb. Univ. Coll. Leic.).

*Subsp. *INTERMEDIA* (Beeby) S. M. Walters. IV. South Barrule Reservoir, 1947, C. I. Paton (M.).

Subsp. *VARIABILIS* S. M. Walters. The common form in the island, collected from 12 localities (C., Cl., K., M., S.).

†123/3×1. *TILIA CORDATA* × *T. PLATYPHYLLOS*. III. Planted, Port Soderick Station (M.).

128/3. *ERODIUM CICUTARIUM* (L.) L'Hérit. subsp. *CICUTARIUM*. III. Langness (M., C., det. E. F. Warburg).

*Subsp. *DUNENSE* Andreas. I. Langness (K., det. N. Y. Sandwith). III. N.W. end of Langness, with subsp. *cicutarium* (M., det. E. F. Warburg).

128/3c. *E. GLUTINOSUM* Dum. I. Dunes near Rue Point. Previously recorded by J. A. & H. J. Wheldon (det. C. E. Salmon).

†132/2c. *OXALIS CORNICULATA* var. *MINOR* Lange. IV. Peel, 1937 (Hb. Young).

†132/8. *O. ARTICULATA* var. *HIRSUTA* Prog. Much grown in Manx gardens, often escaping (det. D. P. Young).

§*†154/4. *MELILOTUS INDICA* (L.) All. III. Sand-pit, St. Johns (M.).

155/11. *TRIFOLIUM STRIATUM* L. I. Derby Haven and Langness (K.), a densely velutinous form, the nearest approach to which is represented by Cornish specimens (N. Y. Sandwith).

166/3. *ASTRAGALUS DANICUS* Retz. I. Sand hillock at mouth of R. Killane (Howarth). Now known from 9 localities round the coast. Very rare in Ireland.

§*†173/1. *ONOBRYCHIS VICHIFOLIA* Scop. IV. Ballasalla, c. 1880, Mrs. W. Kermodé (M.).

†183/4. *PRUNUS CERASUS* L. III. Fleshwick Glen, naturalised (C.). All previous records are errors for *P. avium* (L.) L., except probably those by Whellan (1948).

185. *RUBUS* (det. W. Watson, except where stated):

R. NEMORALIS P. J. Muell. IV. Ohio, Andreas, 1931, C. I. Paton (M.).

R. BIFRONS Vest. ex Tratt. IV. Douglas, 1866, T. Talbot (M.).

R. PYRAMIDALIS Kalt. I. Rushen Abbey (det. N. D. Simpson & C. W. Muirhead).

R. POLYANTHEMOS Lindeb. IV. Richmond Hill; Douglas, 1866, T. Talbot (M.).

R. ERRABUNDUS W. Wats. IV. Groudle, 1865, T. Talbot (M.).

**R. ROTUNDATUS* P. J. Muell. ex Genev. II. Cliff foot, Port Garwick (M.).

**R. HEBECAULIS* Sudre. II. Hedge of Dhoon Glen (M.).

**R. HYLOCHARIS* W. Wats. II. Cliff foot, Port Garwick (M.). Groudle Glen. IV. Laxey, 1930, C. I. Paton (M.).

**R. WOLLEY-DODII* (Sudre) W. Wats. II. A few bushes on cliff, Onchan Harbour (M.).

R. CAESIUS L. II. Peel (M.).

†188/4. *FRAGARIA* × *ANANASSA* Duchesne. III. Port St. Mary. Gansey dump. Railway bank, St. Johns.

190(2)/2. *APHANES MICROCARPA* (Boiss. & Reut.) Rothm. I. Near Rue Point, and Glen Maye (K., det. S. M. Walters). Ballaglass Glen. III. Gorse heath near Cregneish. Fistard. IV. Jurby, 1930, C. I. Paton (M.). Still no evidence of *A. arvensis* L.

194/6. *ROSA CANINA* L. IV. Rare (Rowley).

194/20. *R. SHERARDI* Davies. IV. Common (Rowley).

194/21. *R. VILLOSA* L. IV. Common (Rowley).

(A number of roses collected still await determination.)

§*†195 9. *SORBUS INTERMEDIA* (Ehrh.) Pers. III. Naturalised in Dhoon and Crogga Glens (M.).

§*†195/13. *S. ARIA* (L.) Crantz. I. Hillside above Ramsey. Junction of rivers Glas and Baldwin (K.). II. Hedges between Ballacottier and Onchan (C., conf. E. F. Warburg). IV. Ballure Glen, 1943, J. J. Gill (M.).

196/1c. *CRATAEGUS MONOGYNA* var. *LACINIATA* Dippel. I. Glen Maye (S.). According to Moss (1913) this is the common form of upland woods in the Peak District.

§*†197/2. *COTONEASTER MICROPHYLLUS* Wall. ex. Lindl. I. Near Eairy (S., Cl.).

§*†197/3. *C. SIMONSHII* Baker. I. Scrubby ground near Eairy (S.). II. Lead-mine debris, Eairy.

*†199/25b. *SAXIFRAGA HIRSUTA* var. *DENTATA* (Haw.) Pugsl. I. Near Eairy (S., det. N. D. Simpson). A garden escape.

+207/2. *RIBES NIGRUM* L. III. St. Johns, an escape. IV. Listed (without data) by Gasking (1889).

§211/1. *SEDUM TELEPHIUM* * subsp. *FABARIA* Schinz. & Keller. II. Ditch-bank, Pulrose.

+211/1(2). *S. SPURIUM* Bieb. I. Among rocks on beach, Scarlett (K.).

216/3. *MYRIOPHYLLUM VERTICILLATUM* L. III. Flooded pit near sea, Kentraugh (M.). Only previous record rather dubious.

217 5. *CALLITRICHE INTERMEDIA* subsp. *HAMULATA* (Koch) Clapham. Frequent in peaty or brackish water (S., B., M.).

Subsp. *PEDUNCULATA* (DC.) Syme. II, III. Locally abundant in richly-sedimented, non-acid pools that dry up in summer, e.g., ponds near Ballawhane, Andreas (M.).

220. *EPILOBIUM* (det. G. M. Ash):

§*220/7. *E. OBSCURUM* Schreb. IV. This is certainly the common species, and not (as Paton thought) *E. adnatum* Griseb., the existence of which is, in fact, doubtful. Bracket *E. adnatum*, (*E. tetragynum*, L.) in *C.F.*

220/7. ×4. *E. OBSCURUM* × *E. PARVIFLORUM*. III. Port Soderick (M.).

220 7. ×14. *E. OBSCURUM* × *E. PALUSTRE*. I. Cliff marsh, Niarbyl (K.).

§*220/8. *E. ROSEUM* Schreb. I. Rushen Abbey (K.). II. Quarry near Douglas Head (M.).

+224/1. *FUCHSIA MAGELLANICA* var. *RICCARTONI* (Lebas) L. H. Bailey. Widely naturalised in hedges (S., Hb. Young).

261/1. *ANTHRISCUS SYLVESTRIS* (L.) Hoffm. I. By R. Glas near Baldwin (K.). Very rare in the island, all specimens in Hb. Manx National Museum belonging to the northern race.

265/3. *OENANTHE CROCAT* L. II. A colony of uniformly dwarf plants (under 30 cm.) with small, close inflorescences and small leaves, in marsh on sand cliff, Ramsey Mooragh (C.).

304/1. *VALERIANELLA LOCUSTA* (L.) Betsche. I. Dunes near Rue Point (S.), the same dwarf, stemless form that grows on the Lancashire dunes and apparently also (Hart, 1881) on the Donegal coast.

†318/9. *ASTER PUNICEUS* L. II. Naturalised by R. Greeba near Northop Farm, and by R. Neb at Ballig (C., M., det. T. G. Tutin).

353/1. *BIDENS CERNUA* L. II. Nappin pond, near Jurby. Only previous record vague and unlocalised.

393/2c. *ARCTIUM MINUS* subsp. *PUBENS* (Bab.) Arènes. This is the predominant, if not the only, subspecies in the island.

396/9b. *CIRSIUM PALUSTRE* var. *FEROX* Druce. IV. Unlocalised specimen collected c. 1866, T. Talbot (M. as *Carduus lanceolatus*). Sulby, 1928, C. I. Paton (M.).

405/8. *CENTAUREA NIGRA* L. subsp. *NIGRA* (C. *obscura* Jord.) is predominant in the wetter central region, subsp. *nemoralis* (Jord.) Gugl. on the drier northern and southern plains.

411/1b. *LAPSANA COMMUNIS* f. *HIRSUTA* (Peterm.) Hegi (var. *glandulosa* Freyn). I. Scarlett quarry (S.).

§*†416/10. *CREPIS VESICARIA* subsp. *TARAXACIFOLIA* (Thuill.) Thell. I. Widespread, hitherto overlooked: even among marram on the remote Ayre dunes (S.).

419. *HIERACIUM* (det. P. D. Sell & C. West). The great scarcity of this genus (except for *H. pilosella* L.) is as remarkable as it is consoling. After years of botanising in all parts of the island J. A. Wheldon had seen not a sign of even a single specimen. The following five have, however, been found, each confined to a single station:

[*H. BEEBYANUM* Pugsl. III. Abundant on rocks above Dhoo beach (C.). Specimens from this locality were sent by Paton (*in litt.*, 1947) to Hb. Mus. Brit., but have been mislaid. Almost certainly this species, but awaits confirmation pending the collection of less advanced material. The only other possibility is *H. schmidtii* Tausch; either would be new.]

**H. VULGATUM* (Fr.) Almq. II. Neb bridge, Ballig (C.), pointed out by W. S. Cowin.

H. UMBELLATUM L. IV. Cregneish, 1897, C. Roeder (M.).

H. VAGUM Jord. II. Abundant on cliffs above Old Laxey (C.). Not in Ireland.

**H. BLADONII* Pugsl. III. Spooyt-vane, Glen Mooar (C.), earlier recorded here by Garner (1878) as *H. sylvaticum*.

§*421/3. *HYPOCHOERIS GLABRA* L. III. Sandy heath near Orrisdale, with *Filago minima*, *Viola tricolor*, etc. (M.). Very rare in Ireland.

423/-. *TARAXACUM LAEVIGATUM* (Willd.) DC. The following biotypes are the only ones so far found. Specimens of the first three are in Hb. Mus. Brit., awaiting determination by Prof. J. L. van Soest:

- A. I. Abundant on Ayre dunes near Rue Point (C.). A very distinct, late-flowering biotype with dark purple cypselas, found also on the Southport and Sandscale dunes.
- B. IV. Wall at the Lhen (Howarth).
- C. I, III. Langness Links—*T. fulvum* Raunk. or an allied form.
- D. II. Douglas Head and Onchan Head, single specimens only.

427/3. *SONCHUS ASPER* (L.) Hill. Apparently native on the Ayre dunes and on beaches and low cliffs on the south-west coast.

427/4. *S. OLERACEUS* L. Frequent as a native round most of the coastline on damp cliff-ledges, shingle, blown sand.

+428/1. *TRAGOPOGON PORRIFOLIUS* L. I. Roadsides near Jurby (K.), pointed out by R. Howarth.

+428/2b. *T. PRATENSIS* subsp. *MINOR* (Mill.) Rouy. I. Ramsey Mooragh. There is only one previous record, and the species must be considered adventive.

+442/1. *PERNETTYA MUCRONATA* (L. f.) Lindl. I, II. Naturalised in bog above Onchan Harbour (Cl.).

+452/1. *RHODODENDRON PONTICUM* L. III. Naturalised and self-sown in Crogga Glen.

§*453/3. *PYROLA MINOR* L. IV. Near Spanish Head, 1930, Miss Everton (per Hon. Marjorie Cross). There is some very likely ground in this locality, but I failed to find it after a careful search in 1952.

468/1. *CENTUNCULUS MINIMUS* L. II. Douglas Head (M.). Banks Howe. Ballakinnag dubb, Smeale. First records for a century.

+472/2. *LIGUSTRUM OVALIFOLIUM* Hassk. IV. Paton's specimen and doubtless many of his records belong to this species and not to *L. vulgare* L., which is planted in hedges less often.

+473/1. *VINCA MAJOR* L. IV. An escape on roadsides, first recorded by Garner (1878).

+474/2. *BUDDLEJA DAVIDII* Franch. Widely naturalised, especially in the Neb Valley near Glen Helen.

478/2. ×1. *CENTAURIUM LITTORALE* × *C. MINUS*. I. Rocks, Port Cornah (det. J. S. L. Gilmour, "almost certainly"). There is one previous unlocalised record for *C. littorale*, which is very rare in Ireland.

480/9. *GENTIANELLA CAMPESTRIS* (L.) H. Sm. II. Abundant on lead-mine debris, Eairy and Foxdale (C.), pointed out by R. Howarth. IV. Near Peel, 1937 (Hb. Young). There are three other old records; two of these are for sand dune localities and suggest *G. baltica* (Murb.) H. Sm., but attempts at rediscovery have so far failed.

+497/4. *SYMPHYTUM PEREGRINUM* Ledeb. I. Glen Mona hotel (K.).

506/1c(2). *MYOSOTIS SCORPIOIDES* var. *REICHENBACHIANA* (Dum.) Wade. I. Eairy (K., det. A. E. Wade).

506/10e. *M. DISCOLOR* var. *MULTICAULIS* (Bosch) Wade. I. Near det. A. E. Wade).

506/10d. *M. DISCOLOR* var. *DUBIA* (Arrond.) Wade. I. Dogmills (K., Point of Ayre (K., det. A. E. Wade).

511/1. *CALYSTEGIA SEPIUM* (L.) R.Br. Native on beaches and stream banks, mostly in the south-west, rarely introduced.

†511/2. *C. SYLVESTRIS* (Willd.) Roem. & Schult. Frequent, but nearly always close to gardens. Grown in Manx gardens since 1866 or earlier.

†520/2. *LYCIUM HALIMIFOLIUM* Mill. I, III. Escape in several places in the south-west.

§*†521/1. *ATROPA BELLA-DONNA* L. IV. Mouth of R. Killane, one plant, c. 1935 (Howarth).

§*†532/3. *LINARIA REPENS* (L.) Mill. III. Fistard. IV. Common garden weed, Port Erin (Bruce). The Lhag shore, S. of Dalby, 1952 (Howarth). Possibly native in this last station.

†537/2. *MIMULUS MOSCHATUS* Dougl. ex Lindl. III. Garden weed, Sulby (Miss Quayle: M.).

*543/8. *VERONICA ANAGALLIS-AQUATICA* L. IV. Ramsey, 1923-26, C. I. Paton (M., det. J. H. Burnett). First record for the segregate.

543/8. ×9. *V. ANAGALLIS-AQUATICA* × *V. CATENATA*. II. Stream W. of Castletown (det. J. H. Burnett). The hybrid being sterile, *V. catenata* promises to be a forthcoming N.C.R.

545/3. *EUPHRASIA BREVIPILA* Burnat & Gremli. I. Eairy (S.). Ballaugh Curragh (K., S., B., det. N. D. Simpson). III. Fields between Cregneish and Calf Sound (det. E. F. Warburg).

545/9. *E. CURTA* (Fr.) Wettst. I. Smeale (K., det. J. P. M. Brenan). Near Eairy (S., det. N. D. Simpson). II. Ballacain dubbs, Jurby (M., det. E. F. Warburg).

545/10. *E. OCCIDENTALIS* Wettst. I. Langness Links (S., M., det. Brenan, Simpson, Warburg). Glen Maye; dunes near Rue Point; Ramsey Mooragh (all det. N. D. Simpson). III. Calf Sound; Banks Howe and Onchan Head, var. *calvescens* Pugsl. (det. E. F. Warburg).

545/15. *E. MICRANTHA* Reichb. I. Glen Maye; slopes of North Bar-rule (det. N. D. Simpson). IV. Granite Mountain, 1819, J. S. Henslow (C., det. P. F. Yeo).

*545/18. *E. CONFUSA* Pugsl. II. Near Douglas Head (M.). III. Banks Howe; lead-mine debris, Eairy; near Spanish Head (all det. E. F. Warburg).

545/18. ×10. *E. CONFUSA* × *E. OCCIDENTALIS*. III. "I get the impression that *confusa* and *occidentalis* must be hybridising rather freely in the island and some local populations may consist entirely of such hybrids" (E. F. Warburg, *in litt.*). Material from 4 localities suggested as this.

545/19(4). *E. ANGLICA* Pugsl. I. Corraney (K., det. J. P. M. Brenan). II. Roadside by Baldwin Reservoir (M., det. E. F. Warburg). III. Cronk-ny-Arrey, near Cregneish (C., det. E. F. Warburg).

§*548/5. *RHINANTHUS STENOPHYLLUS* (Schur) Druce. I. Ramsey Mooragh; Curragh near Sandygate (det. N. D. Simpson).

†554/1. *ACANTHUS MOLLIS* L. III. Naturalised on cliff-top above Onchan Harbour.

*+558/4. *MENTHA SPICATA* L. em. Huds. III. Gansey dump (M., det. R. A. Graham).

*558/10. *M. × GENTILIS* L. III. Bank of R. Colby, Kentraugh, looking quite native (M., det. R. A. Graham).

561/8. *THYMUS DRUCEI* Ronn. All gatherings of *T. serpyllum* agg. referred here by C. D. Pigott. Round Peel the plants all seem more strongly hirsute and have pinkish flowers.

*578/2b. *GALEOPSIS BIFIDA* Boenn. II. Cornfield, Nunnery Howe. IV. Near Peel, 1937 (Hb. Young).

588/3b. *PLANTAGO CORONOPUS* var. *CERATOPHYLLA* (Hoffmans. & Link) Rapin. II. Peel promenade (M., Hb. Young). Mouth of R. Killane. Balladoole. IV. Niarbyl rocks (Howarth). Probably a distinct subspecies, characterised by its broader, ascending leaves, longer spikes, larger bracts, perennial rootstock, westerly range and a habit of growing always in the immediate vicinity of the sea (Marshall, 1918).

588/8. *PLANTAGO LANCEOLATA* var. *ANTHOVIRIDIS* W. Wats. I-III. Noted from 13 localities in different parts of the island, apparently never far from the sea. Single specimens in all cases.

600/1. *CHENOPODIUM RUBRUM* L. IV. Pool at Nappin, N. of Jurby Church (Howarth: M.). Only previous record is unlocalised.

+615/32. *POLYGONUM CUSPIDATUM* Sieb. & Zucc. Widely naturalised, especially on river shingle.

618/13. *RUMEX MARITIMUS* L. II. Ballakinnag dubb, Smeale, in plenty (M.). Only previous records are a century old.

*618/16(2). *R. TENUIFOLIUS* (Wallr.) Löve. III. Abundant on sandy heath near Orrisdale (M., det. J. E. Lousley); search promoted by the discovery of a scrap apparently of this species (labelled *R. acetosella* L.) in Paton's herbarium from this locality. Not known from Ireland.

*+625/1. *HIPPOPHAE RHAMNOIDES* L. II. Port Erin cliffs, planted.

633. *ULMUS* (det. R. Melville). The following occur as planted trees:—

U. CARPINIFOLIA × *U. GLABRA*. I. Glen Maye (K.).

U. GLABRA × *U. PLOTII*. I. Whitehoe (K.).

U. CORITANA × *U. GLABRA*. I. Whitehoe (K.).

*+633/2. *U. CARPINIFOLIA* Gleditsch. I. St. Marks (K.).

+636/1. *FICUS CARICA* L. III. Gansey dump.

+639/1. *HELXINE SOLEIROLII* Req. II. Gansey Point. Baldrine. III. Near Glendown.

+646/3. *QUERCUS CERRIS* L. I. Near Baldwin (K.). Eairy. II. Dhoon Glen. III. Tromode.

650. *SALIX* (det. R. D. Meikle):

+650 '2(2). *S. RUSSELLIANA* Sm. Material from 12 localities (K., M., C.), widespread but apparently only naturalised. This includes all previous records for *S. fragilis* L.

*650 '2(3). *S. DECIPIENS* Hoffm. II. Pond near Ballawhane, Andreas, looking native (M.).

650/7. *S. × SMITHIANA* Willd. I. Eairy (K., S.). Ballamenagh (K.). II. Dhoon Glen (C.), etc. Mainly planted.

650/8.×6. *S. VIMINALIS* × *S. CAPREA*. II. Glen Grenaugh (M.). III. Spaldrick Bay (C.).

650/10.×9. *S. ATROCINEREA* × *S. AURITA*. I. Eairy (K.)

*650/10(2). *S. CINEREA* L. I. Curragh near Sandygate (K.). Not known from Ireland.

+650/22. *S. DAPHNOIDES* Vill. III. Stream bank near Gansey (M.).

*+651/3. *POPULUS NIGRA* L. var. *NIGRA*. III. Gansey dump.

+651/3b(2). *P. NIGRA* var. *PLANTIERENSIS* Schneid. III. Fleshwick Glen, four small trees (C.).

*+651/5(2). *P. × CANADENSIS* var. *SEROTINA* (Hartig) Rehd. II. Douglas. Very rare in the island, this being the first record despite the entry in *Comital Flora* (under *P. deltoidea* var. *serotina*).

669. *ORCHIS* (det. V. S. Summerhayes):

§*669/7. *O. LATIFOLIA* L. sec. Pugsl. I. Curraghs, in two places (K., S.), pointed out by R. Howarth.

669/7.×9. *O. LATIFOLIA* × *O. PURPURELLA*. I. Ballaugh Curragh (K.).

669/10.×9. *O. MACULATA* × *O. PURPURELLA*. I. Northern Curraghs generally (K., S.). Ballaglas Glen (K.). Dogmills (K.).

674(1)/1. *GYMNADENIA CONOPSEA* (L.) R.Br. I. A single colony in the Ballaugh Curragh (discovered in 1943), consisting of about 100 plants, teste R. Howarth (K., M.). The specimens belong to the type.

§*+676/2. *IRIS FOETIDISSIMA* L. I. Naturalised in Ballaglas Glen. IV. Old garden, Sulby (Howarth).

+683/1. *CROCOSMIA* × *CROCOSMIIFLORA* (Lemoine) N.E.Br. Well naturalised in many places.

+696/1. *PHORMIUM TENAX* J. R. & G. Forst. I. Ballaugh Curragh (K., S.). A relic of cultivation abandoned some years ago—also tried as a crop in Connemara, Wigtownshire and the Scilly Isles.

718/4b. *JUNCUS EFFUSUS* var. *COMPACTUS* Hoppe. Replaces the type in the hills.

718/12. *J. BULBOSUS* L. I. Eairy (K., B.). The only certain record.

*718/12b. *J. KOCHII* F. W. Schultz. I. Abundant in pools, Cornah Glen (K., S., C.). Frequent, largely replacing *J. bulbosus*, older records for which must be referred to this species.

§*+718/16. *J. TENUIS* Willd. II. Roadsides at Dhoon Glen entrance (M.).

722/2. *SPARGANIUM ERECTUM* L. *subsp. *ERECTUM* (*S. ramosum* Huds.) II. Ditch, Pulrose. III. Mouth of R. Colby, Kentraugh. Port Soderick (M.). Paton referred all records for the species to subsp. *neglectum* (Beeby) Schinz & Thell., but this only seems to replace subsp. *erectum* on the northern plain.

+723/1. *ARUM ITALICUM* Mill. Naturalised in many places. Paton was clearly right in referring here all the old records for *A. maculatum* L., which is not certainly a Manx plant.

729/1. *ALISMA PLANTAGO-AQUATICA* L. I. Ballaugh Curragh. IV. Stream W. of Castletown, 1948, C. I. Paton (M.). All previous records

for the aggregate were referred by Paton to *A. lanceolatum* With., which is certainly the predominant species on the northern plain.

§*737/5. *POTAMOGETON ALPINUS* Balb. II. Nappin pond, Jurby (Hb. Mus. Brit., det. J. E. Dandy & G. Taylor).

737/23. *P. BERCHTOLDI* Fieb. I, II. Pond at Glascoe (K., M.). II. Nappin pond, Jurby (M.). Bishop's dubb, near Orrisdale (M.). R. Killane by Ballacain dubb (M.). (All det. J. E. Dandy & G. Taylor).

739/1. *ZANNICHELLIA PALUSTRIS* L. II. Pond at Glascoe (M.). Nappin pond, Jurby (M.). One previous record.

§*745/2. *ELEOCHARIS UNIGLUMIS* (Link) Schult. I, Balladoole (K., det. S. M. Walters).

749/1. *SCHOENUS NIGRICANS* L. III. Rock-pools, Spaldrick Bay, with *Eleocharis multicaulis* (Sm.) Sm. (M.).

§*753/4. *CAREX VESICARIA* L. IV. Union Mills, 1881, 1917, G. A. Holt (M., det. C. D. Pigott & S. M. Walters).

753/11. *C. SYLVATICA* Huds. I. Glen Maye, a single tuft (S.). III. Summerhill Glen, Douglas. Very rare.

753/18. *C. PUNCTATA* Gaudin. I, II. Port Jack and Onchan Harbour (S., B., Cl.). II. Douglas Head, rediscovered after interval of a century.

753/20(2). *C. DEMISSA* Hornem. The old records for *C. flava* and *C. oederi* belong to this species, which is frequent (M., K., S.).

753/20(2). × 19. *C. DEMISSA* × *C. HOSTIANA*. III. Cronk-ny-Arrey, near Cregneish (M., det. E. W. Davies).

§*753/21. *C. LEPIDOCARPA* Tausch. I. Marsh, Balladoole (K., det. E. Nemes). IV. Kentraugh, 1866, T. Talbot (M., det. T. G. Tutin "probably, but specimens too young").

§*753/58. *C. CURTA* Gooden. I. Swamp near Ballamenagh (K.).

753/60. *C. SPICATA* Huds. I. Sphagnum bog, Eairy Reservoir (S.). Recorded from here by Osvald (1949) as *C. vulpina* agg., which cannot refer to the purely coastal *C. otrubae* Podp. All other records for *C. spicata* appear to belong to the next species.

§*753/61. *C. PAIRAEI* F. W. Schultz. IV. Douglas Bay, 1866, T. Talbot (M., det. C. D. Pigott). Between Douglas and Laxey, 1915, G. A. Holt (M.); Laxey, 1912, G. A. Holt (M.); Balladoole, 1939, C. I. Paton (M.) (det. E. W. Davies).

*753/66. *C. DISTICHA* Huds. I. Balladoole (K.). Listed in *Comital Flora* but there is no previous record.

766/1d. *ANTHOXANTHUM ODORATUM* var. *TENERUM* Aschers. & Graebn. I Sphagnum bog, Cornah Glen (S.).

*777/1(2). *PHLEUM NODOSUM* L. I. Derby Haven (K., det. C. E. Hubbard). II. Port Grenaugh (M.). Kentraugh. III. Balladoole.

*†780/2(2). *AGROSTIS GIGANTEA* Roth. II. Roadside by Douglas Museum (M., det. T. G. Tutin).

791/1. *DESCHAMPSIA CESPITOSA* var. *ARGENTEA* Gray. I. Ballaglas Glen (S.).

†794/6. *AVENA STRIGOSA* Schreb. I. Dogmills (K., det. C. E. Hubbard).

795/1. *ARRHENATHERUM ELATIUS* (L.) Beauv. ex J. & C. Presl. The type is rare, confined to the eastern periphery, while var. *bulbosum* (Willd.) Spenn. is common all over the lowlands, as Holt (1912) and Paton (MS.) found. This parallels the distribution of the two races of *Polypodium vulgare* L. (q.v.). The correlation of the distribution of var. *bulbosum* with a wetter climate is reflected by its prevalence in Inverness-shire (Druce, 1893) and Cardiganshire (Painter, 1904). It is also said to be commoner than the type round Plymouth.

809/1. *KOELERIA GRACILIS* Pers. Scattered round the coast, and largely referable to subsp. *britannica* (Domin) Domin. According to Druce (1905, 1906), the latter often vividly recalls *K. albescens* DC., but is otherwise connected to *K. gracilis* by a series of intermediate forms, and "it is not impossible that it frequently appears as a hybrid *gracilis* × *albescens*". This seems to me a very likely explanation of its origin. Domin remarked that he had seen nothing on the Continent identical with the British plant and stressed its great variability. Moreover, *britannica* occurs both in the coastal habitats of *albescens* and in the characteristically inland ones of *gracilis*, thus forming an ecological as well as a morphological link between the two. It therefore seems probable that the so-called subsp. *britannica* is the product of ancient crossing between the two species when their ranges were less restricted and overlapped. *K. albescens* was found on the sandy coast at Jurby by Paton (M., conf. J. E. Lousley), and is interesting in apparently not occurring in Ireland.

814/1. *CATABROSA AQUATICA* var. *UNIFLORA* Gray. I. Langness beach (K.).

822/1. *BRIZA MEDIA* L. I. Balladoole (K.).

824/3. *POA PRATENSIS* subsp. *SUBCAERULEA* (Sm.) Tutin. IV. Near Douglas, 1866. T. Talbot (M., det. T. G. Tutin).

824/10. *P. COMPRESSA* L. I. Wall-top by Douglas Museum (K., S., B., Cl.). Second record.

825/2. × 3. *GLYCERIA* × *PEDICELLATA* Townsend (G. *FLUITANS* × *PLICATA*). III. Marsh near Port Erin (M.). Near Fleshwick. *G. plicata* apparently absent in both cases.

*825/3. *GLYCERIA PLICATA* Fr. I, II. Balladoole (K., det. C. E. Hubbard; M., det. M. Borrill).

825/3b. *G. DECLINATA* Bréb. Widespread: now known from 12 localities.

826/4. × 829/1. × *FESTULOLIUM LOLIACEUM* (Huds.) P. Fourn. I. Scarlett (K., Cl., B.).

826/12. *FESTUCA OVINA* *subsp. *TENUIFOLIA* (Sibth.) Tutin. IV. Douglas cemetery, 1916, G. A. Holt (M.).

*+827/16. *BROMUS SECALINUS* L. IV. Meadows, Union Mills, 1918, G. A. Holt as *B. racemosus* (M., det. T. G. Tutin).

827/17. *B. COMMUTATUS* Schrad. I. Fort Island (S.). Roadside near Sandygate.

*827/18. *B. RACEMOSUS* L. I. Field W. of Sandygate (K., det. C. E. Hubbard). IV. Field borders. Port Soderick, 1883, G. A. Holt (M., det. T. G. Tutin). Two previous records, one an error, the other very dubious.

+827/19(2). *B. LEPIDUS* Holmb. Widespread, in all parts of the island (K., M., C.). First record in 1913.

827/19(3). *B. THOMINII* Hardouin. Widespread: material from 7 localities, mostly by the coast (K., M., C., S.).

§*827/20. *B. FERRONII* Mabilie. IV. Sea cliffs. Onchan Head, 1916. G. A. Holt (M., det. T. G. Tutin). Not in Ireland.

§*836/1. *ELYMUS ARENARIUS* L. I. Mouth of R. Killane (K.). Since washed away, but two more patches found at Sartfield, Jurby (Howarth). Evidently a new arrival.

851/5. *ASPLENIUM ADIANTUM-NIGRUM* L. II. Maughold (C.). "A very odd form, and rather like subsp. *onopteris* (L.) Heubl." (E. W. Davies).

854/3. *POLYSTICHUM ACULEATUM* (L.) Roth. I. Foxdale quarry. III. Spooytvane (M.). Much scarcer than *P. setiferum* (Forsk.) Woyнар.

*856/1(2). *DRYOPTERIS BORRERI* Newm. Frequent in the east, but apparently absent from most of the southern plain (K.).

856/3. *DRYOPTERIS SPINULOSA* (O. F. Muell.) Watt. III. Spooytvane bridge (C.). Extremely rare.

856/4e. *D. AUSTRALICA* var. *ALPINA* (Moore). II. Moist rock crevices on Snaefell, 1750 ft. (C., det. A. H. G. Alston). Possibly a distinct species or subspecies.

856/5. *D. AEMULA* (Ait.) Kuntze. II. Dhoon Glen (C.).

§*857/4. *CYSTOPTERIS FRAGILIS* (L.) Bernh. III. Wall by Port Soderick station (M.). IV. Glen Maye, 1895, C. R. Billups (Hb. Univ. Coll. Leic., comm. A. P. Conolly).

858/1. *POLYPODIUM VULGARE* L. The hexaploid race is common on walls, coast rocks and trees all over the island, whereas the tetraploid is rare and confined to the eastern and southern periphery.

CHAROPHYTA (det. G. O. Allen):

872/2. *NITELLA OPACA* Ag. I. R. Greeba near St. Trinians (K.).

876/3b. *CHARA VULGARIS* var. *LONGIBRACTEATA* Kütz. I. Scarlett quarry (K.). Cf. var. *papillata* Wallr. II. Nappin pond, Jurby (M.).

876/17. *C. DELICATULA* Ag. II. Nappin pond, Jurby (M.). This and the *Nitella* have already been published in *Watsonia* (1953).

Attention should be drawn to Wilmott's (1947) extraction of records from Paton's lists for *Comital Flora*, as this has been overlooked by the authors of the *Flora of the British Isles*. The results of this work of extraction are not, however, altogether satisfactory, owing to defects in the lists themselves. Several species which are there cited as doubtful are now considered acceptable and are omitted from the lists given below, while others accepted by Paton are now considered dubious.

The following are cited for v.c. 71 in *Comital Flora*, but their insertion seems to be due to errors in transcription and they should be deleted: *Arctium lappa*, [*Pulmonaria officinalis*], *Salix triandra*, *Ophrys apifera*, *Juncus inflexus*.

The following have been recorded, but are clearly errors:—

<i>Fumaria muralis</i>	<i>Polemonium caeruleum</i>	<i>Vulpia membranacea</i>
<i>Lepidium ruderales</i>	<i>Limonium humile</i>	(<i>Festuca membranacea</i>)
<i>Subularia aquatica</i>	<i>Primula farinosa</i>	
<i>Silene acaulis</i>	<i>Centaureum latifolium</i>	<i>Bromus ramosus</i>
<i>Vicia orobus</i>	<i>Calamintha nepeta</i>	<i>Brachypodium pinnatum</i>
<i>Potentilla hirta</i>	(<i>Satureia nepeta</i>)	
<i>Saxifraga oppositifolia</i>	<i>Galeopsis dubia</i>	<i>Lolium remotum</i>
<i>Petroselinum segetum</i>	(<i>G. segetalis</i>)	<i>Hordeum marinum</i>
(<i>Carum segetum</i>)	<i>Eleocharis acicularis</i>	<i>Thelypteris palustris</i>
<i>Oenanthe pimpinelloides</i>	<i>Carex elongata</i>	(<i>Dryopteris thelypteris</i>)
<i>Sambucus ebulus</i>	<i>Carex maritima</i>	
<i>Scabiosa columbaria</i>	<i>Spartina maritima</i>	<i>Cystopteris regia</i>
<i>Solidago cambrica</i>	(<i>S. stricta</i>)	

(*Salix purpurea* was included in *C.F.* on the basis of a record for cultivated specimens.)

The following have been recorded, but for various reasons must be considered dubious and must be enclosed in square brackets in *Comital Flora*:—

<i>Corydalis claviculata</i>	<i>Epilobium alsinifolium</i>	<i>Stachys officinalis</i>
<i>Stellaria nemorum</i>	<i>Daucus gummifer</i>	<i>Rumex hydrolapathum</i>
<i>Arenaria trinervia</i>	<i>Galium mollugo</i>	<i>Arum maculatum</i>
<i>Hypericum hirsutum</i>	<i>G. uliginosum</i>	<i>Scirpus pauciflorus</i>
<i>Althaea officinalis</i>	<i>Senecio erucifolius</i>	<i>Carex caryophylla</i>
<i>Geranium sylvaticum</i>	<i>Arctium minus</i> subsp. <i>minus</i>	<i>C. pauciflora</i>
<i>Acer campestre</i>		<i>Helictotrichon pratense</i>
<i>Ononis spinosa</i>	<i>Carduus crispus</i>	(<i>Avena pratensis</i>)
<i>Trifolium medium</i>	<i>Centaurea scabiosa</i>	<i>Asplenium obovatum</i>
<i>Alchemilla alpina</i>	<i>Campanula latifolia</i>	<i>Thelypteris dryopteris</i>
<i>Saxifraga aizoides</i>	<i>Centaureum pulchellum</i>	(<i>Dryopteris dryopteris</i>)
<i>Epilobium adnatum</i>	<i>Lathraea squamaria</i>	
(<i>E. tetragonum</i>)	<i>Clinopodium vulgare</i>	<i>Selaginella selaginoides</i>

The additions to *Comital Flora* (as well as 7 new *Rubi* and *Hieracia*) given in this paper total over seventy species and sub-species. If we also take into account the many aliens, not included in that work, which are new to the Manx flora, the number swells to one hundred. Thus the work of the last three years has succeeded in extending the known flora by the equivalent of an eighth of its total size.

In conclusion, I should like to express my thanks to all those specialists who have examined material, to Mr. N. D. Simpson for invaluable bibliographical assistance, and to those members of the Society who attended the 1950 Field Meeting for their patience in having to wait so long for the results of their work to appear.

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FLORA OF CALDEY ISLAND, PEMBROKESHIRE

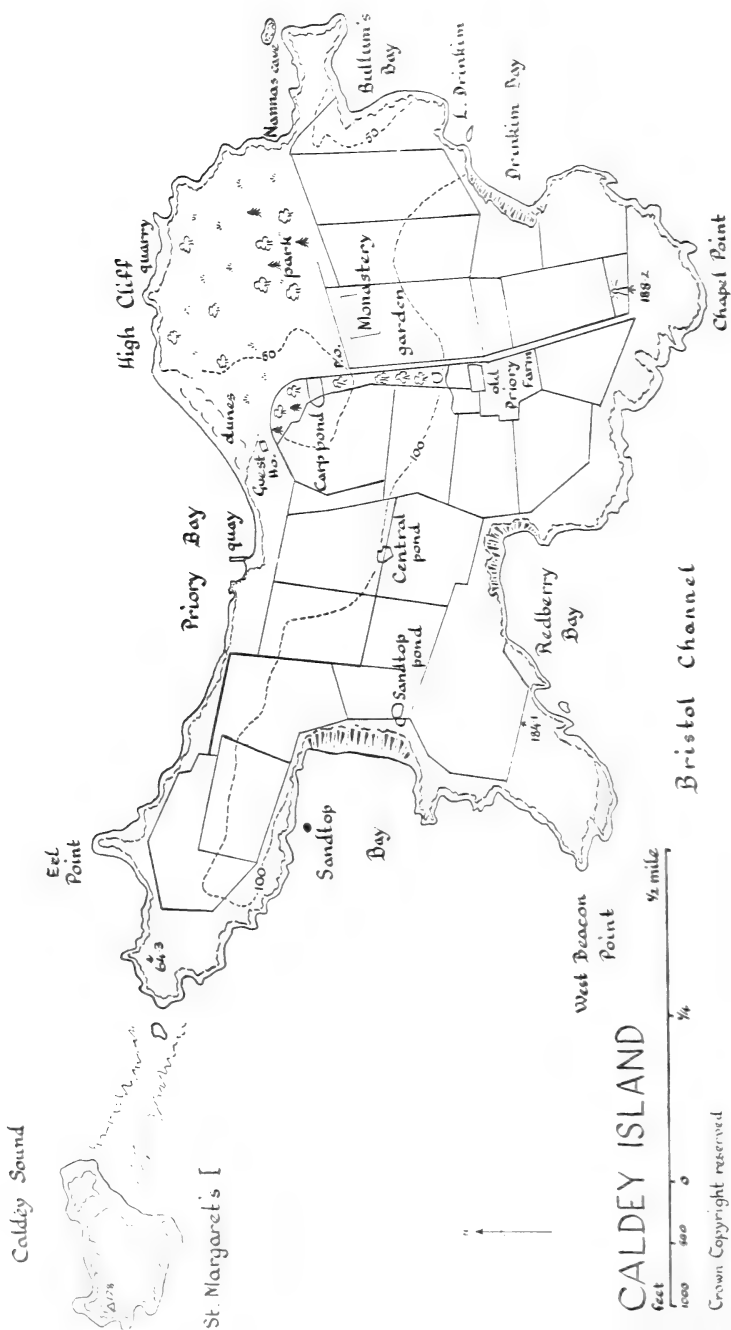
By F. N. HEPPER
(The Herbarium, Kew)

Caldey Island lies about three miles south of Tenby in Pembrokeshire, vice-county 45, but only $\frac{2}{3}$ of a mile of deep water separates it from Giltar Point to the N.W. The island thus shelters Tenby from the south-westerly gales and is itself fully exposed to them, so that the flora is markedly maritime.

Caldey is highly cultivated and supports the common and impoverished flora of the mainland, but nevertheless the flora is interesting and larger than might be expected for an island of only 550 acres at high tide. A reason for this is the geological structure, for the island is almost equally divided between carboniferous limestone in the north and old red sandstone in the south. Separating these two rocks is a thick layer of clays, sands and iron ores, which the sea has eroded more rapidly than the rocks on either side, forming the bays of Drinkim and Sandtop in the east and west respectively. The limestone is an off-shore extension of the Gower Peninsula and South Pembrokeshire limestone; all the strata are in the vertical plane.

Although much of the island is under cultivation in one form or other, the cliff-tops are mostly undisturbed except by rabbits, which abound. The following account defines the localities and terms used in the list, in conjunction with the map. The High Cliff area on the limestone to the north-west is covered by scrub. High Cliff and the fixed and un-fixed dunes of Priory Bay constitute the largest "wild" vegetation area on Caldey. These fixed dunes are notable for the number of naturalised horticultural species they support, whilst ecologically the mobile dunes differ significantly from those in the more exposed Sandtop Bay. In the present paper "the Park" indicates an overgrown private plantation which is contiguous with the High Cliff area and consists of exotic trees such as *Eucalyptus* and *Pinus* spp. These do not appear in the list below and, indeed, it is difficult to know which trees to include and which to omit, for most of them must have been introduced. It is said that there was no tree on the island 50 years ago. Several springs* occur in the intermediate

*Bushell (1919) suggests that the name Caldey can be derived from the Saxon words "keld" for water and "ei" an island. It certainly is true that the island has a copious supply of water for its size and, if the derivation is correct, it would make the spelling of Caldey with an "e" more correct than the alternative "Caldy" used by the Ordnance Survey.



strata between the limestone and the sandstone. They have given rise to aquatic vegetation at Drinkim and along the village stream that originates at a pool. There are also two overgrown field ponds which yield an interesting marsh flora. The term "stream wood" is used to indicate the wood about the village. The six miles of sinuous cliff-tops provide habitats for a large number of species, as will be seen from the list, whilst there are a few cliff-growing plants including *Inula crithmoides*. The whole of the centre of Caldey is cultivated and supports a typical weed-flora, though the recent extensive use of hormone sprays may have a significant effect upon the specific composition in the future.

The small precipitous island of St. Margaret that lies at Caldey's north-west tip may be reached at low tide across the rocks, so that the length of time one may stay there is strictly regulated by the tide—usually about an hour. Here the vegetation of *Beta maritima* and *Urtica dioica* is rank and knee high, and no species was found that did not occur on Caldey itself.

Caldey has been inhabited for a very long time. A number of papers have been written on the Neolithic remains and flint implements that have been found in quantity in the limestone caves, though many of the caves were destroyed when High Cliff was quarried earlier this century. The geology has also been studied fairly extensively, but little biological work has been done. A few short lists of plants found on the island have been published, notably by Ray (1670), Pugsley (1924) and Rees (1950). Their records have been used to supplement my own where necessary. References will be found to other works on Pembroke and Caldey at the end of this paper.

It has been possible to visit the island on two separate occasions of one week duration in each case. The first visit was made in early July 1950 in company with other members of King's College N.H.S. (Durham Univ.), whilst the second was made alone during the first week of June 1952. These visits enabled the collection of summer and spring flowering species. Some mosses and liverworts were also collected and it is hoped to publish elsewhere a list of these together with those already recorded for Caldey.

There will inevitably be further species to add to the total of 348 recorded from Caldey, for it is easy enough to overlook even common plants. I shall be pleased to receive additional records and specimens at the Herbarium, Kew, but it is pointed out that the island is strictly private and collecting should not be done without permission.

The arrangement of the list is according to Clapham (1946), with certain nomenclatural modifications.

I am greatly indebted to the following specialists who have kindly determined specimens from Caldey:—Messrs. G. O. Allen, A. H. G. Alston, J. P. M. Brenan, J. E. Dandy, C. E. Hubbard, R. D. Meikle, E. Milne-Redhead, E. Nemes, C. D. Pigott, P. D. Sell, H. K. Airy Shaw, V. S. Summerhayes, Dr. E. F. Warburg, Mr. W. C. R. Watson and Dr. C. West.

My thanks are also due to the Prior of Caldey Monastery for permission to stay on the island and to have access to otherwise private ground.

Abbreviations used in the list:

- † before a plant name indicates it is an introduced species to Caldey.
- * before a plant name indicates it is a new vice-county record for Pembrokeshire.
- (H) after a record indicates that a specimen of the plant is in the herbarium of the writer.

LIST OF FLOWERING PLANTS, FERNS AND CHAROPHYTES FOUND ON THE ISLAND OF CALDEY

- CLEMATIS VITALBA L. Frequent on the bushes at High Cliff and Priory Bay.
- RANUNCULUS AQUATILUS L. (*R. heterophyllus* Weber). In Sandtop Pond only.
- R. HEDERACEUS L. On the mud around the stream marsh and Sandtop pond.
- R. SCCELERATUS L. A few plants in the stream marsh.
- R. FLAMMULA L. In the Sandtop marsh only. (H)
- R. ACRIUS L. Common.
- R. REPENS L. Common.
- R. BULBOSUS L. Common.
- R. FICARIA L. Common, especially along the exposed southern cliff tops.
- †CALTHA PALUSTRIS L. In the stream in the wood, probably introduced.
- †NYMPHAEA spp. Various exotic species appear to be well established in the Carp Pond. I understand they were planted there about 1930.
- PAPAVER RHOEAS L. Common, as a weed.
- FUMARIA BASTARDI Bor. In the garden as a weed, det. N. Y. Sandwith. (H).
- F. BORAEI Jord. Growing with the last, det. N. Y. Sandwith. (H).
- F. OFFICINALIS L. Common. Also a form from the fixed dunes which Mr. Sandwith states is common in dry and exposed places. (H).
- NASTURTIUM OFFICINALE R.Br. sens. lat. Abundant in the stream where it is now being cultivated.
- CARDAMINE PRATENSIS L. A form with almost white flowers grows in about 6 inches of water in Sandtop pond; it appears to flower later than the terrestrial plants. (H)
- C. HIRSUTA L. Occasional.

- COCHLEARIA DANICA L. All around the coasts within reach of the sea-spray. (H)
- C. OFFICINALIS L. Rather less common than the last and around the coasts. (H)
- †ARMORACIA RUSTICANA Gaertn., Mey. & Scherb. (*A. lapathifolia* Gilib.). Naturalised in a few places about buildings.
- †HESPERIS MATRONALIS L. Naturalised on the fixed dunes.
- BRASSICA CAMPESTRIS L. Hormone weed killers are being used in corn-fields to kill this and *Sinapis arvensis* in particular. (H)
- SISYMBRIUM OFFICINALE (L.) Scop. In the lane. (H)
- SINAPIS ARVENSIS L. Frequent.
- CAPESELLA BURSA-PASTORIS (L.) Medic. Common on cultivated ground.
- CORONOPUS SQUAMATUS (Forsk.) Aschers. Occasional around Sandtop.
- CARDARIA DRABA (L.) Desv. A few plants on the land-side of partly fixed dunes, Priory Bay. (H)
- CAKILE MARITIMA Scop. On the dunes at Sandtop, but not seen at Priory Bay. (H)
- RESEDA LUTEOLA L. Common in the Priory Bay and High Cliff areas.
- VIOLA HIRTA L. Frequent amongst the shrubs at High Cliff.
- V. ODORATA L. Thickets behind the post office.
- V. RIVINIANA Reichb. With the last. (H)
- V. ARVENSIS Murr. In the garden and cultivated areas. (H)
- POLYGALA VULGARIS L. In the more open parts of High Cliff.
- SILENE VULGARIS (Moench) Garcke (*S. cucubalus* Wibel). In a field towards Sandtop Bay; not common. (H)
- S. MARITIMA With. Common around the coasts. (H)
- MELANDRIUM ALBUM (Mill.) Garcke. Priory Bay fixed dunes and the more open places.
- M. DIOICUM (L.) Coss. & Germ. North coast, with the last, with which it appears to be hybridising.
- CERASTIUM ATROVIRENS Bab. (*C. tetrandrum* Curt.). Frequent on exposed places on the cliffs, det. E. Milne-Redhead. (H)
- C. HOLOSTEOIDES Fries (*C. vulgatum* auct.). By the stream in the wood, det. E. Milne-Redhead. (H)
- STELLARIA MEDIA (L.) Vill. Common on cultivated ground. (H)
- S. GRAMINEA L. A little by the stream. (H)
- ARENARIA SERPYLLIFOLIA L. Frequent in dry, sandy places and on walls.
- HONKENYA PEPLOIDES (L.) Ehrh. (*Arenaria peploides* L.). On the dunes at Sandtop.
- SAGINA MARITIMA Don ex Sm. On the low cliffs about Eel Point. (H)
- S. CILIATA Fr. High Cliff. (H)
- S. PROCUMBENS L. Generally common. (H)
- [S. NODOSA (L.) Fenzl. Recorded by Rees (1950) for "Caldey Isle", but not confirmed, though there is a sheet in Herb. Kew from Tenby dunes.]
- SPERGULA ARVENSIS L. In a cultivated field near the farm. (H)

- SPERGULARIA RUPICOLA* Lebel ex Le Jolis. Common on the cliffs, particularly along the north coast. (H)
- †*TAMARIX ANGLICA* Webb. Several plants in the waste ground near Priory Bay fixed dunes. (H)
- HYPERICUM ANDROSAEMUM* L. A few plants in the lane towards the Old Priory.
- H. TETRAPTERUM* Fr. (*H. quadrangulum* L.). Beside the stream.
- H. PULCHRUM* L. Very common in the High Cliff area as far as the "Park", but nowhere else. On the cliff tops in this region, where the rabbit grazing is so heavy, there is a very reduced form of this species with a short procumbent stem. The area where *H. pulchrum* occurs is the most basic soil on the Island, which contrasts markedly with the statement in "Flora of the British Isles" that it is local on "non-calcareous soils". (H)
- LAVATERA ARBOREA* L. A number of plants scattered along the south and west on cliff ledges; there is also one large plant near the shop; common on St. Margaret's Island. This species has been persistently recorded from Caldey for over 280 years. The earliest record I can find is by Ray (1670); it is then repeated in Turner and Dillwyn (1805) and by Falconer (1848) and C. C. Babington (1863). Rees (1950) also records it from "Castlemain, Caldey I., and most of the other islands around the coast [of Pembroke-shire] such as Grassholm, etc."
- MALVA SYLVESTRIS* L. A few plants about the market garden; abundant on St. Margaret's. (H)
- M. NEGLECTA* Wallr. Occasional.
- LINUM CATHARTICUM* L. At High Cliff, abundant in the turf. (H)
- GERANIUM MOLLE* L. Generally distributed. (H)
- G. DISSECTUM* L. Near the Carp pond. (H)
- G. ROBERTIANUM* L. Frequent, especially in the Wood.
- ERODIUM CICUTARIUM* (L.) L'Hérit. Common around Priory Bay and elsewhere in sandy places. (H)
- E. MARITIMUM* (L.) L'Hérit. Sandy places along the cliff tops of the south and west coasts. (H)
- ACER PSEUDOPLATANUS* L. A common tree in the wood. There are a number of trees on the clay cliff at Drinkim.
- ULEX EUROPAEUS* L. Abundant in all the shrubby areas. The plants growing at the cliff edge near Den point were neatly rounded into small cushions by rabbits.
- ONONIS REPENS* L. On the dunes, Priory Bay.
- MEDICAGO LUPULINA* L. Frequent in waste places. (H)
- MELILOTUS ALTISSIMA* Thuill. A few plants at the side of a field near Sandtop Bay.
- TRIFOLIUM PRATENSE* L. Common.
- T. SCABRUM* L. On the partly fixed dune and on the path, Priory Bay. (H)
- T. REPENS* L. In pastures, apparently included in the seed-mixtures with rye grasses.

- T. CAMPESTRE* Schreb. Frequent. (H)
- ANTHYLLIS VULNERARIA* L. Common on the cliffs, chiefly on the east side of the island. (H)
- LOTUS CORNICULATUS* L. Common. (H)
- L. ULIGINOSUS* Schkuhr. In a ditch near Eel Point. (H)
- ORNITHOPUS PERPUSILLUS* L. Occasional in the "Park" area. (H)
- VICIA HIRSUTA* (L.) Gray. In the garden; on Drinkim cliffs. (H)
- V. CRACCA* L. Frequent in and around the wood.
- V. SEPIUM* L. In the garden. (H)
- V. SATIVA* L. Apparently sown for fodder in a field near Sandtop. This is a large-flowered cultivated variety.
- V. ANGUSTIFOLIA* L. Common.
- LATHYRUS PRATENSIS* L. Common.
- L. SYLVESTRIS* L. Growing in some abundance around Drinkim Bay. This has very pale mauve flowers. (H)
- PRUNUS SPINOSA* L. Covers much of the High Cliff area with a thick scrub.
- FILIPENDULA ULMARIA* (L.) Maxim. In profusion on the slopes to Drinkim Bay, where the ground is moist.
- GEUM URBANUM* L. In the nursery garden as a weed.
- RUBUS*. Specimens were taken of the large bramble population on Caldey. The determinations are given below, but they are undoubtedly only a fraction of those that may be found on the island. All det. W. Watson.
- RUBUS CAESIUS* L. In the lane and along the south coast.
- R. SILURUM* (Ley) W. Wats. At Priory Bay and in the Park.
- R. DUMNONIENSIS* Bab. In the High Cliff area near Den Point.
- R. ULMIFOLIUS* Schott f. In the Park; near Den Point; Priory Bay, near the Guest House and at Sandtop Bay.
- R. CAESIUS* × *ULMIFOLIUS*. Den Point.
- R. TUBERCULATUS* Bab. In the wood and at Priory Bay. There were also a number of gatherings from the south coast, which were referred by Mr. Watson to the Section *Corylifolii* Focke, but the material was insufficient for accurate determination.
- FRAGARIA VESCA* L. Occasional.
- POTENTILLA STERILIS* (L.) Garcke. Occasional at High Cliff. (H)
- P. ERECTA* (L.) Räusch. In the turf along the southern cliffs.
- P. REPTANS* L. Frequent in the fields. (H)
- P. ANSERINA* L. Common.
- APHANES ARVENSIS* L. (*Alchemilla arvensis* (L.) Scop.). Occasional on the limestone and at Sandtop. (H)
- POTERIUM SANGUISORBA* L. Abundant on the limestone at High Cliff.
- AGRIMONIA EUPATORIA* L. Particularly common along the north coast and on the fixed dunes. (H)
- ROSA SPINOSISSIMA* L. Locally abundant on the slope from High Cliff area to Priory Bay. Pugsley's note (1924) is of interest: "remarkably common on Tenby and Penally sandhills and extends thence to the sand-covered summit of Giltar Head, is curiously absent

from the opposite island of Caldey, although precisely similar habitats exist there. Its range on the mainland has apparently extended with the increase of the sand hills". It is not surprising that Pugsley overlooked this plant in spite of its local abundance on Caldey, for during the summer the area is covered by impenetrable thicket and the rose only grows there to a maximum of 1 ft.

It was not until my second visit in late spring that I found it. (H)

R. CANINA L. sens. lat. Only a few plants were seen, near the situation of the last species. There were still some late flowers (July). (H)

MALUS SYLVESTRIS Mill. (*M. pumila* Mill.). In the Park, probably planted. Also in the wood.

CRATAEGUS MONOGYNA Jacq. Common in the scrub areas. (H)

SAXIFRAGA TRIDACTYLITES L. Common on the dunes and old wall tops. (H)

UMBILICUS RUPESTRIS (Salisb.) Dandy (*U. pendulinus* DC.). A plant characteristic of the oceanic element of the flora and common all over Caldey in dry, stony places and on walls.

SEDUM ANGLICUM Huds. Abundant all round the coasts. (H)

†S. ALBUM L. Scarce, on a wall near the Guest House. (H)

S. ACRE L. Common on walls and fixed dunes. (H)

CALLITRICHE STAGNALIS Scop. In Sandtop pond.

CHAMAENERION ANGUSTIFOLIUM (L.) Scop. In the stream wood. (H)

EPILOBIUM HIRSUTUM L. By the stream in the wood.

E. PARVIFLORUM Schreb. Growing with the last. (H)

E. MONTANUM L. Generally common.

E. PALUSTRE L. By the stream and Sandtop pond. (H)

†OENOTHERA sp. Naturalised on the fixed dunes; unfortunately not collected.

†FUCHSIA MAGELLANICA Lam. Used as a hedging plant, hardly naturalised.

BRYONIA DIOICA Jacq. Recorded by Pugsley (1924).

ERYNGIUM MARITIMUM L. Common on both the Priory Bay and Sandtop Bay dunes.

CONIUM MACULATUM L. A little at the edge of the garden, also plentiful in the farmyard. (H)

APIUM NODIFLORUM (L.) Reichb. f. In plenty in the marsh by the Carp pond. (H)

A. INUNDATUM (L.) Reichb. f. Confined to the Sandtop Pond but quite plentiful in that station. (H)

AEGOPODIUM PODAGRARIA L. A large patch in front of the shop.

CONOPODIUM MAJUS (Gouan) Loret. Frequent in the High Cliff area.

CRITHMUM MARITIMUM L. Occasional around the coast. Allen's "Guide to Tenby" (c. 1890) states that "the cliffs abound in samphire" and continues "it is gathered to make delicious pickle" on Caldey.

OENANTHE CROCAT L. Massive plants in the marsh by the Carp pond.

HERACLEUM SPHONDYLIIUM L. Common.

DAUCUS CAROTA L. Frequent at the edges of fields, etc.

HEDERA HELIX L. Covers a large area of fixed and mobile dunes at Priory Bay where it is heavily infested by *Orobanche hederæ*.

- LONICERA PERICLYMENUM* L. Common in High Cliff area. (H)
- SAMBUCUS NIGRA* L. Very common along the north coast and elsewhere in bushy areas.
- RUBIA PEREGRINA* L. Very occasional in the High Cliff area and Drinkim cliffs. (H)
- GALIUM VERUM* L. Abundant on the limestone and sandy districts.
- G. SAXATILE* L. Cliff top turf along the south coast. (H)
- G. PALUSTRE* L. In the Sandtop marsh. (H)
- G. APARINE* L. Abundant at High Cliff.
- ASPERULA CYNANCHICA* L. In the more open parts of High Cliff scrub. (H)
- SHERARDIA ARVENSIS* L. Frequent in pastures.
- VALERIANELLA LOCUSTA* (L.) Betcke. Frequent on the landward side of the dune, Priory Bay. (H)
- †*CENTRANTHUS RUBER* (L.) DC. Occasionally found on the fixed dunes.
- SUCCISA PRATENSIS* Moench. Occasional.
- EUPATORIUM CANNABINUM* L. On the slope to Drinkim Bay; High Cliff.
- BELLIS PERENNIS* L. Common.
- [*ERIGERON ACRIS* L. Recorded by Rees (1950) for "Caldy Island dunes"; needs confirmation.]
- INULA CONYZA* DC. Occasional in the High Cliff area.
- I. CRITHMOIDES* L. Scattered on cliff ledges, chiefly in the S. and W. on both sand and limestone. Ray (1670) recorded this for the island. (H)
- ACHILLEA MILLEFOLIUM* L. Generally distributed.
- A. PTARMICA* L. A few plants seen near Sandtop pond. (H)
- CHRYSANTHEMUM LEUCANTHEMUM* L. Only a few plants on the cliffs at Drinkim but probably more common.
- MATRICARIA MARITIMA* subsp. *INODORA* (L.) Clapham. Frequent around the coasts. (H) Pugsley (1924) records *M. inodora* var. *salina* (Wallr.) DC.
- M. MATRICARIOIDES* (Less.) Porter. Common as a weed.
- TUSSILAGO FARFARA* L. Common.
- †*PETASITES FRAGRANS* (Vill.) C. Presl. Abundant in the wood and Monastery grounds. Introduced, but now a noxious weed.
- †*DORONICUM PLANTAGINEUM* L. In the stream wood, planted.
- SENECIO VULGARIS* L. Common.
- S. SYLVATICUS* L. Occurs in large associations along the exposed sandy cliff top of the south coast. (H)
- S. ERUCIFOLIUS* L. Only a few plants seen in a field near Eel Point. (H)
- S. JACOBÆA* L. Very common.
- CARLINA VULGARIS* L. Limited to the limestone of High Cliff, but there frequent.
- ARCTIUM LAPPA* L. Frequent in the lane and elsewhere.
- CARDUUS TENUIFLORUS* Curt. Very common, particularly around the coasts. On Eel point, where the gulls nest, very reduced specimens were found; some were flowering on stems but 2 inches high. (H)

CIRSIUM VULGARE (Savi) Ten. Generally common. One large white-flowered specimen was found on the cliff top near the Light-house.

SERRATULA TINCTORIA L. A few plants were seen (at that time in bud) at the bottom of Drinkim Bay cliffs. (H)

CENTAUREA NIGRA L. Frequent.

C. SCABIOSA L. Common and particularly magnificent on the limestone. Three entire-leaved plants were seen in bud on Eel Point in 1950; a thorough search in the same area in 1952 failed to find one. On comparing the specimen collected with material in Herb. Mus. Brit., it was found to match var. *succisifolia* E. S. Marshall from Sutherland, in the long entire leaves and green portion of the phyllaries hidden by appendages. It does not match material from Gower Peninsula which would appear to be the form *cretacea* (Woerlein) Hyde & Wade.

[*CICHORIUM INTYBUS* L. Rees (1950) reports it for Caldey but "nowhere permanent"; needs confirmation.]

LAPSANA COMMUNIS L. Occasional. (H)

CREPIS CAPILLARIS (L.) Wallr. Abundant on Priory Bay dunes. (H)

LEONTODON TARAXACOIDES (Vill.) Méral (*L. leysseri* G. Beck). Common on Priory Bay dunes. (H)

HIERACIUM PILOSELLA L. On the dunes. (H)

H. EUSTOMON (E. F. & W. R. Linton) Roffey. Only 3 plants seen in 1952 on ledges of the quarry, High Cliff. The specimen collected appears to be a poorly developed plant, but the species is known from cliffs at Tenby and a few places in S. Wales. Det. C. West and P. D. Sell. (H)

TARAXACUM spp. Generally common.

SONCHUS OLERACEUS L. Common. (H)

S. ASPER (L.) Hill. A superficial enquiry into the distribution of this and the last species over the island showed that both species seemed to be equally abundant. *S. asper* occurred quite frequently on the dunes. (H)

S. ARVENSIS L. Common.

TRAGOPOGON PRATENSIS L. Occasional in the fields near the farm.

JASIONE MONTANA L. Frequent on cliff ledges of the south and west coasts.

ERICA CINEREA L. Common on the dry turf of the southern sandstone cliff tops and northern limestone cliff tops. (H)

LIMONIUM BINERVOSUM (G. E. Sm.) C. E. Salmon. Scattered around the coast on the cliffs. Det. N. Y. Sandwith. (H)

ARMERIA MARITIMA (Mill.) Willd. A common coastal species.

PRIMULA VULGARIS L. Common in most rough areas.

P. VERIS L. Frequent in northern fields. A hybrid with the last was seen.

†*LYSIMACHIA VULGARIS* L. Introduced recently into the stream wood.

†*L. NUMMULARIA* L. In the stream wood, presumably introduced.

- ANAGALLIS ARVENSIS** L. Very common on rocks and in sandy places near the coast, also in the fields. Frequently plants with pale pink flowers were growing together with the normal scarlet form. I have not gone into these forms taxonomically, but they appear to be similar morphologically. The pink-flowered form appears to have a paler green foliage and may grow nearer to the sea than the other. (H)
- SAMOLUS VALERANDI** L. Only a few plants seen on Priory Bay dunes. (H)
- †**FRAXINUS EXCELSIOR** L. Possibly planted.
- LIGUSTRUM VULGARE** L. Common in most shrubby places as large bushes. (H)
- CENTAURIUM MINUS** Moench (*C. umbellatum* Gilib.). Common in the High Cliff area. (H)
- CYNOGLOSSUM OFFICINALE** L. Frequent on the fixed dunes and at High Cliff. (H)
- SYMPHYTUM OFFICINALE** L. One or two plants against a wall in the lane towards the lighthouse. (H)
- †**BORAGO OFFICINALIS** L. An escape occurring on the fixed dunes.
- MYOSOTIS SCORPIOIDES** L. (*M. palustris* (L.) Hill). In the marsh near the Carp pond. (H)
- M. CAESPITOSA** K. F. Schultz. By the stream in the wood. (H)
- M. HISPIDA** Schlecht. (*M. collina* auct.). Abundant on the Priory Dunes and on other sandy places. (H)
- LITHOSPERMUM OFFICINALE** L. Frequent around High Cliff. (H)
- ECHIU M VULGARE** L. Fine plants at Priory Bay.
- CALYSTEGIA SEPIUM** (L.) R.Br. Common. (H)
- C. SOLDANELLA** (L.) R.Br. Occurs on the Sandtop dunes, but not seen on those at Priory Bay. This seems to be the semi-climbing form *volubilis* Praeger which was also recorded by Rees (1950) for the Tenby dunes and elsewhere in Pembrokeshire. (H)
- CONVOLVULUS ARVENSIS** L. Very common all over the island. Both the pink and white-flowered forms are present. (H)
- SOLANUM DULCAMARA** L. In waste ground.
- S. NIGRUM** L. Only a few plants seen in Priory Bay.
- [†**DATURA STRAMONIUM** L. Rees (1950) states that it "used to grow freely on Caldey Island", no other station is given for Pembrokeshire; needs confirmation.]
- HYOSCYAMUS NIGER** L. Appeared in some quantity on soil removed from Nannas Cave, a prehistoric dwelling, during 1951. There were 11 plants there in 1952. Residents do not remember seeing it before, though seeds may have been introduced when the cave was last excavated about 1910. (H)
- VERBASCUM THAPSUS** L. On inaccessible cliffs, Eel Point, and in the east. (H)
- CYMBALARIA MURALIS** Gaertn., Mey. & Scherb. (*Linaria cymbalaria* (L.) Mill.). Frequent on walls.
- SCROPHULARIA AQUATICA** L. By the stream in the wood.

- †*MIMULUS GUTTATUS* DC. In marshy ground in the stream wood.
- DIGITALIS PURPUREA* L. Abundant in the High Cliff scrub.
- VERONICA HEDERIFOLIA* L. Common. (H)
- V. SERPYLLIFOLIA* L. Occasional. (H)
- V. PERSICA* Poir. Common. (H)
- V. OFFICINALIS* L. Abundant. (H)
- V. CHAMAEDRYIS* L. In the wood. (H)
- V. BECCABUNGA* L. Locally abundant in the stream marsh.
- EUPHRASIA OCCIDENTALIS* Wettst. High Cliff. Determined by Dr. E. F. Warburg, who states that it is a very stunted form approaching var. *minor* Pugsley. (H)
- E. NEMOROSA* Mart. Pugsley (1924) recorded "a dwarf condensed form" from Caldey.
- ODONTITES VERNA* (Bellardi) Dum. (*O. rubra* Gray). In the scrub along the north coast.
- OROBANCHE HEDERAE* Duby. Locally abundant on part of the fixed dunes near High Cliff scrub, where ivy is so common. (H)
- [*VERBENA OFFICINALIS* L. Reported by the gardener to grow in High Cliff area, but needs confirmation.]
- MENTHA AQUATICA* L. In the stream marsh.
- THYMUS DRUCEI* Ronn. Abundant in dry places. Det. C. D. Pigott. (H)
- GLECHOMA HEDERACEA* L. Common in shady places. (H)
- PRUNELLA VULGARIS* L. Generally common. (H)
- †*MARRUBIUM VULGARE* L. A few plants were seen in the scrub near High Cliff itself, where the floors alone remain of ancient buildings. Rees (1950) also reports it for the dunes. (H)
- BETONICA OFFICINALIS* L. (*Stachys officinalis* (L.) Trev.). Frequent along the cliff tops in the south. (H)
- STACHYS PALUSTRIS* L. Frequent along the north coast, etc., in the moister parts.
- S. SYLVATICA* L. Common.
- TEUCRIUM SCORODONIA* L. Abundant in the north.
- AJUGA REPTANS* L. Frequent in the Park.
- LAMIUM PURPUREUM* L. Common. (H)
- L. ALBUM* L. Common.
- PLANTAGO CORONOPUS* L. Very common, particularly in the south.
- P. MARITIMA* L. Abundant, but it appeared to be commoner in the less exposed northern part of the island than in the south. (H)
- P. LANCEOLATA* L. Common.
- P. MEDIA* L. Local; on the limestone.
- P. MAJOR* L. Common.
- CHENOPODIUM ALBUM* L. Common. Det. J. P. M. Brenan.
- BETA MARITIMA* L. Frequent on the cliffs. (H)
- ATRIPLEX PATULA* L. Generally common, especially on the southern cliff tops. Det. J. P. M. Brenan. (H)

- A. HASTATA* L. With the last. Det. J. P. M. Breñan. (H)
- A. GLABRIUSCULA* var. *VIRESCENS* (Lange) Moss & Wilmott. Recorded by Pugsley (1924).
- POLYGONUM AVICULARE* L. sens. lat. Common in the lane and elsewhere.
- P. PERSICARIA* L. Common as a weed.
- P. AMPHIBIUM* L. In plenty on the lower Carp pond.
- RUMEX SANGUINEUS* var. *VIRIDIS* Sibth. Common. (H)
- R. OBTUSIFOLIUS* L. Common.
- R. CRISPUS* L. Very common, especially near the sea.
- R. ACETOSA* L. Common. (H)
- R. ACETOSELLA* L. Common. (H)
- EUPHORBIA HELIOSCOPIA* L. In the fields in the centre of Caldey.
- E. PARALIAS* L. Common on the sand dunes of Priory Bay and Sand-top Bay. (H)
- E. PORTLANDICA* L. With the last species. (H)
- E. EXIGUA* L. In cultivated ground.
- URTICA DIOICA* L. Abundant.
- U. URENS* L. Abundant. (H)
- PARIETARIA DIFFUSA* Mert. & Koch. Common about walls.
- ULMUS GLABRA* Huds. Common in the stream wood, being the principal tree there. Det. H. K. Airy Shaw. (H)
- †*U. × HOLLANDICA* Mill. With the last. Det. H. K. Airy Shaw. (H)
- BETULA PENDULA* Roth. Common in the shrubby places.
- ALNUS GLUTINOSA* (L.) Gaertn. Scattered on the fixed dunes of Priory Bay.
- †*QUERCUS ROBUR* L. Occasional, probably planted.
- †*FAGUS SYLVATICA* L. Planted along the south end of the garden.
- SALIX ATROCINEREA* Brot. Beside the Carp pond. Det. R. D. Meikle. (H)
- SALIX × GEMINATA* Forbes (*S. ATROCINEREA × VIMINALIS*). Beside the overgrown pool in the stream wood. Det. R. D. Meikle. (H)
- †*POPULUS CANESCENS* (Ait.) Sm. One large tree near the farm.
- †*P. TREMULA* L. Planted.
- LISTERA OVATA* (L.) R. Br. A few plants were seen in a field near Eel Point in 1950 but they had been ploughed up by 1952; several others were seen by the central dew pond.
- SPIRANTHES SPIRALIS* (L.) Chevall. Reported by Pugsley (1924).
- ANACAMPITIS PYRAMIDALIS* (L.) Rich. Common on the N.E. limestone. (H)
- ORCHIS MORIO* L. On the fixed dunes at Priory Bay. Det. V. S. Summerhayes. (H)
- O. MASCULA* (L.) L. A few plants at High Cliff on the grassy slopes between the ledges. Det. V. S. Summerhayes. (H)
- O. FUCHSII* Druce. A number of plants in an old pasture near Eel Point. Det. V. S. Summerhayes. (H)
- OPHRYS APIIFERA* Huds. Very local on rather inaccessible slopes of High Cliff quarry. Also reported from one locality at the edge of Priory Bay fixed dunes. "Allen's Guide" (c. 1890) states that "the bee orchid has been gathered from Caldey". Rees (1950)

does not record it for Caldey, but about its Pembrokeshire distribution she writes: "The haunts of this orchid are so systematically raided that its ultimate survival is doubtful". (H)

IRIS FOETIDISSIMA L. Frequent in the woods.

I. PSEUDACORUS L. In one of the ponds in the wood; central dew pond.

TAMUS COMMUNIS L. Frequent in the High Cliff scrub.

[*ASPARAGUS MARITIMUS* (L.) Mill. Rees (1950) states it is "a weed on Caldey where it was once cultivated"; needs confirmation.]

SCILLA VERNA Huds. An abundant and characteristic plant of the Caldey Cliff tops. Rees (1950) reports it as "common on the headlands of Pembrokeshire, also on the islands of Caldey, Skokholm and Skomer". (H)

ENDYMION NON-SCRIPTUS (L.) Garcke (*Scilla non-scripta* (L.) Hoffmanns. & Link). In the wood.

JUNCUS BUFONIUS L. In the marshy ground by the stream. (H)

J. EFFUSUS L. Frequent in damp places. (H)

J. ARTICULATUS L. By Sandtop pond. (H)

LUZULA CAMPESTRIS (L.) DC. Common. (H)

TYPHA LATIFOLIA L. Plentiful, and locally dominant in the Carp pond marsh.

SPARGANTUM ERECTUM L. In the Sandtop pond.

ARUM MACULATUM L. Common in the High Cliff area and rather surprisingly close to the sea on the semi-fixed dunes in Priory Bay.

LEMNA MINOR L. Abundant on still water. (H)

BALDELLIA RANUNCULOIDES (L.) Parl. Limited to the Sandtop pond. (H)

POTAMOGETON POLYGONIFOLIUS Pourr. In the Sandtop pond. Det. J. E. Dandy. (Herb. Mus. Brit.)

ELEOCHARIS PALUSTRIS (L.) Roem. & Schult. In the Sandtop pond.

SCIRPUS CERNUUS Vahl. At the bottom of Drinkim Bay cliffs. (H)

CAREX ARENARIA L. Common on the sand dunes. Det. E. Nelmes. (H)

**C. POLYPHYLLA* Kar. & Kir. Only in the High Cliff area near the "Park" plantation. Of these specimens Mr. Nelmes writes that they "are in my opinion *Carex polyphylla*. The length of the inflorescence in this sp. varies from about 3-7 cm. so that in these specimens it is at the lowest point of its range, causing it to resemble that of *C. muricata* L. whose similar inflorescence is at the highest point of its range at c. 3 cm. The lowest spike in Mr. Hepper's specimens is often compound as is usual in *C. polyphylla*, that of *C. muricata* being simple. The utricles are longer than those of *C. muricata*". The only other records for Wales are from Glamorgan, v.c. 41, and Denbigh, v.c. 50. (H)

C. FLACCA Schreb. Frequent. Det. E. Nelmes. (H)

C. PENDULA L. Occasional in the stream wood. Det. E. Nelmes. (H)

C. PUNCTATA Gaudin. On the east coast. An interesting find and limited, as far as I know, to this one locality. Pugsley (1924) also recorded it for Caldey. Rees (1950) records the species from Waterwynch in Pembrokeshire and continues: "This is the only locality where I have found this rare sedge . . ." Det. E. Nelmes. (H)

- C. HIRTA* L. Near the stream. (H)
- ANTHOXANTHUM ODORATUM* L. Generally common. Various forms were noticed, including one with a very lax inflorescence, but Mr. Hubbard does not regard these variations as taxonomically important. (H)
- ALOPECURUS GENICULATUS* L. In plenty in the Sandtop pond. (H)
- A. PRATENSIS* L. Generally common.
- PHLEUM PRATENSE* L. agg. Common.
- P. ARENARIUM* L. On the dunes. Det. C. E. Hubbard (H)
- AGROSTIS TENUIS* Sibth. Abundant and dominant in the cliff top turf along the south coast. Det. C. E. Hubbard. (H)
- A. STOLONIFERA* var. *PALUSTRIS* (Huds.) Farw. In the Sandtop pond. Det. C. E. Hubbard. (H)
- AMMOPHILA ARENARIA* (L.) Link. Abundant on the dunes. (H)
- HOLCUS MOLLIS* L. At High Cliff.
- H. LANATUS* L. Co-dominant with *Agrostis tenuis* on the southern cliff tops.
- TRISETUM FLAVESCENS* (L.) Beauv. Frequent in the limestone areas. (H)
- ARRHENATHERUM ELATIUS* (L.) Beauv. ex J. & C. Presl. At High Cliff. (H)
- PHRAGMITES COMMUNIS* Trin. In the moist ground at Drinkim Bay.
- CYNOSURUS CRISTATUS* L. Common.
- KOELERIA GRACILIS* Pers. On fixed dunes in the north. Det. C. E. Hubbard. (H)
- K. BRITANNICA* Domin. Frequent in the more exposed southern part of the island. Det. C. E. Hubbard. (H)
- DACTYLIS GLOMERATA* L. Common.
- POA ANNUA* L. Common.
- P. PRATENSIS* L. Common; also one of the cliff top forms. Det. C. E. Hubbard. (H)
- P. TRIVIALIS* L. Common. (H)
- CATAPODIUM RIGIDUM* (L.) C. E. Hubbard (*Scleropoa rigida* (L.) Griseb.). Frequent on wall tops. Det. C. E. Hubbard. (H)
- FESTUCA OVINA* L. Common.
- F. RUBRA* L. Common, including var. *fallax* (Thuill.) Howarth and var. *rubra*. Det. C. E. Hubbard.
- BROMUS STERILIS* L. Frequent at High Cliff.
- B. MOLLIS* L. With the last. Det. C. E. Hubbard. (H)
- BRACHYPODIUM SYLVATICUM* (Huds.) Beauv. Abundant in the basic shady areas. Det. C. E. Hubbard. (H)
- LOLIUM PERENNE* L. Common.
- †*L. MULTIFLORUM* Lam. Sown with clover for fodder.
- AGROPYRON REPENS* (L.) Beauv. Common. A variety with a hairy rhachis grows freely on the dunes at Sandtop Bay. Det. C. E. Hubbard. (H)

- A. JUNCEIFORME (A. & D. Löve) A. & D. Löve (*A. junceum* auct.).
In plenty on the Sandtop dunes, to which it appears to be limited. It was not seen on Priory Bay dunes. Det. C. E. Hubbard. (H)
- NARDUS STRICTA L. Frequent, particularly in the south. (H)
- PTERIDIUM AQUILINUM (L.) Kuhn. Abundant, especially along the north coast.
- BLECHNUM SPICANT (L.) Roth. Only seen at Drinkim Bay. (H)
- PHYLLITIS SCOLOPENDRIUM (L.) Newm. Frequent.
- ASPLENium MARINUM L. In one of the limestone caves. Det. A. H. G. Alston. (H)
- A. ADIANTUM-NIGRUM L. In Nannas cave. Det. A. H. G. Alston. (H)
- A. RUTA-MURARIA L. Common on walls.
- CETERACH OFFICINARUM DC. I looked for this species specially but did not see it until I was shown some plants for sale. On enquiry I was directed to a few plants in the wall opposite the Carp pond. I fear that it will soon be exterminated by the gardener.
- ATHYRIUM FILIX-FEMINA (L.) Roth. Reported by Pugsley (1924).
- DRYOPTERIS FILIX-MAS (L.) Schott sens str. Common. Det. A. H. G. Alston. (H)
- D. AUSTRIACA (Jacq.) Woyнар (*D. dilatata* (Hoffm.) A. Gray). Common. Det. A. H. G. Alston. (H)
- POLYSTICHUM SETIFERUM (Forsk.) Woyнар. Common. Det. A. H. G. Alston. (H)
- POLYPODIUM VULGARE L. Common. (H)
- CHARA DELICATULA var. BARBATA (Gant.) Groves & Bullock-Webster. Abundant in Sandtop pond. Det. G. O. Allen. (H)

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PLANT NOTES

162/2. **Psoralea americana** L., 1753, *Sp. Pl.*, 2, 763; *P. dentata* DC., 1825, *Prodr.*, 2, 221. 21, Middx.; rubbish-tip, Hanwell, 1952, B.S.B.I. EXCURSION, det. Miss D. M. Hillcoat, E. B. Bangerter & D. H. Kent. A perennial species, sending out numerous diffusely spreading or procumbent branches 35-70 cm. long. Leaflets in threes, pinnately ternate, dark shining green, rhomboidal or roundish-ovate, repand-toothed, wedge-shaped and entire towards the base, nearly smooth, glandular-dotted, the middle leaflet stalked, longer than the other two; petioles and pedicels glandulose. Flowers rather small, pale whitish-lilac, in pyramidal or oblong-pointed short and interrupted spikes or racemes on long axillary peduncles. Bracts ovate-lanceolate, shorter than the striated glandulose and villose calyx. Pod without beak, 1-seeded, indehiscent. Native of Algeria, Tunisia, Morocco, Spain and Gibraltar.—D. H. KENT.

220/18. **Epilobium linnaeoides** Hook. f., 1844, *Fl. Antarct.*, 1, 10, t 6. 58, Cheshire; Helsby, where it has persisted since 1938: H.16, W. Galway; near Leenane, established for about a mile along the roadside west of the village, 1953. Plant with herbaceous stem 5-20 cm. long, slender, creeping, and rooting at nodes; usually widely and irregularly branched, glabrous, or with two faint pubescent lines towards the tips of the branches. Leaves opposite, 4-8 mm. in diameter, orbicular, petioled, flaccid and membranous, closely and sharply denticulate. Flowers in the axils of leaves remote from the ends of the branches, white or rose, 3-5 mm. in diameter. Calyx lobes lanceolate, shorter than the deeply cleft petals. Stigma clavate. Capsules 25-50 mm. long, perfectly glabrous; peduncles usually much elongated, 5-10 cm. Seeds densely papillose. Native of New Zealand and Tasmania.—Miss V. GORDON.

383/9×8. **Senecio** × **viscidulus** Scheele, 1844, *Linnaea*, 18, 480, (**S. sylvaticus** × **viscosus**). 17, Surrey. On August 16, 1947, in the company of Dr. Cyril West, I was examining a very large colony of *Senecio viscosus* L. on the sandy ground by Frensham Little Pond, when we noticed two plants which, from their habit, colour of leaves, and quantity of material attached to their viscid stems and leaves, seemed obviously different from the numerous plants of *S. viscosus* with which they were growing. More careful examination of fresh material at home showed that one (Reference "A") was certainly a hybrid between that species and *S. sylvaticus* L. which was abundant on the adjacent heathland. The

other (Reference "B") seemed likely to be of the same parentage but very much closer to *S. viscosus*.

Both had flowers with conspicuous ray florets and showed a general resemblance to *S. viscosus*, from which they differed in reduced glandular development (which explained the lesser amount of wind blown material attached to them as already mentioned), in the pappus being slightly more silvery in colour, and having abortive achenes which tended to remain attached to the receptacles. In "A" the achenes were all very ill-developed but in "B" some of them had swollen though not to the same size as those of the parents.

In "A" the evidence of *S. sylvaticus* was apparent in the less spreading branches, the darker coloured, less glandular leaves which were enlarged and auricled at the base, in the more slender peduncles and capitula (the latter only 6 mm. broad at the base, compared with 8 mm. in *S. viscosus* and 5.5 mm. in *S. sylvaticus* from the same locality) and in the presence of numerous silky hairs in the furrows of the achenes. In "B" the same characters were discernible but less evident.

The countries from which hybrids of this parentage are known include Germany and Austria (Hegi, 1929), Czechoslovakia (Domin, 1936), Holland (Heukels, 1933) and Sweden (Hylander, 1941). Records from France appear to be doubtful (Fournier, 1928 & 1946). The synonymy is as follows:—

S. viscidulus Scheele, 1844 (*Linnaea*, **18**, 480)

S. viscoso-sylvaticus var. *intermedius* Lasch ex Scheele, 1844 (*l.c.*) in syn.

S. intermedius Lasch in Rabenh., 1846 (*Bot. Centralbl.*, **1846**, 131)

S. intermedius Wiesb., 1874 (*Oesterr. bot. Zeitschr.*, **24**, 109)

S. wiesbaurii Halácsy & Braun, 1882 (*Nachtr. Fl. Niederoesterr.*, 83)

The correct hybrid name is therefore *S. × viscidulus* Scheele. It seems a little surprising that it has not been detected in this country earlier but it is only in recent years that the parents have occurred together with any frequency. Prior to the rapid spread of *S. viscosus* this species was almost restricted to the coast and fens where there is very little heathy ground favoured by *S. sylvaticus*.

Material of both forms of the hybrid, and of the parents, from by Frensham Little Pond was exhibited at the Society's Exhibition Meeting of November 28, 1953.

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J. E. LOUSLEY.

510/2b. *CERINTHE MINOR* var. **hispida** Turrill, 1924, *Kew Bull.*, **1924**, 355. 34, W. Glos.; (5) Portway tip, Bristol, 1950, I. W. EVANS, comm. W. R. PRICE. Differs from the var. *minor* in having the pedicels markedly hispid with spreading white hairs. The var. *minor* appears to occur in the central and western parts of the Mediterranean region, and in central Europe. The var. *hispida* is found in the eastern part of the Mediterranean region, Armenia, Kurdistan and Syria. Both var. *minor* and var. *hispida* occur in the Caucasus.—D. H. KENT.

515/11b. *Cuscuta australis* var. **cesatiana** (Bertoloni) Yuncker, 1932, *Mem. Torrey Bot. Cl.*, **18**, 126; *C. cesatiana* Bertoloni, 1847, *Fl. Ital.*, **7**, 623; *C. polygonarum* Cesati, 1849, *Index Seminum Genev.*, 22; *C. obtusiflora* var. *cesatiana* Engelmann, 1859, *Trans. Acad. Sci. St. Louis*, **1**, 493. 18, S. Essex; rubbish-tip, Barking, parasitic on *Artemisia verlotorum* Lamotte, *Senecio squalidus* L. and *Polygonum aviculare* L., 1953, S. T. JERMYN and B. T. WARD, det. A. MELDERIS and J. F. SHILLITO. 21, Middx.; Enfield, parasitic on Chinese Asters in a garden, 1953, Miss J. MAUDE, det. A. MELDERIS and J. F. SHILLITO. 34, W. Glos.; Kingswood, Bristol, parasitic on *Polygonum aviculare* L., 1932, C. I. Sandwith, *Rep. Bot. Soc. & E.C.*, **1932**, 346 (1933), as *C. tinei* Insenga subsp. *cesatiana* (Bert.).

Plant annual with slender twining yellow-orange coloured stems; parasitic, attached to the host plant by suckers. Often on *Polygonum* sp., but also on a variety of other herbaceous plants, e.g. *Artemisia*, *Genista*, *Xanthium*, *Pelargonium*, etc. Flowers yellowish, about 2 mm. diameter, mostly 5-parted, in clusters (scorpioid cymes). Corolla lobes commonly longer than the tube, obtuse or acutish, and narrower than in *C. australis* sens. str. Scales narrow with long fringes, more or less bifid and about reaching the stamens, or exserted. Filaments longer than the anthers. Ovary globose, flattened on top. Stigmas 2, capitate, rising each side of a cleft in the ovary, this cleft widening and deepening considerably on ripening. Stigmas persistent. Switzerland and Italy to India.—J. F. SHILLITO and B. T. WARD.

675/1. *CYPRIPEDIUM CALCEOLUS* L. 64, Mid-west York; edge of the Duke of Devonshire's estate, Upper Wharfedale, 5 plants, which were not in flower, 1952, E. Lloyd Jones and E. Hardy (1952, *Country-side (N.S.)*, **16**, 277). The recorders also give the following information acquired from a companion whose late father was the original finder of the colony.

Date.	No. of plants.	No. in flower.
1930	14	1
1931-33	?	0
1934	?	1
1935	8	0
1936-39	?	0
1940	3	0
1941-42	5	0
1943	5	1
1944	5	0
1945-46	3	0
1947-48	2	0
1949-51	3	0

Grazing sheep are said to be the main danger to the plants.—D. H. KENT.

PLANT RECORDS

Compiled by E. C. WALLACE.

Records are for the year 1952 when no date is given.

The following signs are used:—

- § before the *B.P.L.* number: to indicate that the paragraph contains information necessitating a correction to an annotated copy of the *Comital Flora*.
- † before the *B.P.L.* number: to indicate that the plant is not a native species in the British Isles.
- † before the record: to indicate a species which, though native in some parts of the British Isles, is not so in the locality recorded.
- * before the record: to indicate a new vice-county record, not published previously to this issue of the *Proceedings*.
- ‡ before the record: to indicate a record additional to an annotated copy of *Comital Flora*, but published elsewhere prior to the issue of the *Proceedings* in which it appears.
- [] enclosing a record: to indicate doubt as to the validity of the record, either of identification or locality.

It will be useful if, in future, National Grid Co-ordinates, made as accurate as is thought advisable, are added to all records.

§4/1. ADONIS ANNUA L. 16, W. Kent; near Darenth Wood, H. M. Pratt (1951, Kent & Lousley, *Hand List*, 2): cornfields, Cotton Farm, Stone, 1951, J. H. McCALL, conf. J. E. LOUSLEY. ‡+31, Hunts.; garden weed, Alconbury, Mr. and Mrs. J. E. H. Blackie (1949, *Ann. Rep. Hunts. Fauna & Flora Soc.*, 1949, 14).

§6/6. RANUNCULUS LINGUA L. ‡†, 18, S. Essex; Baldwin's Hill, Loughton, 1948 (1951, Kent & Lousley, *Hand List*, 5): Cook's Pond, Woodford Green, 1951, B. T. WARD. 38, Warwick; a fine group of a score or so plants in an old marl-pit, half a mile north of Brandon Grange, W. F. Shotton (1951, *Proc. Coventry & Dist. N.H. & Scient. Soc.*, 2, 162).

6/13. RANUNCULUS PARVIFLORUS L. 17, Surrey; (IIIa) Thursley Common, B. M. C. MORGAN.

§6/20. RANUNCULUS FLUITANS Lam. ‡16, W. Kent; in the river Medway, Hartlake Bridge, Hadlow, D. McClintock and F. Rose (1952, *S.E. Nat.*, 57, xviii).

6/30. RANUNCULUS LUTARIUS (Revel) Bouvet. 52, Anglesey; marshy ground below Fferam, near Rhosneigr, with *R. hederaceus*, C. C. TOWNSEND, conf. R. W. BUTCHER.

6/31. *RANUNCULUS LENORMANDI* F. W. Schultz. 98, Argyll; Glen Coe; ditch beside Rectory in Carnach village, 1951, K. N. G. MACLEAY. [*Top. Bot. & Supps.* make no reference to v.c. 98, though it is quoted in *C.F.*]

11/1. *AQUILEGIA VULGARIS* L. †97 (Argyll); Strontian, hedge at roadside to old lead mines—?garden escape, A. A. SLACK.

19/2. *NUPHAR PUMILA* (Timm) DC. 98, Argyll; Lochan na Cut-haig, Lorne; nameless lochan above Portsonachan, Loch Awe, K. N. G. MACLEAY.

21/5. *PAPAVER ARGEMONE* L. 45, Pemb.; St. Davids, a few plants on roadside bank near Pen Arthur, R. M. PAYNE. 90, Forfar; railway embankment near Elliot station, a few plants, A. W. ROBSON.

31/1. *CORYDALIS CLAVICULATA* (L.) DC. †21, Middx.; bombed site, Theobalds Road, W.C., 1950, J. WHITTAKER, det. E. B. BANGERTER, comm. D. H. KENT.

32/5. *FUMARIA BORAEI* Jord. 57, Derby, and 63, S.W. Yorks.; locally abundant on cultivated land at, and about, Dore, Sheffield, F. W. ADAMS, comm. N. Y. SANDWITH.

32/9. *FUMARIA BASTARDI* Bor. 45, Pemb.; St. Davids, R. M. PAYNE, det. A. MELDERIS.

35/1×35/1(2). *RORIPPA* × *STERILIS* Airy-Shaw. *92, S. Aberd.; stream below Kildrummy Castle, 1951: *93, N. Aberd.; stream by Cardrum near Old Meldrum, 1951, A. G. LYON.

35/1(2). *RORIPPA MICROPHYLLA* (Boenn.) Hylander. *4, N. Devon; Baggypoint, Croyde, near Ilfracombe, T. G. COLLETT, det. and comm. D. H. KENT.

36/1. *BARBAREA STRICTA* Andrz. 16, W. Kent; Abbey Wood Marshes, one plant, LONDON NATURAL HISTORY SOCIETY EXCURSION, conf. and comm. D. H. KENT. 21, Middx.; Chiswick House grounds, R. A. BONIFACE, comm. D. H. KENT.

§36/2. *BARBAREA VERNA* (Mill.) Aschers. ‡†43, Radnor; Nantmel. J. A. Webb (1945, *N.W.Nat.*, **20**, 157).

36/5. *BARBAREA INTERMEDIA* Bor. 33, E. Glos.; (7a) roadside, Foxcote, Miss L. ABELL.

37/5. *CARDAMINOPSIS PETRAEA* (L.) Hiit. 97, (Argyll); scree on hill above Glen Cripesdale, Loch Sunart, K. N. G. MACLEAY and E. C. WALLACE.

§43/2. *DRABA NORVEGICA* Gunn. *105, W. Ross; northern crags on Beinn Dearg, and on Eididh nan Clach Geala, R. MACKECHNIE and E. C. WALLACE.

§44/1. *EROPHILA VERNA* (L.) Chevall. *97, (Argyll); Strontian, roadside verge on way to old lead mines, A. A. SLACK.

§45/2. *COCHLEARIA OFFICINALIS* L. ‡†21, Middx.; waste ground close to Tower Hill railway station and All Hallows Church, a number of seedlings, but only one plant in flower, W. N. Lawfield, fide E. B. Bangerter (1951, Kent & Lousley, *Hand List*, 17).

§45/7. *COCHLEARIA DANICA* L. ‡†21, Middx.; growing plentifully between the metals on railway main line by Scratch Wood sidings near Edgwarebury, J. G. Dony (1951, Kent & Lousley, *Hand List*, 17).

†47/2. *HESPERIS MATRONALIS* L. 43, Radnor; on road metal, Forest Inn, Nantmelan; near Monaughty; Llandrindod Wells; Doldowlod; plentiful near Llanyre by the Newbridge Road, J. A. Webb (1945, *N.W. Nat.*, 20, 157).

†49/4. *SISYMBRIUM ORIENTALE* L. 43, Radnor; rail bank and Station Yard, Rhayader, J. A. Webb (1945, *N.W. Nat.*, 20, 157). 49, Caern.; waste ground near the station, Llandudno, C. C. TOWNSEND.

[§49/5. *SISYMBRIUM IRIO* L. 54, N. Lincs.; erroneously recorded in *B.E.C. 1941-42 Rep.*, 480 (1944). The specimen in *Herb. Mus. Brit.* is *S. loeselii* L., teste E. B. BANGERTER and B. WELCH. Delete from *C.F.*]

54/1. *BRASSICA OLERACEA* L. †100, Clyde Isles; Arran, 1918, T WISE (*Herb. Glasgow Univ.*), comm. D. PATTON.

54/4d. *BRASSICA RAPA* var. *BRIGGSII* H. C. Wats. 33, E. Glos.; (2a) banks of river Severn and adjoining fields near Ashleworth Ferry, C. C. TOWNSEND.

§54/5. *RHYNCHOSINAPIS MONENSIS* (L.) Dandy. *†90, Forfar; reclaimed ground west of Tay Bridge, Dundee, a few plants, A. W. ROBSON.

§54/13. *BRASSICA NIGRA* (L.) Koch. ‡43, Radnor; near Newchurch on shale-banks, 1948, J. A. Webb (1952, *Proc. Swansea Scient. & F.N.S.*, 10, 324). *100, Clyde Isles; Whiting Bay, 1883, Dr. J. WYLIE (*Herb Glasgow Univ.*), comm. D. PATTON.

54/15. *SINAPIS ALBA* L. †100, Clyde Isles; Great Cumbrae, 1884, Dr. R. M. BUCHANAN (*Herb. Glasgow Univ.*), comm. D. PATTON.

†54/18(2)b. *BRASSICA INTEGRIFOLIA* var. *CARINATA* (A. Braun) O. E. Schulz. 21, Middx.; garden weed, Cricklewood, J. FARRAND, det at Kew, comm. D. H. KENT.

†54/22. *HIRSCHFELDIA INCANA* (L.) Lagr.-Foss. 6, N. Som.; sand dunes N. of Berrow Church, 1951, C. I. and N. Y. SANDWITH.

55/2. *DIPLLOTAXIS MURALIS* (L.) DC. †56, Notts.; railway bank near Welham Manor, F. W. ADAMS.

§60/1. *CORONOPUS DIDYMUS* (L.) Sm. †43, Radnor; plentiful, Llandrindod Common; Clyro towards Rhydspence; Cwmbach; Glasbury, J. A. Webb (1945, *N.W.Nat.*, 20, 157).

§†61/3. *CARDARIA DRABA* (L.) Desv. †31, Hunts.; Houghton and Salome Wood, Mr. and Mrs. J. H. Blackie (1950, *Ann. Rep. Hunts. Fauna & Flora Soc.*, 1949, 15). †100, Clyde Isles; Great Cumbrae, 1909, D. PATTON (*Herb. Glasgow Univ.*)—but see J. R. Lee, *Flora of the Clyde Area*, 36 (1933).

61/7. *LEPIDIUM SMITHII* Hook. 97, (Argyll); roadside verge at Killundine, E. C. WALLACE and K. N. G. MACLEAY.

§64/1. *THLASPI ARVENSE* L. †43, Radnor; frequent in kitchen garden, Ridgebourne, Llandrindod, J. A. Webb (1945, *N.W.Nat.*, 20, 157).

†76/1. *RAPISTRUM PERENNE* (L.) All. 21, Middx.; bombed site, Hammersmith, two plants, N. Y. SANDWITH, comm. D. H. KENT.

§80/2. *RAPHANUS MARITIMUS* Sm. *97, (Argyll); Ardgour, shore near roadside to south of Corran Ferry: 98, Argyll; shingly shore between Dunoon and Inellan, Cowal, K. N. G. MACLEAY and E. C. WALLACE.

†85/1. *RESEDA ALBA* L. 36, Heref.; roadside, Ross-Monmouth road, between Ross and Pencraig, many fine plants, C. W. BANNISTER.

85/2b. *RESEDA LUTEA* var. *PULCHELLA* J. Muell. †21, Middx.; bombed site, Hammersmith, N. Y. SANDWITH, comm. D. H. KENT.

§88/3. *VIOLA REICHENBACHIANA* Jord. ex Bor. †18, S. Essex; Lambourne, R. W. Robbins (1951, Kent & Lousley, *Hand List*, 28).

§88/8. *VIOLA ODORATA* L. †43, Radnor; near Boughrood; Pistyll; Glasbury; between Clyro and Hay, J. A. Webb (1945, *N.-W. Nat.*, 20, 157).

88/8d. *VIOLA ODORATA* var. *DUMETORUM* (Jord.) Rouy & Fouc. 33, E. Glos.; (7a) Mill Lane, Prestbury, Cheltenham, 1949. The first specimen I have seen in the county, though the *Flora* has several records: f. *imberbis* is the common Cotswold white sweet violet, C. C. TOWNSEND, det. A. C. TALLANTIRE.

§88/34. *VIOLA TRICOLOR* subsp. *CURTISII* (E. Forst.) Syme. ‡101, Kintyre; fixed dunes of Machrihanish links at north end, E. C. WALLACE and K. N. G. MACLEAY—but see J. R. Lee, *Flora of the Clyde Area*, 43 (1933).

92/3. *DIANTHUS ARMERIA* L. 17, Surrey; Richmond Park, Mrs. L. M. P. SMALL, conf. A. MELDERIS, comm. D. H. KENT. 21, Middx.; foot of Parliament Hill, Hampstead, 1941, H. C. Harris (1949, *Lond. Nat.*, 28, 29).

§100/4. *CE ASTIUM ARCTICUM* Lange. 105 and *106, W. and E. Ross; scattered over Beinn Enaiglair, Braemore, in both v.cc., R. MACKECHNIE and E. C. WALLACE.

100/4×5. *CERASTIUM ARCTICUM* × *HOLOSTEOIDES*. 105, W. Ross; Beinn Dearg, Beinn Enaiglair and on Eididh nan Clach Geala, R. MACKECHNIE and E. C. WALLACE.

§100/7. *CERASTIUM PUMILUM* Curt. ‡† 21, Middx.; railway bank near Mill Hill, E. Milne-Redhead and J. G. Dony (1951, Kent & Lousley, *Hand List*, 35).

§100/9. *CERASTIUM ATROVIRENS* Bab. ‡† 21, Middx.; plentifully between the metals of the main line by Scratch Wood Sidings, near Edgwarebury, J. G. Dony (1951, Kent & Lousley, *Hand List*, 35): railway track, Brentford, 1951, D. H. KENT.

100/11. *CERASTIUM CERASTOIDES* (L.) Britton. 105 and 106, W. and E. Ross; on Beinn Dearg in several places above 3000 ft. in moss, R. MACKECHNIE and E. C. WALLACE.

101/3b. *STELLARIA APETALA* Ucria. *48, Mer.; sand dunes, Barmouth, P. M. BENOIT, comm. NAT. MUS. WALES.

101/4. *STELLARIA NEGLECTA* Weihe. 105, W. Ross; roadside verge, Foich, Inverbroom, R. MACKECHNIE and E. C. WALLACE.

102/1. *MOEHRINGIA TRINERVIA* (L.) Clairv. 98, Argyll; Glen Nant, E. C. WALLACE and K. N. G. MACLEAY; Craigantairbh, Ford: 101, Kintyre; Tayvallich, Knapdale, roadside plantation, K. N. G. MACLEAY.

§102/3. *ARENARIA NORVEGICA* Gunn. *97, (Argyll); on basalt scree, Morvern, E. C. WALLACE and K. N. G. MACLEAY.

102/8. *MINUARTIA TENUIFOLIA* (L.) Hiern. †21, Middx. and †24, Bucks.; railway tracks between Uxbridge and Denham, D. H. KENT.

103/2. *SAGINA SUBULATA* (Sw.) C. Presl. 52, Anglesey; rocks on the borders of Llyn Penryn and Llyn Dinam, C. C. TOWNSEND. 98, Argyll; roadside wall top, Taynult; limestone ridge above Kilchrenan, Lorn, E. C. WALLACE and K. N. G. MACLEAY.

103/7(2). *SAGINA FILICAULIS* Jord. 10, Wight; abundant and very constant at the south side of Blackgang Chine, 1951, C. C. TOWNSEND.

103/10. *SAGINA MARITIMA* Don ex Sm. 34, W. Glos.; (4) in quantity below Tidenham Crags on banks of Wye, C. C. TOWNSEND. The first record for Glos. outside the Bristol area.

§104/1. *SPERGULA ARVENSIS* L. *100, Clyde Isles; Cumbræ, 1884, R. M. BUCHANAN; Bute, 1903, T. WISE (*Herb. Glasgow Univ.*), comm. D. PATTON.

§104/2. *SPERGULA SATIVA* Boenn. ‡43, Radnor; near Llanelwedd; Penithon, J. A. Webb (1945, *N.-W. Nat.*, **20**, 157).

§105/1. *SPERGULARIA RUPICOLA* Lebel ex Le Jolis. *48, Mer.; Harlech Castle walls, P. M. BENOIT, comm. NAT. MUS. WALES.

§105/2. *SPERGULARIA MEDIA* (L.) C. Presl. *101, Kintyre; salt-marsh on Loch Sween, Caol Scotrish, K. N. G. MACLEAY.

§+108/1. *CLAYTONIA ALSINOIDES* Sims. *40, Salop; Little Stretton, near Church Stretton, 1951, J. GALLOWAY, comm. E. B. BANGERTER. 59, S. Lancs.; well established in many places about Bury, 1949-1952. F. SLATER.

§+108/2. *CLAYTONIA PERFOLIATA* Donn ex Willd. ‡75, Ayr; roadside between West Kilbride and Portincross since 1907, D. PATTON. *89. E. Perth; Pitlochry, 1933, L. J. TREMAYNE, comm. D. H. KENT. *99. Dunb.; on Dumbarton Castle Rock. D. PATTON.

109/2. *MONTIA FONTANA* subsp. *CHONDROSPERMA* (Fenzl) S. M. Walters. 34, W. Glos.; (4) May Hill, 1951, C. C. TOWNSEND, det. S. M. WALTERS.

§111/2. *ELATINE HEXANDRA* (Lapierre) DC. ‡3, S. Devon; Tamar Lake: ‡4, N. Devon; Fernworthy Reservoir, 1951, O. Greig (1952, *Rep. and Trans. Devon. Assocn.*, **84**, 255).

§112/1. *HYPERICUM ANDROSAEMUM* L. *72, Dumf.; Brocklehurst, Mrs. F. L. BALFOUR-BROWNE, det. and comm. E. B. BANGERTER.

†112/3. *HYPERICUM HIRCINUM* L. *52, Anglesey; wooded roadside banks between Menai Bridge and Beaumaris, F. C. G. GOUGH, comm. NAT. MUS. WALES.

§112/10. *HYPERICUM UNDULATUM* Schousb. ex Willd. *48, Mer.: Morfa Arthog, 1951, P. M. BENOIT, comm. NAT. MUS. WALES.

112/11. *HYPERICUM TETRAPTERUM* Fr. 98, Argyll; Loch Ederline, Ford; on grassy bank at roadside, K. N. G. MACLEAY.

§112/12. *HYPERICUM MACULATUM* Crantz. ‡18, S. Essex; near Woodhatch, 1909, C. Nicholson (*Herb. London Natural History Soc.*): roadside, Theydon Mount, 1951, R. M. PAYNE, comm. D. H. KENT. 39, Staffs.; below Thor's Cave near Wetton: 57, Derby; near the canal and river at Brimington, Chesterfield. Frequent in this neighbourhood, 1950, F. W. ADAMS. 100, Clyde Isles; Whiting Bay, Arran, 1883, Dr. J. WYLIE: Kildonan, Arran, 1890, R. & T. WILKIE (*Herb. Glasgow Univ.*), comm. D. PATTON.

§112/14×12. *HYPERICUM* × *DESETANGSII* Lamotte. *33, E. Glos.; (2a) from the bank near rubbish tip at Walham to above the tar works, R. S. GEORGE, det. at KEW.

§115/2. *ALTHAEA HIRSUTA* L. ‡†18, S. Essex; Dagenham Dump, 1939, P. H. COOKE, det. at Kew (1952, Kent and Lousley, *Hand List*, 43). ‡†61, S.E. York.; bombed site, Hull, E. Crackles (1953, *The Nat.*, **844**, 41).

117/4. *MALVA ROTUNDIFOLIA* L. 13, W. Sussex; West Dean, 1947. Previously recorded (*Watsonia*, **1**, 40) as *M. parviflora* L., but material from the same colony distributed in 1950 (see *Year Book*, **1951**, 121) was determined by J. P. M. Brennan as this species, D. P. YOUNG.

§127/1. *GERANIUM SANGUINEUM* L. *42, Brecon; limestone cliffs, Daren Felin, Cwm Clydach, near Gilwern, 1951, D. P. M. GUILLE, comm. NAT. MUS. WALES.

†127/2. *GERANIUM VERSICOLOR* L. 36, Heref.; Preston-on-Stour, naturalised in quantity on roadside bank close to a garden, Rev. R. B. ABELL and C. W. BANNISTER.

§127/11. *GERANIUM ROTUNDIFOLIUM* L. ‡63, S.W. York.; sandpit, Whitley Thorpe, W. A. Sledge and G. A. Shaw (1949, *The Nat.*, 37).

127/13. *GERANIUM LUCIDUM* L. 98, Argyll; on stone bank by road, Glen Nant, Taynuilt, K. N. G. MACLEAY and E. C. WALLACE.

128/3c. *ERODIUM GLUTINOSUM* Dum. 45, Pemb.; St. David's, on fixed dunes, R. M. PAYNE, det. A. MELDERIS.

§†132/2. *OXALIS CORNICULATA* L. ‡32, Northants.; very common and persistent as a wayside and garden weed at Kings Cliffe, J. L. Gilbert (1950, *J. Northants. N.H.S. & F.C.*, **32**, 85). ‡43, Radnor; scarce, pathside by Llandrindod Lake, J. A. Webb (1945, *N.W.Nat.*, **20**, 157).

§133/1. *IMPATIENS NOLI-TANGERE* L. ‡†101, Kintyre; Inverneill Woods near Ardrishaig, M. H. Cunningham (1953, *Glasgow Nat.*, **17**, 73).

§†133/2. *IMPATIENS CAPENSIS* Meerb. *37, Worcs.; by river Arrow, near Redditch, C. C. TOWNSEND, comm. F. M. DAY.

‡133/4. *IMPATIENS GLANDULIFERA* Royle. ‡18, S. Essex; Walthamstow Reservoirs, 1951, J. Bedford (1952, Kent & Lousley, *Hand List*, 52). *88, Mid Perth; Ardeonaig burn, Loch Tay, 1950, D. PATTON. ‡98, Argyll; near the ruins of Dunollie Castle, near Oban, A. J. MacDougall (1951, *Country Life*, 110, 1554).

§153/1. *MEDICAGO FALCATA* L. †21, Middx.; waste ground, Feltham, one clump, B. WELCH, comm. D. H. KENT. *†35, Mon.; Alexandra Dock, Newport, J. N. DAVIES, comm. NAT. MUS. WALES.

153/1d. *MEDICAGO FALCATA* var. *DIFFUSA* Schur. †25, E. Suff.; waste ground, Felixstowe Docks, F. W. SIMPSON, det. at KEW. †36, Heref.; two plants by river Wye, Hereford, Miss MULLER, det. at KEW, comm. F. M. DAY.

§153/6. *MEDICAGO MINIMA* (L.) Bartal. ‡†32, Northants; Peterborough railway sidings, 1950, J. G. Dony (1951, *J. Northants N.H.S. & F.C.*, 32, 84).

156/1. *ANTHYLLIS VULNERARIA* L. †21, Middx.; bombed site, Cripplegate, E.C., M. A. R. S. SCHOLEY, comm. D. H. KENT.

§†160/1. *TETRAGONOLOBUS MARITIMUS* (L.) Roth. *24, Bucks.; grassy road verge on chalk near Fingest, T. G. COLLETT, comm. D. H. KENT.

†170/1. *CORONILLA VARIA* L. 25, E. Suff.; waste ground, Felixstowe Docks, F. W. SIMPSON.

176/14. *VICIA LATHYROIDES* L. 11, S. Hants.; Stubbington beach, with white flowers, C. W. MUSGRAVE BURTON.

178/2. *LATHYRUS SYLVESTRIS* L. 49, Caern.; in two places, Nevin, F. C. G. GOUGH.

§†184/10. *SPIRAEA SALICIFOLIA* L. ‡35, Mon.; near Tintern Abbey, 1948 and 1951, J. A. Webb (1952, *Proc. Swansea Scient. & F.N.S.*, 10, 325). *98, Argyll; Stonnilechan, Dalnally; in old hedge along the old road, occasional, K. N. G. MACLEAY.

185/31. *RUBUS LINDEBERGHII* P. J. Muell. 34, W. Glos.; (4) Old Bargains Wood, Aylburton, C. C. TOWNSEND, det. W. C. R. WATSON.

§187/2. *GEUM RIVALE* L. ‡18, S. Essex; pond side, Chingford, 1936, J. ROSS; streamside, High Beech, 1938, W. E. GAZE (1952, Kent & Lousley, *Hand List*, 101).

†189/13. *POTENTILLA RECTA* L. 19, N. Essex; Feering, roadside, R. M. PAYNE and J. A. WHELLAN, det. A. MELDERIS.

190/2. *ALCHEMILLA XANTHOCHLORA* Rothm. 97, (Argyll); Killundine, Fiunary; grassy roadside verges under trees: *98, Argyll; Glen Nant, Loch Awe side: *101, Kintyre; Stonefield, Knapdale, E. C. WALLACE and K. N. G. MACLEAY.

190/8. *ALCHEMILLA GLABRA* Neygenf. ‡16, W. Kent; meadow near Birling, 1951, F. Rose (1952, *S.E. Nat.*, **57**, xviii).

190(2)/2. *APHANES MICROCARPA* (Boiss. & Reut.) Rothm. 110, Outer Hebrides; very common on sandy paths near the Creed River, Stornoway, J. W. Heslop-Harrison (1953, *Proc. Univ. Durham Phil. Soc.*, **11**, 85).

191/2. *AGRIMONIA ODORATA* (Gouan) Mill. 52, Anglesey; side of track from main road to Dinam Farm, C. C. TOWNSEND. 98, Argyll; roadside grassy bank beside Loch Ederline, K. N. G. MACLEAY.

§195/11. *SORBUS RUPICOLA* (Syme) Hedl. *88, Mid Perth; rocks above Loch na Craige on the Aberfeldy to Crieff road, R. A. GRAHAM, det. E. F. WARBURG.

199/10. *SAXIFRAGA HYPNOIDES* L. 105, W. Ross; Beinn Dearg, and on Eididh nan Clach Geala, R. MACKECHNIE and E. C. WALLACE.

§199/19. *SAXIFRAGA RIVULARIS* L. *105, W. Ross; sparingly on Beinn Dearg, R. MACKECHNIE and E. C. WALLACE.

§199/21. *SAXIFRAGA NIVALIS* L. *105, W. Ross; very scarce, Beinn Dearg, R. MACKECHNIE and E. C. WALLACE.

203/1. *CHRYSOSPLENIUM ALTERNIFOLIUM* L. 25, E. Suff.; felled alder wood in wet valley, Stutton, F. J. BINGLEY and E. C. WALLACE.

§207/3. *RIBES SYLVESTRE* Mert. & Koch. ‡43, Radnor; brookside and by ruins, Abermethil, Llandegley; hedges at Gaufron, J. A. Webb (1945, *N.W. Nat.*, **20**, 158).

§207/5. *RIBES ALPINUM* L. ‡†4, N. Devon; old bushes in roadside hedge, South Tawton, 1951, O. Greig (1952, *Rep. & Trans. Devon Asscn.*, **84**, 256). ‡†43, Radnor; frequent in hedges in the hills—Llanbister; Gaufron; Penithon; Penybont; doubtfully native, J. A. Webb (1945, *N.W. Nat.*, **20**, 158).

§211/1. *SEDUM TELEPHIUM* subsp. *PURPURASCENS* (Koch) Aresch. 52, Anglesey; many plants on a wall between Holyhead and Porthdafarch, C. C. TOWNSEND. ‡100, Clyde Isles; Bute, 1917, T. WISE (*Herb. Glasgow Univ.*), comm. D. PATTON—but see J. R. Lee, *Flora of the Clyde Area*, 135 (1933).

§†211/5. *SEDUM SEXANGULARE* L. ‡43, Radnor; Penithon, in quantity, J. A. Webb (1945, *N.W. Nat.*, **20**, 158).

§217/4. *CALLITRICHE POLYMORPHA* Lönnr. *14, E. Sussex; on marshes between Rye and Camber Castle, L. W. FROST.

218/1. *PEPLIS PORTULA* L. 101, Kintyre; Crosshill Loch and Aros Moss, 1949, M. H. CUNNINGHAM.

§220/1. *CHAMAENERION ANGUSTIFOLIUM* (L.) Scop. *103, Mid Ebudes; Tobermory, clearing in woods behind town, and on waste ground, frequent, K. N. G. MACLEAY.

220. *EPILOBIUM*. All records, except where stated and those for *E. pedunculare*, determined or confirmed by G. M. ASH.

220/4. *EPILOBIUM PARVIFLORUM* Schreb. S., Channel Islands; Herm, 1950, Mrs. F. L. BALFOUR-BROWNE; swampy hollow in N. of island, M. HANCOCK, conf. A. MELDERIS, comm. E. B. BANGERTER.

220/5. *EPILOBIUM ADNATUM* Griseb. 98, Argyll; Loch Ederline, Ford; roadside ditch beside the loch, K. N. G. MACLEAY.

220/6. *EPILOBIUM LAMYI* F. W. Schultz. 31, Hunts.; Wood Walton Fen, J. L. Gilbert (1951, *Ann. Rep. Hunts. Fauna & Flora Soc.*, 1950, 17).

+220/7(2). *EPILOBIUM ADENOCAULON* Hausskn. *4, N. Devon; Lundy, T. G. COLLETT, comm. D. H. KENT. 18, S. Essex; railway yard. Snaresbrook, D. H. KENT. 24, Bucks.; Burnham Beeches, R. A. BONIFACE and D. H. KENT. *38, Warw.; mixed woodland, partly devastated, Alveston, R. C. READETT.

§220/9. *EPILOBIUM LANCEOLATUM* Seb. & Mauri. *18, S. Essex; Blake's Wood, Danbury, J. E. LOUSLEY.

+220/17. *EPILOBIUM PEDUNCULARE* A. Cunn. *35, Mon.; wall, Cwmffrwdoc, Pontypool, H. J. VERNALL, comm. NAT. MUS. WALES. *80, Roxb.; along Blackburn, Newcastleton, Miss E. M. LOBLEY and E. F. WARBURG.

§225/2. *CIRCAEA INTERMEDIA* Ehrh. 63, S.W. York.; locally abundant by the river, Rivelin Valley, Sheffield, 1951, F. W. ADAMS, det. E. C. WALLACE. ‡97, (Argyll); Fiunary, Morvern; Killundine, damp ground beside burn: ‡98, Argyll; Cruach Achadh na Craoibhe, Kilchrenan; rock ledges facing north, E. C. WALLACE and K. N. G. MACLEAY. 105, W. Ross; woodland at Foich, Inverbroom; ravine of Falls of Measach, R. MACKECHNIE and E. C. WALLACE. See also *Top. Bot. Supp.*, 1.

225/3. *CIRCAEA ALPINA* L. 42, Brecon; scree, Craig-y-Cilau, near Crickhowell, P. F. VERNON and E. F. WARBURG.

§+240/1. *ASTRANTIA MAJOR* L. *28, Argyll: bank of Balliemeanoch burn, under *Salix* trees, where it enters Loch Awe. K. N. G. MACLEAY.

242/1. *DANAA CORNUBIENSIS* (L.) Burnat. 24, Bucks.; Dorney Wood, 1951, A. F. Wood (1953, *Middle-Thames Nat.*, 5, 10).

§+250/3. *PETROSELINUM CRISPUM* (Mill.) Airy-Shaw. *52, Anglesey: Newborough Warren, F. C. G. GOUGH, comm. NAT. MUS. WALES.

+252/1. *FALCARIA VULGARIS* Bernh. 21, Middx.: railway bank between Yeoveney and Poyle, a large well established patch, 1951, D. H. KENT.

§253/2. *BERULA ERECTA* (Huds.) Coville. ‡+77, Lanark: introduced at Possil Marsh in 1919, now (1952) well established and locally abundant, D. PATTON.

257/1. *MYRRHIS ODORATA* (L.) Scop. 59, S. Lancs.; common by river Irwell, Bury, 1949-1952, F. SLATER.

§263/1. *FOENICULUM VULGARE* Mill. *+57, Derby: on damp waste ground near Calver, F. W. ADAMS.

§265/4. *OENANTHE PIMPINELLOIDES* L. ‡15, E. Kent: roadside and meadow near Stubb's Cross, Kingsnorth. J. Scott (1952, *S.E. Nat.*, 57, xviii).

265/6. *OENANTHE LACHENALII* C. C. Gmel. 18, S. Essex; salt marsh, Creekmouth, Barking, J. C. Codrington and J. E. Lousley (1952, *Lond. Nat.*, 31, 11).

§270/1. *MEUM ATHAMANTICUM* Jacq. *50, Denb.; Cwrt, near Pentre Foelas, E. PRICE EVANS, comm. NAT. MUS. WALES.

§276/3. *PASTINACA SATIVA* L. ‡+43, Radnor; coal yards, between lines, on chippings, etc., at Dolau station. Not native, J. A. Webb (1945, *N.W. Nat.*, 20, 158).

§+276/5. *PEUCEDANUM OSTRUTHIUM* (L.) Koch. ‡75, Ayr; beside ruins of Glengarnock Castle, long known, D. PATTON—but see J. R. Lee, *Flora of the Clyde Area*, 163 (1933).

+277/1. *HERACLEUM MANTEGAZZIANUM* Somm. & Levier. *43, Radnor; naturalised in a rocky dell near Llandrindod, J. A. Webb (1945, *N.W. Nat.*, 20, 158).

+287/1. *SAMBUCUS RACEMOSA* L. 59, S. Lancs.; well established near Mersey, Woolston, E. HARDY, and see *Merseyside Nat. Association Rep.* 1952, p. 2. 67, Northumberland; S.; in wood by Colt Cray Reservoir, J. K. Morton (1952, *Vasc. Subst.*, 37, 21).

§287/3. *SAMBUCUS EBULUS* L. *43, Radnor; Knucklas, J. A. Webb, comm. NAT. MUS. WALES.

288/1. *VIBURNUM OPULUS* L. 97, (Argyll); Killundine, Morvern; roadside scrub, several plants, E. C. WALLACE and K. N. G. MACLEAY.

§296/5. *GALIUM PUMILUM* Murr. *100, Clyde Isles; Arran, 1884, Dr. R. M. BUCHANAN (*Herb. Glasgow Univ.*), comm. D. PATTON.

§†302/1. *CENTRANTHUS RUBER* (L.) DC. ‡43, Radnor; Presteigne; New Radnor; Clyro; Knighton; Llandrindod, J. A. Webb (1945, *N.W. Nat.*, **20**, 158). *73, Kirke.; Dundrennan Abbey; Rockeliffe, 1928, L. J. TREMAYNE, comm. D. H. KENT.

§304/2. *VALERIANELLA ERIOCARPA* Desv. *†21, Middx.; waste ground, Ealing, 1950, L. M. P. SMALL, det. E. B. BANGERTER, comm. D. H. KENT.

§304/4. *VALERIANELLA CARINATA* Lois. ‡8, S. Wilts.; Tisbury, B. Welch (1951, *Rep. N.H. Sect. Wilts. Arch. & N.H.S.*, **1950**, 76).

§304/5. *VALERIANELLA RIMOSA* Bast. ‡39, Staffs.; potato field, Muckleston, E. S. Edees (1952, *Trans. N. Staffs. F.C.*, **86**, 81).

†320/3. *ERIGERON CANADENSIS* L. 36, Heref.; goods yard, Hereford. 1944, Miss MEDWIN; 1947, Miss MARSH; now very plentiful, comm. F. M. DAY.

§334/2. *PULICARIA VULGARIS* Gaertn. *24, Bucks.; Littleworth Common, near Burnham Beeches, one large plant in a damp depression. 1949, R. A. BONIFACE and F. ROSE, comm. D. H. KENT.

†341/1. *XANTHIUM STRUMARIUM* L. 16, W. Kent; Erith Marshes, about six plants, H. T. CORKE, comm. D. H. KENT. 18, S. Essex; rubbish-tip, Barking, 1951, J. C. CODRINGTON and J. E. LOUSLEY (1952, *Lond. Nat.*, **31**, 12).

†354/1. *GALINSOGA PARVIFLORA* Cav. 14, (Kent); Hawkenbury cemetery, Tunbridge Wells, K. E. BULL. 34, W. Glos.; (5) Avonmouth Docks, Rev. R. B. ABELL, C. W. BANNISTER and C. C. TOWNSEND, conf. N. Y. SANDWITH.

†354/2. *GALINSOGA CILIATA* (Raf.) Blake. 57, Derby; in town of Derby, D. MCCLINTOCK.

†368/1. *ANTHEMIS TINCTORIA* L. 21, Middx.; railway banks between Colubrook and West Drayton, several large well established patches, D. H. KENT.

368/2. *ANTHEMIS NOBILIS* L. 8, S. Wilts.; Woodfalls, B. Welch (1952, *Wilts. Arch. & N.H. Mag.*, **54**, 340).

‡+371/3. *MATRICARIA MATRICARIOIDES* (Less.) Porter. *72, Dumf.; Brocklehurst, Mrs. F. L. BALFOUR-BROWNE, det. and comm. E. B. BANGERTER. *73, Kirkc.; Dundrennan, 1912. J. BRITTEN (*Herb. Mus. Brit.*). 98, Argyll; Balliemeanoch Farm, Loch Awe: ‡101, Kintyre; Taywallich, Knapdale, Measdale, abundant about farm buildings: 103, Mid Ebudes; Tiree, waste ground at Gott Bay, K. N. G. MACLEAY—but see J. R. Lee, *Flora of the Clyde Area*, 187 (1933). *109, Caithn.; Thurso, 1932, H. H. JOHNSTON (*Herb. Mus. Brit.*).

‡+380/3. *PETASITES FRAGRANS* (Vill.) C. Presl. ‡31, Hunts.; Alconbury Hill, Mr. and Mrs. J. E. H. Blackie (1950, *Ann. Rep. Hunts. Fauna & Flora Soc.*, 1949, 16). ‡43, Radnor; shrubberies at Llandrindod; frequent in woods and on banks at Penybont (1945, *N.W. Nat.*, 20, 159). ‡98, Argyll; Dunoon-Inellan, roadside and waste ground, locally frequent, E. C. WALLACE and K. N. G. MACLEAY—but see J. R. Lee, *Flora of the Clyde Area*, 189 (1933).

‡380/4. *PETASITES JAPONICUS* (Sieb. & Zucc.) F. Schmidt. 20, Herts.; naturalised on a bank in the grounds of Aldenham House near Elstree, C. S. SMALLCOMBE, det. T. G. COLLETT, comm. D. H. KENT.

‡383/1. *SENECIO FLUVIATILIS* Wallr. *+100, Clyde Isles; Arran, Whiting Bay, 1883, Dr. J. WYLIE (*Herb. Glasgow Univ.*), comm. D. PATTON.

383/7×8. *SENECIO* × *LONDINENSIS* Lousley. 39, Staffs.; Norton Canes, 1948, E. S. EDEES, conf. J. E. Lousley (1952, *Trans. N. Staffs. F.C.*, 86, 82).

‡383/8. *SENECIO VISCOSUS* L. ‡36, Heref.; Dinedor, several plants at farm entrance, Mrs. L. A. WHITEHEAD, comm. F. M. DAY. ‡+43, Radnor; Aberceuthon Bank, near Rhayader, J. A. Webb (1945, *N.W. Nat.*, 20, 159). ‡101, Kintyre; Killellan Quarry, Campbeltown, M. H. CUNNINGHAM (1953, *Glasgow Nat.*, 17, 76).

‡383/26. *SENECIO SMITHII* DC. 101, Kintyre; Hill burn, inland on west coast, 1950, M. H. CUNNINGHAM.

‡389/1. *ECHINOPS SPHAEROCEPHALUS* L. 80, Roxb.; N. bank of River Teviot near old bridge at Cleekum Inn near Ancrum, A. W. ROBSON.

‡391/1. *CARLINA VULGARIS* L. ‡100, Clyde Isles; Arran, Struey Rocks, 1883, Dr. J. WYLIE (*Herb. Glasgow Univ. Bot. Dept.*), comm. D. PATTON—but see *Proc. Nat. Hist. Soc. Glasgow*, 5, 161 (1881) and *Top. Bot.*

‡395/1. *CARDUUS NUTANS* L. ‡43, Radnor; Llanelwedd Quarry, J. A. Webb (1945, *N.W. Nat.*, 20, 159).

395/2. *CARDUUS CRISPUS* L. 98, Argyll; roadside near Kilchrenan lime quarry, E. C. WALLACE and K. N. G. MACLEAY; roadside near Inveraray, K. N. G. MACLEAY.

396/1b. *CIRSIIUM ERIOPHORUM* var. *BRITANNICUM* (Petrak) Druce. 17, Surrey; Old Coulsdon, H. Britten (1952, *Lond. Nat.*, **31**, 11).

§396/3. *CIRSIIUM HETEROPHYLLUM* (L.) Hill. ‡43, Radnor; two spots near Llanbadarn Fynydd, 1939, but the larger patch of the two was destroyed by road widening the following year, J. A. Webb (1945, *N.W. Nat.*, **20**, 159).

396/8e. *CIRSIIUM ARVENSE* var. *SETOSUM* C. A. Mey. †12, N. Hants.; wood yard, Heath End, East Woodhay, A. M. SIMMONDS.

†398/1. *CYNARA CARDUNCULUS* L. 98, Argyll; Carnasserie, near Kilmartin, old rubbish heap near road junction, has been here for at least 10 years, K. N. G. MACLEAY.

401/1. *SAUSSUREA ALPINA* (L.) DC. 98, Argyll; Cruach Achadh na Craoibhe, Kilchrennan, north facing rock ledges at 800 ft., E. C. WALLACE and K. N. G. MACLEAY.

§405/12. *CENTAUREA CYANUS* L. ‡43, Radnor; turfy walls by the Kinnerton road, New Radnor, J. A. Webb (1945, *N.W. Nat.*, **20**, 159).

†405/16. *CENTAUREA ASPERA* L. 16, W. Kent; Blackheath, a small patch on a road verge, Mrs. K. K. LAW, comm. E. B. BANGERTER.

419. *HIERACIUM*. All records, except where stated, have been determined, or confirmed, by P. D. SELL and C. WEST. The order and numbers follow Pugsley, H. W., 1948, *A Prodrum of the British Hieracia*. *Journ. Linn. Soc. (Bot.)*, **54**. Asterisks refer to vice-counties not cited there.

419/4. *HIERACIUM ALPINUM* L. 96, Easternness; with *Arctostaphylos alpinus* near the summit of Carn Glas Lochdarach, Glen Affric, 1947, C. C. TOWNSEND.

419/5. *HIERACIUM HOLOSERICEUM* Backh. 96, Easternness; rocky ledges about halfway up Tom a Choinich, Glen Affric, 1947, C. C. TOWNSEND.

419/17. *HIERACIUM HANBURYI* Pugsley. 96, Easternness; high slopes of Tom a Choinich, Glen Affric, 1947, C. C. TOWNSEND.

419/93. *HIERACIUM PRAECOX* Schultz-Bip. *18, S. Essex, Walthamstow Reservoirs, J. BEDFORD, comm. D. H. KENT.

419/99. *HIERACIUM EXOTERICUM* Jord. *21, Middx.; grounds of Natural History Museum, South Kensington, 1948, E. B. BANGERTER.

419/149d. *HIERACIUM VULGATUM* var. *SUBFASCICULARE* W. R. Linton. *33, E. Glos.; (7b) wall under railway viaduct, Dowdeswell, C. C. TOWNSEND.

419/152. *HIERACIUM LEPIDULUM* Stenstr. *4, N. Devon; Lyn Valley above Lynmouth, 1950, C. C. TOWNSEND. *18, S. Essex; Walthamstow Reservoirs, J. BEDFORD, comm. D. H. KENT.

419/153. *HIERACIUM MACULATUM* Sm. *18, S. Essex; Walthamstow Reservoirs, 1951, J. BEDFORD, comm. D. H. KENT.

419/164. *HIERACIUM SUBMUTABILE* (Zahn) Pugsl. *34, W. Glos.; (4) rocky slope near Ruspidge, 1949; *35, Mon.; plentiful on a wall behind Tintern, 1949, C. C. TOWNSEND.

419/165. *HIERACIUM DAEDALOLEPIOIDES* (Zahn) Roffey. 49, Caern.; Llanberis waterfall; Cwm Idwal, C. C. TOWNSEND.

419/166. *HIERACIUM ANGLORUM* (Ley) Pugsl. *37, Worcs.; railway bank, Bromsgrove, C. C. TOWNSEND.

419/167. *HIERACIUM TUNBRIDGENSE* Pugsl. *21, Middx.; Hadley Wood, E. B. BANGERTER, J. K. MORTON and J. WHITTAKER, comm. D. H. KENT.

419/169. *HIERACIUM STRUMOSUM* Ley. *33, E. Glos.; (6) frequent about the roadside from Sapperton to Oakridge; Swift Hill, Slad Valley, 1949, C. C. TOWNSEND. *35, Mon.; near Usk, 1935, R. WINDSOR RICKARDS, comm. NAT. MUS. WALES.

419/170. *HIERACIUM ACUMINATUM* Jord. *34, W. Glos.; (5) St. Vincent's Rocks, Bristol, 1951, C. C. TOWNSEND.

419/212. *HIERACIUM TRIDENTATUM* f. *GLANDULOSICEPS* (Zahn) Pugsl. *10, Wight; Bleak Down, Godshill, in some quantity on the N. side, C. C. TOWNSEND.

419/216. *HIERACIUM TRICHOCAULON* (Dahlst.) Roffey. *24, Bucks.; roadside bank near Black Park, 1951, D. H. KENT.

419/217. *HIERACIUM EBORACENSE* Pugsl. *10, Wight; Bleak Down, Godshill, 1951, C. C. TOWNSEND.

419/238. *HIERACIUM BICHOROPHYLLUM* (Druce & Zahn) Pugsl. 34, W. Glos.; limestone rocks at Symonds Yat, half a mile N. of the Station, 1949, C. C. TOWNSEND.

419/238b. *HIERACIUM BICHLOROPHYLLUM* var. *CURTUM* (E. F. & W. R. Linton) Pugsl. 4, N. Devon; Lundy, 1951, T. G. COLLETT, comm. D. H. KENT.

419/245. *HIERACIUM VAGUM* Jord. *33, E. Glos.; (2a) railway bank, Natton, near Tewkesbury, C. W. BANNISTER. *52, Anglesey; Bodorgan railway station, C. C. TOWNSEND: 90, Forfar; railway embankment near Montrose, 1948, U. K. DUNCAN, det. J. E. RAVEN.

419/247. *HIERACIUM CALVATUM* (F. J. Hanb.) Pugsl. *47, Montg.; Llanfair Caereinion, 1940, J. A. WEBB, comm. NAT. MUS. WALES.

419/249. *HIERACIUM CROCEOSTYLUM* Pugsl. *47, Montg.; Llanfair Caereinion, 1940, J. A. WEBB, comm. NAT. MUS. WALES.

†419/257. *HIERACIUM BRUNNEOCROCEUM* Pugsl. 59, S. Lancs.; way-side, Hawkshaw, F. SLATER.

†428/1. *TRAGOPOGON PTERIFOLIUS* L. 1, W. Cornwall; stream and hedge bank near Landewednack, F. W. ADAMS.

432/1. *JASIONE MONTANA* L. 101, Kintyre; Bellanoch, Knapdale; locally common on a north facing bank beside the Crinan Canal, K. N. G. MACLEAY.

§435/1. *CAMPANULA GLOMERATA* L. ‡31, Hunts.; near Wansford Quarries, Stibbington, J. L. Gilbert (1950, *Ann. Rep. Hunts. Fauna & Flora Soc.*, 1949, 16).

§438/2. *VACCINIUM MYRTILLUS* L. ‡7, N. Wilts.; Savernake Forest, G. W. Collett (1951, *Rep. N.H. Sect. Wilts. Arch. & N.H.S.*, 1950, 77).

§446/7. *ERICA VAGANS* L. *†50, Denb.; banks of river Dee, Melton Wood, W. of Cefn Mawr, V. GORDON.

453/3. *PYROLA MINOR* L. 105, W. Ross; rock ledges, north corrie of Beinn Dearg at nearly 3000 ft., R. MACKECHNIE and E. C. WALLACE.

†463/3. *LYSIMACHIA PUNCTATA* L. 98, Argyll; waste ground at roadside in Connell village, Lorn, K. N. G. MACLEAY (previously found by W. A. SLEDGE, c. 1950). 101, Kintyre; waste ground near Bellanoch, Knapdale, K. N. G. MACLEAY.

467/3. *ANAGALLIS FOEMINA* Mill. 37, Wores.; arable field, Sarn Hill, Bushley, quite plentiful, Rev. R. B. ABELL and C. W. BANNISTER.

†472/2. *LIGUSTRUM OVALIFOLIUM* Hassk. 23, Oxon.; gravel-pit, Caversham, 1951; H. 20, Wicklow, one plant in an untrimmed hedge of native shrubs, by lane bordering fields, Wicklow, 1950, D. P. YOUNG.

§473/2. *VINCA MINOR* L. ‡†43, Radnor; Nantmel; Cwmbach-llechryd; Penybont, doubtfully native, J. A. Webb (1945, *N. W. Nat.*, **20**, 159).

†474/2. *BUDDLEJA DAVIDII* Franch. 101, Kintyre; established for long stretches along the Tarbet to Ardrishaig road, M. H. CUNNINGHAM.

478/4. *CENTAURIUM PULCHELLUM* (Sw.) Druce. 37, Wores.; abundant in a pasture-field and along edge of nearby Sarn Hill Wood, Bushley, on sandy ground, with *C. minus* Moench, C. W. BANNISTER.

480/5. *GENTIANELLA SEPTENTRIONALIS* (Druce) E. F. Warburg. 105, W. Ross; on limestone outcrops, Strath Kanaird; limestone pasture in ravine between Ullapool and Loch Achall, R. MACKECHNIE and E. C. WALLACE.

§480/7. *GENTIANELLA ULIGINOSA* (Willd.) H. Sm. *44, Carm.; dune slacks below Laugharne, 1944, R. B. ABELL, det. H. W. PUGSLEY.

§497/2. *SYMPHYTUM TUBEROSUM* L. †33, E. Glos.; small copse near Brockworth, small colony apparently naturalised, Rev. R. B. ABELL and C. W. BANNISTER, *44, Carm.; roadside, 1½ miles north-east of Llanstephan, 1951, M. H. SYKES, det. A. E. WADE, comm. NAT. MUS. WALES.

†499/1. *TRACHYSTEMON ORIENTALIS* (L.) Don. 7, N. Wilts.; East Tytherton, T. G. COLLETT, comm. J. D. GROSE.

§†503/1. *PULMONARIA OFFICINALIS* L. ‡43, Radnor; hedges, Llanstephan, 1949, J. A. Webb and M. H. Sykes (1952, *Proc. Swansea Scient. & F.N.S.*, **10**, 326).

506/1. *MYOSOTIS SCORPIOIDES* L. 101, Kintyre; Machrihanish links; Ronachan Bay, Peninver, Saddell, frequent, K. N. G. MACLEAY.

†511/2. *CALYSTEGIA SYLVESTRIS* (Willd.) Roem. & Schult. 18, S. Essex; plentiful on railway banks from Leyton to Debden, D. H. KENT. *37, Wores.; waste ground and hedgesides in several places around Red-ditch, C. C. TOWNSEND. *46, Card.; Aberporth, 1951, J. A. WEBB, comm. NAT. MUS. WALES.

§517/1. *SOLANUM DULCAMARA* L. *101, Kintyre; Cour, on shore at Crossaig, F. DAVID; Ardnacross Bay, M. H. CUNNINGHAM, comm. K. N. G. MACLEAY.

521/1. *ATROPA BELLA-DONNA* L. †21, Middx.; bombed site, Eaton Terrace, S.W.1., R. L. BENNET, comm. E. B. BANGERTER. †38, Warw.; grows vigorously on a number of bombed sites near Coventry station, J. H. Edwards (1948, *Proc. Coventry & Dist. N.H. & S.S.*, **2**, 56).

†524/1b. *HYOSCYAMUS NIGER* var. *PALLIDUS* Waldst. & Kit. 21, Middx.; disused running track, Finsbury Park, J. BEDFORD, det. and comm. D. H. KENT.

†527/5. *VERBASCUM BLATTARIA* L. 36, Heref.; roadside between Ross and Pencraig, one plant, with *Reseda alba* L., C. W. BANNISTER.

527/8×3. *VERBASCUM* × *COLLINUM* Schrad., non Salisb. 33, E. Glos.; (6) Daneway, Sapperton, C. W. BANNISTER.

†532/2. *LINARIA PURPUREA* (L.) Mill. 85, Fife; St. Andrews, frequent on old walls throughout town, also along N. beach, A. W. ROBSON.

532/3. *LINARIA REPENS* (L.) Mill. †21, Middx.; railway sidings near West Drayton, 1951, D. H. KENT.

‡†532/26. *CYMBALARIA MURALIS* Gaertn., Mey. & Scherb. *103, Mid Ebudes; walls in Tobermory, Mull, frequent, K. N. G. MACLEAY.

534/2. *MISOPATES ORONTIUM* (L.) Raf. 14, (Kent); weed in a nursery, Bayham road, Tunbridge Wells, K. E. BULL.

‡535/2. *SCROPHULARIA AQUATICA* L. ‡†110, Outer Hebrides; in two widely separated localities in the Lews Castle Woods, Lewis, possibly introduced, J. W. Heslop-Harrison (1953, *Proc. Univ. Durham Phil. Soc.*, 11, 87).

†537/2. *MIMULUS MOSCHATUS* Dougl. ex Lindl. 49, Caern.; in bog, Moel Hebog, Beddgelert, L. W. FROST.

†542/1. *ERINUS ALPINUS* L. 78, Peebles; walls of Neidpath Castle; 100, Clyde Isles; main street at Millport, D. PATTON. 101, Kintyre; Saddell, old walls, fairly frequent, K. N. G. MACLEAY.

543/6. *VERONICA SCUTELLATA* L. 105, W. Ross; marsh, Braemore Square, Braemore, E. C. WALLACE.

543/9. *VERONICA CATENATA* Pennell. 52, Anglesey; marsh near Carreg Fawr Farm, Trearddur Bay, C. C. TOWNSEND.

543/12. *VERONICA TENELLA* All. 105, W. Ross; Druim Reidh, Fannich, E. C. WALLACE.

‡543/14. *VERONICA VERNA* L. ‡†3, S. Devon; rough field near top of Peak Hill, Sidmouth, 1951, G. Steele-Perkins and T. J. Richards (1952, *Rep. and Trans. Devon. Assoc.*, 84, 257).

‡543/21. *VERONICA HEDERIFOLIA* L. *98, Argyll; waste ground in Kilchrenan village, E. C. WALLACE and K. N. G. MACLEAY.

†543/41. *VERONICA FILIFORMIS* Sm. 14 (Kent); Hawkenbury cemetery, Tunbridge Wells, K. E. BULL. 37, Worcs.; in quantity on the bank of the Severn behind Shrawley Wood, near Droitwich, C. E. A. ANDREWS and C. C. TOWNSEND. 88, Mid Perth; cemetery of St. Kattan's Chapel, Aberuthven; S. bank of Tay near Elcho Castle, A. W. ROBSON. 98, Argyll; roadside in Kilchrenan village, E. C. WALLACE and K. N. G. MACLEAY.

545/10. *EUPHRASIA OCCIDENTALIS* Wettst. 52, Anglesey; Aberffraw Common, C. C. TOWNSEND, det. E. F. WARBURG.

545/18. *EUPHRASIA CONFUSA* forma *ALBIDA* Pugsl. 52, Anglesey; Aberffraw Common, C. C. TOWNSEND, det. E. F. WARBURG. "Some of the plants are very hairy and are perhaps *E. confusa* × *curta*."—E.F.W.

545/19(4). *EUPHRASIA ANGLICA* Pugsl. 6, N. Som.; Street Heath, near Glastonbury, common in boggy woodland, Rev. R. B. ABELL, C. C. TOWNSEND and C. W. BANNISTER.

§546/4. *PARENTUCELIA VISCOSA* (L.) Caruel. *8, S. Wilts.; marshy field adjoining the river near Manningford Abbots, J. D. GROSE. ‡15, E. Kent; hollows on the dunes at Sandwich Bay, Miss B. Gore, teste Miss D. Long; over 100 plants, F. Rose (1952, *S.E. Nat.*, **57**, xix). 16, W. Kent; near Westerham, Mrs. L. M. P. SMALL, comm. D. H. KENT. *70, Cumb.; on disturbed ground adjoining sand dunes, Silloth-on-Solway, Miss N. M. STALKER.

548/1. *RHINANTHUS SEROTINUS* (Schönh.) Schinz & Thell. 37, Worcs.; in a cornfield on the south side of Bredon Hill, 1951, C. C. TOWNSEND, conf. E. F. WARBURG, as *R. major* Ehrh.

§550/7. *OROBANCHE HEDERAE* Duby. ‡17, Surrey; parasitic on Ivy on the tow-path between Richmond and Kew, 1948, W. H. Spreadbury (1949, *Lond. Nat.*, **28**, 28)—see also Salmon, *Fl.*, 502 (1931).

558/1×4. *MENTHA* × *CORDIFOLIA* Opiz. 101, Kintyre; marsh in Glenbrackerie, M. H. CUNNINGHAM.

558/2. *MENTHA ALOPECUROIDES* Hull. 33, E. Glos.; Postlip Hall, near Winchcomb, C. C. TOWNSEND, conf. R. A. GRAHAM.

†558/3i. *MENTHA LONGIFOLIA* var. *HORRIDULA* Briq. 57, Derby; river-side on marshy ground near the bridge, Calver, F. W. ADAMS, comm. R. A. GRAHAM.

558/3×1. *MENTHA LONGIFOLIA* × *ROTUNDIFOLIA*. 22, Berks.; Parish chalkpit, Compton, F. M. DAY. 57, Derby; laneside near Beeley Hill Top, near Beeley, Chesterfield, F. W. ADAMS. Both det. R. A. GRAHAM.

558/3bis. *MENTHA* × *NILIACA* var. *WEBBERI* J. Fraser. 101, Kintyre; damp woodland, Rocky Burn, near Campbeltown, M. H. CUNNINGHAM, det. R. A. GRAHAM.

§558/10. *MENTHA* × *GENTILIS* L. 37, Worcs.; R. Teme at Osebury Rock, Knightwick, F. M. DAY. 63, S.W. York.; margin of old Mill Pond, Rivelin Valley, Sheffield, F. W. ADAMS. ‡101, Kintyre; marsh in Glenbrackerie, M. H. Cunningham. All det. R. A. Graham (1953, *Glasgow Nat.*, **17**, 79).

558/10c. *MENTHA* × *GENTILIS* var. *GRATA* Briq. 37, Worcs.; R. Teme at Osebury Rock, Knightwick, F. M. DAY, det. R. A. GRAHAM.

558/10g. *MENTHA* × *GRACILIS* Sole. †21, Middx.; rubbish-tip, Harefield, F. M. DAY, det. R. A. GRAHAM.

§562/5. *CALAMINTHA ASCENDENS* Jord. ‡31, Hunts.; hedgerow near Church footpath, Stibbington, J. L. Gilbert (1950, *Ann. Rep. Hunts. Fauna & Flora Soc.*, **1949**, 17).

†566/17. *SALVIA VERTICILLATA* L. 18, S. Essex; Walthamstow Reservoirs, J. BEDFORD, det. and comm. D. H. KENT. 21, Middx.; plentiful on railway banks near South Greenford, 1951, D. H. KENT.

§573/2. *PRUNELLA LACINIATA* (L.) L. *18, S. Essex; pasture by river wall, Althorne, L.N.H.S. FIELD MEETING, comm. E. C. WALLACE.

577/4. *STACHYS* × *AMBIGUA* Sm. 57, Derby; riverside, Hathersage; waste ground by road, Calver; marsh in Brierley Wood, Chesterfield, F. W. ADAMS.

578/2b. *GALEOPSIS BIFIDA* Boenn. 34, W. Gos.; (4) The Grove, between Lower Redbrook and Bigsweir, plentiful, with *G. tetrahit* L. Many plants seemed more or less intermediate between the two species, and may have been hybrids, Rev. R. B. ABELL and C. W. BANNISTER.

581/4. *LAMIUM HYBRIDUM* Vill. 33, E. Gos.; (2b) in a garden. Hucclecote, 1950, J. W. HAINES, conf. E. F. WARBURG, comm. C. C. TOWNSEND. 52, Anglesey; abundant on Holyhead putting green; C. C. TOWNSEND.

§581/5. *LAMIUM MOLUCCCELLIFOLIUM* Fr. *†21, Middx.; waste ground, Hackney Marshes, J. E. COOPER (*Herb. Mus. Brit.*), det. A. MELDERIS and E. B. BANGERTER, comm. D. H. KENT.

§600/4. *CHENOPodium HYBRIDUM* L. ‡7, N. Wilts.; Marlborough, J. H. Halliday (1951, *Rep. N.H. Sect. Wilts. Arch. & N.H.S.* **1950**, 77). 33, E. Gos.; Northway, Ashchurch, about twelve plants in a flowerbed, C. W. BANNISTER.

600/13. *CHENOPODIUM GLAUCUM* L. 16, W. Kent; Kemsing station, 1948, D. McClintock (1949, *Lond. Nat.*, **28**, 28).

615/3. *POLYGONUM BISTORTA* L. 13, W. Sussex; hedgebank of lane, Stopham, E. C. WALLACE. 101, Kintyre; banks of Lussa river, M. H. CUNNINGHAM.

†615/19. *POLYGONUM PATULUM* Bieb. 26, W. Suff.; dry sandy ground above Lakenheath, F. W. ADAMS, det. A. MELDERIS.

†615/31. *POLYGONUM POLYSTACHYUM* Wall. ex Meisn. 97, (Argyll); Strontian, Ardgour, waste ground at roadside, probably garden escape, E. C. WALLACE and K. N. G. MACLEAY.

†615/32. *POLYGONUM CUSPIDATUM* Sieb. & Zucc. 43, Radnor; Llandrindod Common; by the Ithon; Penypont; Builth Road; near Newbridge-on-Wye, J. A. Webb (1945, *N.W. Nat.*, **20**, 159).

†615/33. *POLYGONUM SACHALINENSE* F. Schmidt ex Maxim. 34, W. Glos.; (5) one clump of large plants by the edge of a roadside field at Westonbirt, R. B. ABELL, C. W. BANNISTER and C. C. TOWNSEND, conf. N. Y. SANDWITH.

†618/5. *RUMEX ALPINUS* L. 63, S. W. York.; over 1000 feet on roadside bank near a farm at Rod Moor, 1951, F. W. ADAMS.

618/7. *RUMEX SANGUINEUS* L. 67, Northumb. S.; Capheaton, D. McCLINTOCK.

618/16(2). *RUMEX TENUIFOLIUS* (Wallr.) Löve. 37, Worcs.; Hollybush Hill, Malvern Hills, a dominant; in company with *Hypochoeris glabra*, *Moenchia*, *Aphanes microcarpa*, etc., C. W. BANNISTER and C. C. TOWNSEND, conf. J. E. LOUSLEY.

†618/29. *RUMEX OBOVATUS* Danser. 34, W. Glos.; (5) Avonmouth Docks, three or four plants, C. W. BANNISTER, det. J. E. LOUSLEY.

‡622/1. *ARISTOLOCHIA CLEMATITIS* L. ‡31, Hunts.; Bluntisham, Rev. R. F. McMeile (1950, *Ann. Rep. Hunts. Fauna and Flora Soc.*, **1949**, 17).

626/1. *VISCUM ALBUM* L. ‡43, Radnor; Orchards, Ffynnon Gynydd, A. Bates; Pistyll; Glasbury, J. A. Webb (on apple trees in all three localities), (1945, *N.W. Nat.*, **20**, 159).

628/6. *EUPHORBIA STRICTA* L. 34, W. Glos.; Old Park Wood, Lydney, three or four plants—the first seen here for many years, C. C. TOWNSEND.

§628/15. *EUPHORBIA EXIGUA* L. *95, Elgin; in flower garden, Moy House, Forres, M. McCALLUM WEBSTER, det. J. E. LOUSLEY.

‡628/16. *EUPHORBIA LATHYRUS* L. *44, Carm.; Llanegwad, Mrs. M. BARNES, comm. NAT. MUS. WALES.

+633/3. *ULMUS* × *HOLLANDICA* Mill. 43, Radnor; woods at Knighton; toward Knucklas, J. A. Webb (1945, *N.W. Nat.*, 20, 159).

§637/2. *URTICA URENS* L. ‡43, Radnor; Yard of Forest Inn, Nantmelan, J. A. Webb (1945, *N.W. Nat.*, 20, 160).

§644/1. *CARPINUS BETULUS* L. ‡†43, Radnor; shrub in hedges at Pencerrig, and one or two fine sized trees also in the woods there: Ithon Woods, Llandrindod, not native, J. A. Webb (1945, *N.W. Nat.*, 20, 160).

646/1. *QUERCUS ROBUR* L. 98, Argyll; Loch Awe-side, frequent: 101, Kintyre; Bellanoch, Knapdale; West Loch Tarbert: frequent: (Most of the oaks in Argyll seem to be *Q. robur*, probably descendants of planted trees. There are a few individuals of *Q. petraea* scattered among them), K. N. G. MACLEAY.

646/2. *QUERCUS PETRAEA* (Mattuschka) Liebl. 7, N. Wilts.: Savernake Forest, J. T. Wildash (1952, *Wilts. Arch. & N.H. Mag.*, 54, 341).

+646/3. *QUERCUS CERRIS* L. 98, Argyll; Portsonachan, Loch Awe. a single tree in the *Q. robur-Corylus* wood; an escape from planted trees in Sonachan House, half a mile away, K. N. G. MACLEAY.

‡+647/1. *CASTANEA SATIVA* Mill. ‡98, Argyll; Cladich, planted, 1941. K. N. G. MACLEAY: Glen Nant, E. C. WALLACE and K. N. G. MACLEAY—but see J. R. Lee, *Flora of the Clyde Area*, 100 (1933).

§650/2. *SALIX FRAGILIS* L. ‡43, Radnor; Llanfared, etc., J. A. Webb (1945, *N.W. Nat.*, 20, 160).

650/6b. *SALIX VIMINALIS* var. *INTRICATA* Léeffe. 33, E. Glos.: (6) Toadsmoor Lake, R. B. ABELL.

650/14. *SALIX ARBUSCULA* L. 98, Argyll; Meall nan Gabhar, near Dalmally, rock ledges on north face about 1,500 feet, E. C. WALLACE and K. N. G. MACLEAY.

650/16. *SALIX LAPPONUM* L. 98, Argyll; Meall nan Gabhar, near Dalmally, rock ledges on north face about 1,500 feet, E. C. WALLACE and K. N. G. MACLEAY. 105, W. Ross: Beinn Enaiglair, and Eididh nan Clach Geala: 106, E. Ross: Beinn Enaiglair, R. MACKECHNIE and E. C. WALLACE.

650/17. *SALIX MYRSINITES* L. 98, Argyll; Meall nan Gabhar, near Dalmally, rock ledges on north face about 1,500 feet, E. C. WALLACE and K. N. G. MACLEAY.

650/18. *SALIX HERBACEA* L. 78, (Selk.); at alt. 2,450 ft., Little Craig, Meggott Water watershed; also between Lochcraig Head and Talla East Side above Loch Skene, D. A. RATCLIFFE.

651/1. *POPULUS CANESCENS* (Ait.) Sm. 98, Argyll; Cladich, at the road junction, an old established group of trees, extending by suckers, K. N. G. MACLEAY.

§651/3. *POPULUS NIGRA* L. ‡43, Radnor; fine trees, Llanbister, J. A. Webb (1945, *N.W. Nat.*, **20**, 160)—but see *J. Bot.*, **46**, 336 (1908).

§660/1. *LIPARIS LOESELII* (L.) Rich. [‡H.11, Kilkenny; Kilkenny, G. Gray (1952, *Country Life*, **112**, 121). Enquiry has failed to elicit any confirmation of this record.—ED.]

§662/1. *NEOTTIA NIDUS-AVIS* (L.) Rich. 98, Argyll; hazel wood in Glen Nant, E. C. WALLACE and K. N. G. MACLEAY: Inveraray, K. N. G. MACLEAY. ‡101, Kintyre; Rhee estate, Tarbert, F. David, comm. K. N. G. Macleay (1953, *Glasgow Nat.*, **17**, 80).

663/1. *LISTERA OVATA* (L.) R.Br. 101, Kintyre; small grassy meadow at Redhouse road junction, E. C. WALLACE and K. N. G. MACLEAY.

667/3. *CEPHALANTHERA LONGIFOLIA* (L.) Fritsch. 97, (Argyll); grassy verge of roadside through oak-hazel wood, Killundine, Morvern, E. C. WALLACE, A. A. SLACK and K. N. G. MACLEAY.

668/3(3). *EPIPACTIS PHYLLANTHES* var. *VECTENSIS* (T. & T. A. Steph.) D. P. Young. 11, S. Hants.; Nursling, a few plants in a willow holt on wet chalky alluvium, P. BOWMAN, det. and comm. V. S. SUMMERHAYES and D. P. YOUNG. 33, E. Glos.; (6) beech plantation in small quantity, Painswick, 1935, LADY DAVY; still there in 1951 and 1952 (Young, Thomas, Summerhayes and Fleming), varying through var. *degenera* D. P. Young to var. *phyllanthes*. Beech wood, Brimpsfield, 1947; (7b) beech wood, in small quantity, near Birdlip, 1940, a form approaching var. *pendula* D. P. Young, C. THOMAS. Not there in 1951 and 1952, Thomas, Summerhayes, Young and Fleming (Fleming, 1952, *Proc. Cotteswold N.F.C.*, **31**, 43).

669/8. *ORCHIS PRAETERMISSA* Druce. 39, Staffs.; *Sphagnum* swamp by the roadside east of Milford, E. S. EDEES, conf. V. S. SUMMERHAYES (1952, *Trans. N. Staff. F.C.*, **86**, 83).

§669/9. *ORCHIS PURPURELLA* T. & T. A. Steph. *50, Denb.; Wern, near Bettws-y-coed, R. H. ROBERTS, comm. NAT. MUS. WALES. 98,

Argyll; roadside bank crossing the Moine Mór, near Kilmartin, frequent; Lochan na Cuthaig, Lorn: 101, Kintyre; Crinan, frequent, K. N. G. MACLEAY.

669/10. *ORCHIS MACULATA* L. 98, Argyll; Loch Awe-side; Glen Coe; Glen Nant; very common throughout Argyll, K. N. G. MACLEAY.

669/11. *ORCHIS FUCHSII* Druce. 98, Argyll; grassy verge of old road from Dalmally-Inverary near Cladich, K. N. G. MACLEAY. 101, Kintyre; near Crinan Canal, Knapdale, R. WALKER, 1951 (*Herb. Kew*), teste V. S. SUMMERHAYES.

669(3)/1. *HIMANTOGLOSSUM HIRCINUM* (L.) Spreng. 8, S. Wilts.; railway bank near Downton, Dr. B. Whitehead (1953, *Wilts. Arch. & N.H. Mag.*, 55, 62).

672/3. *OPHRYS APIFERA* Huds. 9, Dorset; Corfe, a specimen with thirteen flowers on a two-foot stem, 1950, E. Chambers (1951, *Proc. Bournemouth Nat. Sci. Soc.*, 40, 34).

§702/2. *ALLIUM BABINGTONII* Borrer. *†5, S. Som.; Porlock, in a ruined brick enclosure (or shed), below bank of the beach, 1951, Miss E. M. MEDWIN, comm. N. Y. SANDWITH.

702/4. *ALLIUM VINEALE* L. 80, Roxb.; railway embankment about 1½ miles south of Hawick, A. W. ROBSON.

706/1. *SCILLA VERNA* Huds. 101, Kintyre; grassy, rocky coast at Ronachan Bay, K. N. G. MACLEAY and E. C. WALLACE.

715/1. *TOFIELDIA PUSILLA* (Michx.) Pers. 105, W. Ross, and 106, E. Ross; sparingly near Eididh nan Clach Geala, and in Coire Ghranda Beinn Dearg, R. MACKECHNIE and E. C. WALLACE.

718/5. *JUNCUS INFLEXUS* L. S., Channel Isles; Herm. swampy hollow in N. of island, M. HANCOCK, det. and comm. E. B. BANGERTER.

§†718/16. *JUNCUS TENUIS* Willd. ‡43, Radnor; Llandegley; Stanner. J. A. Webb (1945, *N.W. Nat.*, 20, 160). 59, S. Lancs.; sandy cart track, Walmersley, near Bury, F. SLATER. 101, Kintyre; Achnamara, Knapdale; frequent at roadside, K. N. G. MACLEAY.

718/20. *JUNCUS CASTANEUS* Sm. 105, W. Ross; Sgurr Breac, Fanich; Eididh nan Clach Geala, R. MACKECHNIE and E. C. WALLACE.

§718/22. *JUNCUS BIGLUMIS* L. *105, W. Ross; northern corrie, Beinn Dearg, and on Eididh nan Clach Geala, R. MACKECHNIE and E. C. WALLACE.

719/8. *LUZULA SPICATA* (L.) DC. 97, (Argyll); scree on hill above Glen Cripesdale, Loch Sunart, K. N. G. MACLEAY and E. C. WALLACE.

†723/1. *ARUM ITALICUM* Mill. 71, Man; well established at Great Meadow, Malew, 1946, C. I. Paton (1948, *Peregrine*, 1 (5), 19).

§727/2. *LEMNA POLYRHIZA* L. ‡42, Brecon; Llangorse Lake, D. P. M. GUILLE, comm. NAT. MUS. WALES—see 1953 *Year Book*, *B.S.B.I.*, 44.

§727/3. *LEMNA TRISULCA* L. ‡42, Brecon; Llangorse Lake, D. P. M. GUILLE, comm. NAT. MUS. WALES—see 1953 *Year Book*, *B.S.B.I.*, 44.

729/2. *ALISMA LANCEOLATUM* With. 18, S. Essex; Walthamstow Marshes, J. WHITTAKER, det. and comm. E. B. BANGERTER. 20, Herts; Grand Union Canal, Rickmansworth: 21, Middx.; Grand Union Canal, Springwell to Harefield; Ruislip Reservoir, 1950: 24, Bucks.; Grand Union Canal, Denham, 1950, D. H. KENT.

737/23. *POTAMOGETON BERCHTOLDII* Fieb. 101, Kintyre; Tayinloan marsh, 1950, M. H. CUNNINGHAM, det. J. E. DANDY and G. TAYLOR.

737/27. *POTAMOGETON TRICHOIDES* Cham. & Schlecht. 17, Surrey; Pen Ponds, Richmond Park, B. WELCH, det. J. E. DANDY and G. TAYLOR.

§745/2. *ELEOCHARIS UNIGLUMIS* (Link) Schult. ‡64, Mid-W. York.; marshy field bordering south side of Askham Bog, L. F. H. Merton, det. S. M. Walters (1949, *The Nat.*, 1949, 37).

747/1. *ERIOPHORUM LATIFOLIUM* Hoppe. 97, (Argyll); moorland near Kinloch Teacuis, Morvern: 98, Argyll; limestone ridge above Kilchrenan, Loch Awe, K. N. G. MACLEAY and E. C. WALLACE.

747/4. *ERIOPHORUM VAGINATUM* L. 17, Surrey; bog west of Deer Rock Hill, Berkshire-Surrey border, A. MELDERIS and E. C. WALLACE.

§753/2. *CAREX RIPARIA* Curt. *98, Argyll; marshy ground at edge of Loch Ederline: *101, Kintyre; marshy ground under trees on south bank of Crinan canal near Bellanoch, Knapdale, K. N. G. MACLEAY.

753/6. *CAREX SAXATILIS* L. 105, W. Ross; sparse and poor on Sgurr Breac, Fannich: more vigorous on Beinn Dearg and Eididh nan Clach Geala, R. MACKECHNIE and E. C. WALLACE.

753/13. *CAREX LAEVIGATA* Sm. 34, W. Glos.; Old Bargain's Wood, Aylburton, C. C. TOWNSEND.

753/27. *CAREX HUMILIS* Leyss. 7, N. Wilts.; Easton Hill, Mrs. E. Timperley (1952, *Wilts. Arch. & N.H. Mag.*, 54, 342).

753/35. *CAREX VAGINATA* Tausch. 105, W. Ross; north corrie of A'chailleach, Fannich, E. C. WALLACE.

§753/41. *CAREX ATRATA* L. *106, E. Ross; crags above Loch Li, Fan-nich, R. MACKECHNIE and E. C. WALLACE.

§753/52. *CAREX ELONGATA* L. ‡15, E. Kent; by a pond on Weald Clay at Stubb's Cross, Kingsnorth, E. Scott (1952, *S.E. Nat.*, **57**, xix).

§753/56. *CAREX ECHINATA* Murr. ‡31, Hunts.; The Heath, Wood Walton Fen, one plant only, 1951, M. E. D. Poore (1952, *Ann. Rep. Hunts. Fauna & Flora Soc.*, **4**, 21).

753/59. *CAREX OTRUBAE* Podp. 101, Kintyre; Carradale, F. DAVID, comm. K. N. G. MACLEAY.

753/61(2). *CAREX POLYPHYLLA* Kar. & Kir. 32, Northants; abundant in marshy parts of Old Sulchay Forest, 1950, J. L. Gilbert, det. E. C. Wallace (1951, *J. Northants. N.H.S. & F.C.*, **32**, 83). *45, Pemb.; Caldey Island, F. N. HEPPER, det. E. NELMES.

753/63. *CAREX PANICULATA* L. 98, Argyll; Loch Ederline: 101, Kintyre; south bank of Crinan canal near Bellanoch, K. N. G. MACLEAY.

§753/66. *CAREX DISTICHA* Huds. *101, Kintyre; Campbeltown, F. DAVID, comm. K. N. G. MACLEAY.

†754/11. *DIGITARIA ISCHAEMUM* (Schreb.) Muhl. 17, Surrey; near Pyrford, 1948, B. Welch (1949, *Lond. Nat.*, **28**, 28).

§775/1. *MILIUM EFFUSUM* L. *105, W. Ross; ravine of Falls of Measach, Braemore, R. MACKECHNIE and E. C. WALLACE.

791/2. *DESCHAMPSIA ALPINA* (L.) Roem. & Schult. 105, W. Ross; summit of plateau of Beinn Dearg, R. MACKECHNIE and E. C. WALLACE.

†815/6. *ERAGROSTIS PILOSA* (L.) Beauv. 17, Surrey; waste land, West Clandon—recorded previously as *E. minor*, but now corrected by W. A. SLEDGE, E. C. WALLACE.

§818/2. *MELICA UNIFLORA* Retz. *97, (Argyll); Killundine, Morvern, wood above shore road, occasional, E. C. WALLACE and K. N. G. MACLEAY.

819/1b. *DACTYLIS GLOMERATA* var. *COLLINA* Schlecht. 6, N. Som.; Cheddar Gorge, F. M. DAY, det. C. E. HUBBARD.

824/4. *POA IRRIGATA* Lindm. 57, Derby; marshy pasture at Wardlow Mires near Stoncy Middleton, F. W. ADAMS, comm. C. E. HUBBARD.

§824/5. *POA PALUSTRIS* L. ‡31, Hunts.; common at Wood Walton Fen, 1951, M. E. D. Poore (1952, *Ann. Rep. Hunts. Fauna & Flora Soc.*, **4**, 22).

§824/11. *POA ALPINA* L. 97, (Argyll); scree on hill above Glen Cripesdale, Loch Sunart, K. N. G. MACLEAY and E. C. WALLACE. *105, W. Ross; northern corrie, Beinn Dearg; Eididh nan Clach Geala. R. MACKECHNIE and E. C. WALLACE.

§825/3b. *GLYCERIA DECLINATA* Bréb. *37, Worcs.; Hanley Swan, in the Swan Pool, plentiful, Rev. R. B. ABELL and C. W. BANNISTER.

826/4×829/1. ×*FESTULOLIUM LOLIACEUM* (Huds.) P. Fourn. 57, Derby; grassland near the canal at Cromford; near the river in Bradford Dale, Miss E. EVANS and F. W. ADAMS, comm. C. E. HUBBARD.

826/5. *FESTUCA ALTISSIMA* All. 105, W. Ross; ravine of Falls of Measach, Braemore, R. MACKECHNIE and E. C. WALLACE.

826/18. *VULPIA MYUROS* (L.) C. C. Gmel. 26, W. Suff.; sandy ground near Mile End, Brandon, F. W. ADAMS.

†826/18(2). *VULPIA MEGALURA* (Nutt.) Rydb. 15, E. Kent: plentiful in the vicinity of a "shoddy" stack between Old Wives Lees and Selling, 1951, D. H. KENT, det. C. E. HUBBARD.

†826(2)/1. *NARDURUS MARITIMA* (L.) Janchen. 21, Middx.; plentiful and well established on railway tracks between Denham and Uxbridge, 1951, D. H. KENT, det. C. E. HUBBARD.

†827/1(2). *BROMUS DIANDRUS* Roth. 25, E. Suff.; waste ground at Felixstowe Dock, F. W. SIMPSON.

†827/13(2). *BROMUS CARINATUS* Hook. & Arn. 8, S. Wilts.; The Butts, Salisbury, 1950, Mrs. P. R. Farquharson, det. C. E. Hubbard (1952, *Wilts. Arch. & N.H. Mag.*, 54, 343).

§827/19(2). *BROMUS LEPIDUS* Holmb. *45, Pemb.; St. Davids, plentiful on roadsides, R. M. PAYNE, det. A. MELDERIS. *57, Derby; roadside near Winster; edge of Wardlow Mires, F. W. ADAMS, conf. C. E. HUBBARD. *83, Edinb.; overgrown flower bed and rough grass verge with *B. mollis* L. sens. str., Learmouth Terrace, Edinburgh, P. S. GREEN, conf. C. E. HUBBARD.

827/19(3). *BROMUS THOMINII* Hard. *83, Edinb.; by a cinder path on the Haugh, Water of Leith, Edinburgh, P. S. GREEN, conf. C. E. HUBBARD.

§830/2. *AGROPYRON PUNGENS* (Pers.) Roem. & Schult. ‡66, Durham: plentiful along the north side of Greatham Creek, J. W. Heslop-Harrison (1952, *Vasc. (Subst.)*, 37, 32).

§836/1. *ELYMUS ARENARIUS* L. ‡98, Argyll; Dunoon-Inellan, shingly beach, locally common—? planted, E. C. WALLACE and K. N. G. MACLEAY.

844/3. *EQUISETUM SYLVATICUM* L. 4, N. Devon; near Kingbeare Farm, Okehampton Hamlets, 1951, O. Greig (1952, *Rep. & Trans. Devon Assoc.*, **84**, 259).

§854/1. *POLYSTICHUM SETIFERUM* (Forsk.) Woynar. *97, (Argyll); Killundine, Morvern; on damp rocks beside Killundine burn. E. C. WALLACE and K. N. G. MACLEAY.

854/4. *POLYSTICHUM LONCHITIS* (L.) Roth. 106, E. Ross; crags above Loch Li, Fannich, R. MACKECHNIE and E. C. WALLACE.

856/1(2). *DRYOPTERIS BORRERI* Newm. 15, E. Kent; in a dry freshwater fen, Dungeness, Miss E. O'Nians and F. Rose (1952, *S. E. Nat.*, **57**, xix). *74, Wigtown; Glen Ragie Wood near Newton Stewart; Home Farm near Newton Stewart; Kilture Forest near Wigtown. J. P. PUGH. 98, Argyll; abundant on roadsides about Loch Awe, Loch Fyne and Loch Striven, K. N. G. MACLEAY and E. C. WALLACE. 101, Kintyre; woods near Campbeltown. M. H. CUNNINGHAM. 105, W. Ross; here and there about Braemore and Inverbroom, E. C. WALLACE.

856/1(3). *DRYOPTERIS ABBREVIATA* (DC.) Newm. 101, Kintyre, west shore rocks near Campbeltown, 1950, M. H. CUNNINGHAM.

§856/2. *DRYOPTERIS CRISTATA* (L.) A. Gray. ‡15, E. Kent; one plant in freshwater fen at Dungeness, F. Rose (1952, *S.E. Nat.*, **57**, xix).

§856/5. *DRYOPTERIS AEMULA* (Ait.) Kuntze. 97, (Argyll); rocky burn at Killundine, Morvern, E. C. WALLACE and K. N. G. MACLEAY. 98, Argyll; Allt Beòhlach, Loch Awe-side: *101, Kintyre; Cour shore, not infrequent in shady gullies, K. N. G. MACLEAY.

§856/6. *DRYOPTERIS VILLARSII* (Bellardi) Woynar. [‡100, Clyde Isles: Arran, "Mr. Stewart exhibited *Lastraea rigida* from Arran—its first discovery in Scotland," 15.7.1879, *Proc. Nat. Hist. Soc. Glasgow*, **4**, 119 (1879).]

863/1. *HYMENOPHYLLUM TUNBRIGENSE* (L.) Sm. 104, N. Ebeudes; on sheltered overhanging rocks, alongside the stream in Allt à Coire Bhuidhe, Skye. ST. ANDREWS UNIVERSITY BIOL. SOC., comm. J. A. MACDONALD.

864/1. *OSMUNDA REGALIS* L. 101, Kintyre; Cour, infrequent on shore; 105, W. Ross; Ullapool, a sea cliff one mile east of pier has its face covered with sporelings and young plants, 1951, K. N. G. MACLEAY.

§869/2. *ISOETES ECHINOSPORA* Durieu. *98, Argyll; Crow Island Bay, Balliemeanoch, Loch Awe, K. N. G. MACLEAY.

CHAROPHYTA, all det. by G. O. ALLEN.

§872/5. *NITELLA TRANSLUCENS* Ag. *12, N. Hants.; in ditch by Kingsley Pond, C. LANGRIDGE. *49, Caern.; peat pool near beach three miles east of Pwllheli, A. VAUGHAN JONES. *103, Mid Ebudes; Loch an Duin near Arinagour, Isle of Coll, 1951, C. W. MUIRHEAD.

872/6b. *NITELLA MUCRONATA* var. *GRACILLIMA* Groves & Bullock-Webster. 27, E. Norf.; Rockland Broad, at a depth of 2.5 m.; A. C. JERMY.

§876/3. *CHARA VULGARIS* L. 88, Mid Perth; pool on Ben Lawers, I EVANS, comm. C. I. SANDWITH. *103, Mid Ebudes; moorland ditch above Loch a Mhill Aird, Isle of Coll, 1951, C. W. MUIRHEAD.

876/3c. *CHARA VULGARIS* var. *PAPILLATA* Wallr. 12, N. Hants.; Odiham canal, F. D. GOODCLIFFE, comm. J. CLEGG. 17, Surrey; bog at Enton, B. GRINDELL, J. CLEGG and G. O. ALLEN. *19, N. Essex; Felsted, E. A. ROBINSON. *90, Forfar; in pools, Barry Links, W. B. OGILVIE, comm. G. TAYLOR. *H.2, N. Kerry; south of Bally Leige, L. Akeragh, F. W. SIMPSON, comm. C. W. MUIRHEAD.

876/7b. *CHARA CONTRARIA* var. *HISPIDULA* A. Braun. (69, N. Lancs.); in gravel holes on N. Walney Island, Barrow, A. W. WESTRUP.

876/14. *CHARA CONNIVENS* A. Braun. 27, E. Norf.; Hickling Broad, G. H. ROCKE.

§876/17. *CHARA DELICATULA* Ag. *103, Mid Ebudes; brackish ditch on Grishipoll Bay, Isle of Coll, 1951, C. W. MUIRHEAD.

ADVENTIVE PLANTS IN GLOUCESTER (V.cc. 33 & 34), 1952

The following alien species are reported by the Rev. R. B. Abell (R.B.A.), C. W. Bannister (C.W.B.) and C. C. Townsend (C.C.T.).

BOROUGH FLOUR MILLS, TEWKESBURY (v.c. 33)

Conringia orientalis (L.) Dumort. (R.B.A. & C.W.B.). *Vella annua* L. (R.B.A. & C.W.B.). *Rapistrum orientale* (L.) Crantz (C.W.B.). *Malva pusilla* Sm. (R.B.A. & C.W.B.). *M. parviflora* L. (C.W.B.). *Ambrosia trifida* L. (C.W.B.). *Xanthium strumarium* L. (R.B.A. & C.W.B.). *Lappula myosotis* Moench (C.W.B.). *Amaranthus retroflexus* L. (C.W.B.). *Setaria glauca* (L.) Beauv. (R.B.A. & C.W.B.). *Aegilops cylindrica* Host (C.W.B., det. C. E. Hubbard).

GLOUCESTER DOCKS (v.c. 33)

Descurainia pinnata (Walt.) Britton (R.B.A. & C.W.B.). *Rapistrum orientale* (L.) Crantz (C.W.B.). *Silene anglica* L. (R.B.A. & C.W.B.). *Malva parviflora* L. (C.W.B.). *Ammi visnaga* (L.) Lam., 1951 (C.C.T.). *Verbascum virgatum* Stokes (C.W.B.).

SHARPNESS DOCKS, BRISTOL (v.c. 34)

Rorippa austriaca (Crantz) Bess. (R.B.A. & C.W.B.). *Barbarea verna* (Mill.) Aschers. (C.W.B.). *Descurainia sophia* (L.) Webb ex Prantl (C.W.B.). *Conringia orientalis* (L.) Dumort. (R.B.A. & C.W.B.). *Eruca sativa* Mill. (R.B.A. & C.W.B.). *Lepidium perfoliatum* L. (C.W.B.). *L. virginicum* L. (R.B.A. & C.W.B.). *L. densiflorum* Schrad. (R.B.A. & C.W.B., det. J. P. M. Brennan). *Neslia paniculata* (L.) Desv. (R.B.A. & C.W.B., det. J. P. M. Brennan). *Rapistrum orientale* var. *hispidum* (Godr.) Halácsy (R.B.A. & C.W.B., conf. A. Melderis). *Raphanus landra* Moretti ex DC. (C.W.B., det. A. Melderis). *Taccaria pyramidata* Medic. (R.B.A. & C.W.B.). *Malva pusilla* Sm. (R.B.A. & C.W.B.). *Vicia narbonensis* L. (R.B.A. & C.W.B., det. J. P. M. Brennan). *Potentilla norvegica* L. (R.B.A. & C.W.B., conf. J. P. M. Brennan). *Bifora radians* Bieb. (C.W.B.). *Caucalis lappula* Grande (R.B.A. & C.W.B.). *C. latifolia* (L.) L. (C.W.B.). *Galium tricornis* Stokes (R.B.A. & C.W.B.). *Ambrosia trifida* var. *integrifolia* (Willd.) Torr. & Gray (C.W.B.). *Lappula myosotis* Moench (R.B.A. & C.W.B.). *Axyris amarantoides* L. (C.W.B., det. A. Melderis). *Setaria glauca* (L.) Beauv. (C.W.B., det. C. E. Hubbard). *Lolium temulentum* L. (R.B.A. & C.W.B., conf. C. E. Hubbard).

ABSTRACTS FROM LITERATURE*

Compiled by D. H. KENT

Thanks are due to D. E. Allen, E. B. Bangerter and A. E. Wade for their help.

TOPOGRAPHICAL

3-4, DEVON. Worth, R. H., 1953, The Ancient Dwarfed Oaks of Dartmoor, *Dartmoor*, 74-98. Plymouth.

3-4, DEVON. Worth, R. H., 1953, The Vegetation of Dartmoor, *Dartmoor*, 64-73. Plymouth. A short ecological account of the vegetation of the area.—[D.H.K.]

3-4, DEVON. Anon., 1952, Flora of the Batterbee Marsh and Lowman Meadows: A preliminary list, *Mag. Blundell's School Sci. Soc.*, 7, 10-16.

3-4, DEVON. Martin, W. K., 1952, 44th Annual Report on the Botany of Devon, *Rep. and Trans. Devon. Assocn.*, 84, 254-259. Includes a number of new vice-county records.—[A.E.W.]

3-4, DEVON. Turner, G., 1951, Observations on the Flora of some Walls near the School, *Mag. Blundell's School Sci. Soc.*, 6, 55-59.

4, N. DEVON. Gabbutt, P. D., 1953, A Study of the Vegetation of the Coastal Slopes of Lundy, *Ann. Rep. Lundy F.S.*, 6, 36-49.

4, N. DEVON. Kellett, E. G., 1953, A Botanist in Devonshire, *Country-side (N.S.)*, 16, 422-424.

5-6, SOMERSET. Watson, W., 1952, *Proc. Somerset Arch. and N.H.S.*, 96, 208-211. Reports the more interesting records made during 1951.—[A.E.W.]

6, N. SOMERSET, and 34, W. GLOS. Sandwith, C. I. & N. Y., 1952-1953, Bristol Botany in 1951, *Proc. Bristol Nat. Soc.*, 28, 243-248. Report on the numerous records made during 1951; Bristol Botany in 1952, *op. cit.*, 28, 305-314. Give new localities for plants in and near Bristol. W. R. Price and J. Cripps visited Steep Holm during the year and added *Sagina maritima*, *Carduus tenuiflorus* and *Mercurialis annua* to the known flora of the island.—[D.H.K.]

7-8, WILTS. Grose, J. D., 1952-1953, Wiltshire Plant Notes [13], *Wilts. Arch. and N.H. Mag.*, 54, 339-343; Wiltshire Plant Notes [14], *op. cit.*, 55, 60-62. Gives further new stations for Wiltshire plants.—[D.H.K.]

9, DORSET. Hawkins, J. B., 1950-1951, Botanical Report, *Rep. Bryanston School N.H.S.*, 1949, 18-20; *op. cit.*, 1950, 16-19. Gives many interesting records for the area near the school.—[D.H.K.]

*Systematic and miscellaneous abstracts will be given in the next part of the *Proceedings*.

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9, DORSET. Ward, F. K., 1952, The Isle of Purbeck in May, *Gard. Chron.*, **132**, 84. A short popular account of some of the less common spring flowers to be found in the Isle of Purbeck.—[D.H.K.]

13-14, SUSSEX. 1950 & 1953, A List of Wild Flowers, *J. and Trans. Eastbourne N.H. and Arch. Soc.*, **13** (1), 9-20. An unlocalized list of plants which can be found within about 15 miles of Eastbourne; Addenda to the List of Wild Flowers, *op. cit.*, **13** (3), 5.—[D.H.K.]

13-14, SUSSEX, and 15-16, KENT. Rose, F., 1952, "Atlantic" Species in the Flora of the Weald, *S.E. Nat.*, **57**, 18-23.

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15, E. KENT. Day, V. F., 1950, Vegetation of Bombed Sites, *Trans. Folkestone N.H.S.*, **1949-50**, 11-15. A systematic list of about 170 species found growing on bombed sites in the Folkestone area.—[D.H.K.]

16, W. KENT. Angel, Mrs. E. L., 1952, Wild Flowers of Shooters Hill, *Ann. Rep. Sidcup N.H.S.*, **2**, 8-13. A list of nearly 150 flowering plants found on Shooters Hill and in Oxleas Wood between the years 1945 and 1951.—[D.H.K.]

16, W. KENT, 17, SURREY, 18-19, ESSEX, 20, HERTS, 21, MIDDX., and 24, BUCKS. Kent, D. H. and J. E. Lousley, 1953, A Hand List of the Plants of the London Area, part 3, *Rosaceae (Cydonia) to Compositae (Lapsana)*, Supplement to *Lond. Nat.*, **32**.

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21, MIDDx. Mitchell, N. S. P., 1953, Wild Flowers in Middlesex, *Middx. Monthly*, **3**, 2-4.

22, BERKS, and 23, OXON. Stern, R. C., D. R. Tristram & A. F. Twist, 1950, *Flora of the Radley District, Report of Observations made by Members [of the Radley College Natural History Society] in the Radley District, 1944-1949*, 20-34.

22, BERKS, and 24, BUCKS. Hyde, M. B., 1953, Plant Records, 1951-1952, *Middle-Thames Nat.*, **5**, 9-11. Gives many interesting records including a second Bucks. station for *Danaa cornubiensis*.—[D.H.K.]

25-26, SUFFOLK. Simpson, F. W., 1953, Plant Records and Additions and Corrections to the Flora of Suffolk, *Trans. Suffolk N.S.*, **8**, 12-22. Gives a number of new records for the county, including many adventives.—[D.H.K.]

27-28, NORFOLK. M.B.B., 1953, Botanical Records, *Gresham's School N.H.S. Rep.*, **30**, 6-7, & **31**, 29-32. Gives new stations for Norfolk plants and includes a report on the *Orchidaceae* found near Holt between 1949 and 1952.—[D.H.K.]

29, CAMBS. Abeywickrama, B. A., 1950, A Study in the Variations in the Field Layer Vegetation of Two Cambridgeshire Woods, *Abstr. Diss. Univ. Camb.*, **1948-1949**, 7-8. The two woods studied are Hailey Wood and Buff Wood (East Hailey), situated on the chalky boulder clay plateau in the south-western corner of the county. They are of the "(Ash)-Oak-Hazel" coppice type and the field layer shows much variation, several societies being recognised. *Primula elatior* dominates the wetter areas and *Mercurialis perennis* the drier slopes; in the intermediate area between them *Endymion non-scriptus* is abundant in Hailey Wood and *Primula vulgaris* in Buff Wood. Where the light intensity is high *Filipendula ulmaria* or *Rubus caesius* becomes frequent to abundant. The recently wooded areas have societies dominated by *Deschampsia caespitosa* and *Brachypodium sylvaticum*. The past history of the wood is summarised and the problem of the distribution of *Primula elatior* and *P. vulgaris* is discussed.—[D.H.K.]

31, HUNTS. Gilbert, J. L., 1952-1953, Flora, *Ann. Rep. Hunts. Fauna and Flora Soc.*, **4**, 15-22. This account, which includes a number of new vice-county records, gives only records not previously published in Druce's account of the flora of the county in the *Victoria County History*. *Op. cit.*, **5**, 15-19. Gives a few new records, including many adventives.—[D.H.K.]

32, NORTHANTS. Gilbert, J. L., 1952-1953, Botanical Records, 1951, *J. Northants. N.H.S. and F.C.*, **32**, 145-148. Reports the more interesting records made during 1951. Botanical Records, 1952, *op. cit.*, **32**, 201-202. Gives further localities for Northants plants.—[A.E.W. & D.H.K.]

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35, MON. Sandwith, C. I. & N. Y., 1953, Bristol Botany in 1952, *Proc. Bristol N.S.*, **28**, 305-314. The authors cite further additions to the flora of Denny, a small islet in the Bristol Channel. [N.B.—Denny is in v.c 35, Mon.: see Price, 1950, The Denny, *Proc. Cotteswold N.F.C.*, **30**, 100-102.]—[D.H.K.]

37, WORCS. Hardaker, W. H., 1952, An Ecological Study of the Flora of Broadmoor Wood in the Lickey District of Worcestershire. *Proc. Birmingham N.H. and Phil. Soc.*, **18**, 31-40.

39, STAFFS. Edees, E. S., 1951-1952, Botany, *Trans. N. Staffs. F.C.*, **85**, 59-68. Gives further new stations for Staffordshire plants. *Op. cit.*, **86**, 80-87. Includes a few new county records and gives short accounts of the history of *Thelypteris palustris*, *T. phegopteris* and *Lycopodium clavatum* in Staffordshire.—[D.H.K.]

41, GLAM. Nock, A. I., A. E. Wade & J. A. Webb, 1952, The Clyne Common Survey of 1944, *Proc. Swansea Sci. and F.N.S.*, **2**, 329-342. Clyne Common is an area of about 1½ square miles in the south-east of the Gower Peninsula. Most of it is dry and dominated by *Agrostis tenuis*, *Festuca ovina* and *Nardus stricta*, but there are several bogs, streams, and one small remnant of sessile oak wood. A list of the flowering plants, fern allies, bryophytes and lichens is given.—[A.E.W.]

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41, GLAM., 42, BRECON, 43, RADNOR, 44, CARM. & 45, PEMB. Webb, J. A., 1952, Records in Botany, 1948-51, *Proc. Swansea Sci. and F.N.S.*, **2**, 323-328. Includes a few new vice-county records.—[D.H.K.]

42, BRECON, 43, RADNOR, 44, CARM., 45, PEMB., 46, CARD., 48, MER. & 50, DENB., 1950-1952, Report of the Dept. of Botany, *Ann. Rep. Nat. Mus. Wales*, **43**, 15, **44**, 16 & **45**, 12-13. Gives a few new vice-county records.—[D.H.K.]

44, CARM. Vaughan, I. M., 1952, Some Botanical Notes on the Proposed Scientific Area in Carmarthenshire, *Ann. Rep. W. Wales F.S.*, **14**, 19-23. A short ecological account of the upper Towy-Cothi region at present under consideration by the Nature Conservancy. A short list of the rarer plants of the area is also given.—[D.H.K.]

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46, CARD. Wade, A. E. (Ed.), 1952, *A Supplement to Dr. J. H. Salter's The Flowering Plants and Ferns of Cardiganshire*. Cardiff. University of Wales Press. Pp. i-vi and 1-48. This supplement com-

prises two parts; the first giving additional records of plants made since the publication of Salter's work in 1935. A number of new county records are included. The second part consists of previously unpublished corrections made by Salter to the original work.—[D.H.K.]

49, CAERN. Dallas, J. E. S., 1953, Caernarvonshire Filicineae, *N.W. Nat. (N.S.)*, **1**, 100-101. Gives new stations for *Ceterach officinarum*, *Ophioglossum vulgatum* and *Botrychium lunaria*.—[D.H.K.]

53-54, Lincs. Gibbons, E. J., 1952, Botany, *Trans. Lincs. Nats. Union*, **13**, 30-32. Contains a few new vice-county records.—[D.H.K.]

58, CHESHIRE. McMillan, N. F., 1953, Botanical Notes from Bromborough, Mid-Wirral, Cheshire, *N.W. Nat. (N.S.)*, **1**, 98.

58, CHESHIRE & 59, S. LANCs. McMillan, N. F., 1953, Botanical Notes, 1951-52, *Proc. Liverpool N.F.C.*, **1952**, 18-19.

59, S. LANCs. Edmondson, T., 1953, Some Aspects of the Natural History of Western Chat Moss, *N.W. Nat. (N.S.)*, **1**, 400-416. A short ecological account with a list of plants found in the area.—[D.H.K.]

59, S. LANCs. Holder, F. W., 1953, Changing Flora of the South Lancashire Dunes, *N.W. Nat. (N.S.)*, **1**, 451-452. A short comparison of the flora of the South Lancashire dunes about 1910 and in 1951. The flora is now thought to be richer due to the influx of alien species.—[D.H.K.]

59, S. LANCs. London, M. E., 1953, Further Notes on the Flora of a Plot of Waste Ground at Blundell Sands, *Proc. Liverpool N.F.C.*, **1952**, 19-21.

61-65, YORKs. Sledge, W. A., 1953, Plant Records, *The Nat.*, **1953**, 40-42.

63, S.W. YORKs. Scurfield, G., 1953, Ecological Observations in Southern Pennine Woods, *J. Ecol.*, **41**, 1-11.

64, MID-W. YORKs., 65, N.W. YORKs., and 69, WESTM. Aiken, J. K., 1953, Wild Flowers of the Clints, *Countryman*, **47**, 148-150. A short account of some of the plants to be found on the limestone pavements of Wharfedale and Teesdale.—[D.H.K.]

66, DURHAM & 67-68, NORTHUMB. Heslop-Harrison, J. W., 1950-1953. Records—Flowering Plants, *Vasc. (Subst.)*, **35**, 14-16, 22-23 and 31-32, **36**, 15-16 and 22-24, **37**, 6-7, 15-16 and 32, **38**, 16 and 23-24. Gives the more interesting records, including a number of new vice-county records, made between 1950 and 1953.—[D.H.K.]

67, NORTHUMB., S. Blackburn, D., 1950, The Flowering Plants of St Mary's Island, *Vasc. (Subst.)*, **35**, 21. Lists 31 species of phanerogams found growing on the tiny island of St. Mary's.—[D.H.K.]

68, CHEVIOTLAND. Kellett, E. G., 1952, A Botanist in Northumberland, *Countryside (N.S.)*, **16**, 273-274. Gives a short account of some of the more interesting plants encountered during visits to Seahouses, Holy Island, Farne Island, etc.—[D.H.K.]

70, CUMBERLAND. Yapp, Y. B., 1953, The High-Level Woodlands of the English Lake District, *N.W. Nat. (N.S.)*, **1**, 190-207 and 370-383.

71, MANX. Allen, D. E., 1952, Who Wrote the Botany for Blackwell's Guide?, *Peregrine*, **2**, 22-23. It is very desirable to know who was the author of an anonymous list of Manx plants published in the second edition (1858) of *Blackwell's Illustrated Guide to the Isle of Man*. Various evidence is considered and the conclusion reached that the author was either J. F. Robinson of Frodsham, J. H. Davies of Thirsk (the most likely) or Dr. B. Carrington of Leeds.—[D.E.A.]

75, AYR, 76, RENFREW, 77, LANARK, 86, STIRLING, 87, W. PERTH, 98, ARGYLL, 99, DUNBARTON, 100, CLYDE ISLES and 101, KINTYRE. Lee, John R., 1953. Additions to the Flora of the Clyde Area, *Glasgow Nat.*, **17**, 65-82. The author gives numerous additional records made since the publication of his *Flora of the Clyde Area* in 1933. Many new vice-county records are included in the account.—[D.H.K.]

91. KINCARD. Gimingham, C. H., 1953, Contributions to the Maritime Ecology of St Cyrus, Kincardineshire: Part 3. The Salt Marsh, *Trans. and Proc. Bot. Soc. Edinb.*, **36**, 137-164.

104, N. EBUDES, and 110, OUTER HEBRIDES. Heslop Harrison, J. W., & J. K. Morton, 1951, Botanical Investigations in the Isles of Raasay, Rhum (v.c. 104), Lewis and Harris (v.c. 110) in 1951, *Proc. Univ. Durham Phil. Soc.*, **11**, 12-23. Many new records for these islands are listed. Jentys-Szaferowa's claim that the segregate of *Betula alba* in the Scottish Highlands is *B. carpatica* Waldst. & Kit. is not accepted, as regards the Outer Hebridean birches at any rate. The latter was found to be identical with authentic Scandinavian material of *B. tortuosa* Ledeb. *Orchis fuchsii* is very abundant on Raasay, but none exactly matches the type as found in Durham but rather resembles the var. *dunelmensis* of the Durham coast. *Gymnadenia conopsea* occurs on Rhum and Raasay as subsp. *insulicola* H.-Harr.—[D.E.A.]

110, OUTER HEBRIDES. Atkinson, R., & B. Roberts, 1952, Notes on the Islet of Gasker, *Scot. Nat.*, **64**, 129-137. Includes a short list of plants and some ecological data.—[D.H.K.]

110, OUTER HEBRIDES. Barkley, S. Y., 1953, The Vegetation of the Island of Soay, Inner Hebrides, *Trans. and Proc. Bot. Soc. Edinb.*, **36**, 119-131.

110, OUTER HEBRIDES. Heslop-Harrison, J. W., 1953, Observations on the Flora of the Isle of Lewis, Isle of Harris and the Shiant Isles in 1952, *Proc. Univ. Durham Phil. Soc.*, **11**, 83-90. Further new stations are given for Hebridean plants, and a few new vice-county records are included.—[D.H.K.]

IRELAND. Braun-Blanquet, J., and R. Tüxen, 1952, Irische Pflanzengesellschaften, *Veröffentl. Geobot. Inst., Rübel Zürich*, **25**, 224-421. A list of the plant communities observed during the 10th I.P.E. through Ireland. The associations are compared with those of the European mainland.—[D.H.K.]

IRELAND. Heslop-Harrison, J., 1953, The Modern Distribution of Irish Plants in the Light of Post Glacial History, *Adv. Sci.*, **10**, 42-44.

IRELAND. Jessen, K., 1952, An Outline of the history of the Irish Vegetation, *Veröffentl. Geobot. Inst. Rübel Zürich*, **25**, 79-84.

IRELAND. Lüdi, W., 1952, Die Standortstetigkeit einiger irischer Gewächse aus mitteleuropäischen Blickpunkt gesehen, *Veröffentl. Geobot. Inst. Rübel Zürich*, **25**, 201-213. The habitat constancy of some Irish plants as seen from a middle European point of view. Comparative habitats in Ireland and mid-Europe are given for several species.—[D.H.K.]

IRELAND. Lüdi, W., 1952, Fragmente zu Waldstudien in Irland, *Veröffentl. Geobot. Inst. Rübel Zürich*, **25**, 214-233.

IRELAND. Markgraf, F., 1952, Über einige nordatlantische Blütenpflanzen Irlands, *Veröffentl. Geobot. Inst. Rübel Zürich*, **25**, 143-146. A discussion on the North Atlantic element in the Irish flora.—[D.H.K.]

IRELAND. Mitchell, G. F., 1953, The Immigration of Flora and Fauna into Ireland in Late Glacial Time, *Adv. Sci.*, **10**, 41-42.

IRELAND. Webb, D. A., 1952, The Flora and Vegetation of Ireland, *Veröffentl. Geobot. Inst. Rübel Zürich*, **25**, 46-78.

IRELAND. Webb, D. A., 1952, Narrative of the Ninth I.P.E., *Veröffentl. Geobot. Inst. Rübel Zürich*, **25**, 9-31. An account of the preliminary arrangements and a diary of the International Plant-Geographical Excursion in Ireland in 1949.—[D.H.K.]

GUERNSEY. Girard, P. J., 1952, Report of the Botanical Section, 1951, *Rep. and Trans. Soc. Guern.*, **15**, 94-96. Includes an account of the *Orobanche* species found on the island by N. Le Poidevin.—[D.H.K.]

JERSEY. Attenborough, T. W., 1952, Botanical Report for 1951, *Soc. Jers. Bull Ann.*, **15**, 387. No new species were recorded from the island during the year, but the author suggests that a search be made for the following species, which still may occur although they have not been seen for a long time:—*Inula conyza*, *Sagina nodosa*, *Mentha pulegium*, *Spiranthes aestivalis* and *Euphorbia peplis*.—[D.H.K.]

ECOLOGICAL (see also TOPOGRAPHICAL).

BEADLE, N. C. W., & A. B. COSTIN, 1952, Ecological Classification and Nomenclature, *Proc. Linn. Soc. New S. Wales*, **77**, 61-82. A scheme for the objective classification of plant communities is outlined. A glossary of ecological terms is given.—[D.H.K.]

BOUCHARD, J., 1952, Notes sur quelques plantes annuelles ou bisannuelles colonisant les brûlis de la Sauvette (Var), *Monde des Plantes*, **287-288**, 17-18. Three species lists, taken one month apart, are given to show the floristic variation of the vegetation invading freshly burned sites in mountains on the French Riviera.—[D.H.K.]

BUGNON, F., 1950, Etudes sur la végétation hygrophile des hautes plateaux Jurassiques Bourguignons: les marais de pente du Bajocien Supérieur, *Bull. Sci. Bourg.*, **12**, 1-35. An ecological account of a number of bogs on the marls of the Upper Bajocian in Bourgogne. Of particular interest is the Schoenetum (*Schoenus ferrugineus*), an asso-

ciation having a much wider area of distribution than formerly recognised. Map and diagrams are provided and floristic lists given and discussed. *Pteridium aquilinum*, *Polystichum thelypteris* and *P. spinulosum*, species regarded as more or less calcifuge, are recorded from these turfaceous bogs.—[E.B.B.]

CHRISTIAN, C. S., & R. A. PERRY, 1953, The Systematic Description of Plant Communities by the use of Symbols, *J. Ecol.*, **41**, 100-105.

COUTEAUX, M., 1953, Contribution a l'étude de la végétation et de la flore du district Lorrain aperçu sur la région située au nord d'Arlon, *Bull. Soc. Roy. Bot. Belg.*, **85**, 305-330. The vegetation of this district in Belgian Lorraine is related to the various soil areas, marls and sands. Beechwood associations form the main groups; these are analysed with the aid of diagrams and tables. An alphabetical list of species, with habitat and locality notes, completes the study.—[E.B.B.]

DAVIDSON, J. F., 1952, The Use of Taxonomy in Ecology, *Ecology*, **33**, 297-299. The author suggests that the lack of documented research in recent ecological papers reflects a lack of appreciation of the fundamentals of taxonomy. Ecologists should be capable of and, practice. adequate documentation of their research materials. This should lead to increasing co-operation between ecologists and taxonomists, to their mutual advantage.—[D.H.K.]

DELVOSALLE, L., 1952, Sur la répartition de quelques phanérogames au littoral belge, *Nat. Belge*, **31**, 160-168. A phytogeographical account of a number of species, illustrated by several distribution maps, of interest for comparative purposes as, with very few exceptions, the species selected are also found in Britain. The atlantic and sub-atlantic element is dominant; the mediterranean-atlantic and boreal elements have marked influence; central-european and eastern elements are lacking except for *Hippophae*; the west of the area favours calcicoles, the east much less; hydrosereal species are declining. mobile-sand species progressing.—[E.B.B.]

DE VRIES, V., 1950, Over de plantegrooi de Duindalen op Vlieland. *De Levende Natuur*, **53**, 29-38.

DIMBLEBY, G. W., 1953, Natural Regeneration of Pine and Birch on the Heather Moors of North-East Yorkshire. *Forestry*, **26**, 41-52. Both pine (*Pinus sylvestris* L.) and birch (*Betula pubescens* Ehrh.) usually invade after a fire; the invasion reaches greatest force after 3 to 5 years, then falling off rapidly probably with the return of the heather (*Calluna*). Pine seedlings only grow vigorously if their tap-roots reach the pan, when secondary roots are developed extensively. In birch the tap-root is not well developed, but secondary roots spread vigorously sending down sinkers to penetrate the pan. Regeneration of birch is helped by rotten stumps and roots which its mycorrhizal roots explore. The root forms are compared and contrasted and the findings compared with the work of Laitakari and Erteld.—[Author's summary.]

FELFÖLDY, L. J. M., 1950, Studies on the Shore Vegetation of Lake Belsö-Tó at Tihany, *Arch. Biol. Hung.*, **19**, 135-146.

HEIMANS, J., 1953, Groupements végétaux des pays-Bas, *Bull. Union Soc. Franc. d'Hist. Nat.*, **13**, 1-10. A key to the plant associations of the Netherlands, extracted from Heiman's *Geïllustreerde Flora van Nederland* and translated into French by R. J. de Wit and J. M. Rouet. Habitat preferences and other ecological factors are used as the key characters and about 40 different groups are shown.—[E.B.B.]

HYDE, M. & B., 1952, British Woodlands, *Middle-Thames Nat.*, **4**, 5-7. Gives a short account of the ecology of Oak-, Beech-, Ash-, Birch- and Pine-woods.—[D.H.K.]

JOVET, P., 1951, Causalité en biocénologie végétale, *Année Biol.*, **27**, 281-286. An account of the various types of plant associations found in the vicinity of Paris. The associations studied include those found on siliceous sand dunes untouched by man, rough limestone blocks, tombstones in Parisian cemeteries, walls, rubbish-tips, and formerly cultivated fields now abandoned.—[D.H.K.]

KERN, J. & T. REICHGELT, 1952, Onze Rivieroevers, Schatkamers voor de Floristiek, *De Levende Natuur*, **55**, 106-115 and 126-134. An account of the flora, including many adventive species, of some river banks in the Netherlands.—[D.H.K.]

KLIKA, J., 1953, The Xerothermic Grass Associations of the Bohemian Stredohorí, *Bull. Int. Acad. Tchég. Sci.*, **51**, 231-238.

KOTILAINEN, M. J., 1951, Die Verbreitung der Moorpflanzen in Nordfinland, *Ann. Acad. Sci. Fenn., Ser. A*, No. 17. Ecological and phytogeographical studies of plants in northern Finland. Illustrated by distribution maps.—[D.H.K.]

KRAUSE, E., & B. SPEIDEL, 1952, Zur floristischen, geographischen und ökologischen Variabilität der Glatthaferwiese (*Arrhenatheretum elatioris*) in mittleren und südlichen Westdeutschland, *Ber. Deutsch. Bot. Ges.*, **65**, 403-419.

KRAUSE, W., 1952, Das mosaik der Pflanzengesellschaften und seine Bedeutung für die Vegetationskunde, *Planta*, **41**, 240-289.

LAJOS, T., 1952, Gyomvizsgálatok a szeged-környéki kender-, len-és gyapotvetésekben, *Ann. Biol. Univ. Hung.*, **1**, 447-454. An account of studies of the weed flora of crops of Hemp, Flax and Cotton around Szeged, Hungary.—[D.H.K.]

LEMÉE, G., 1952, Végétation et écologie des tangues du havre de Portbail (Manche), *Bull. Soc. Bot. France, Mém.*, 156-165. An account of the associations of halophytes and maritime species, including *Salicornia* spp., *Limonium* spp., *Spartina townsendii*, etc., found colonising the muddy areas that are built up near ports on the north French coast; Portbail is taken as an example.—[E.B.B.]

NOIRFALISE, A., 1952, Etude d'une biocénose. La Frênaie à *Carex* (*Caricetum remotae-Fraxinetum*, Koch, 1926), *Mém. Inst. Roy. Sci. Nat. Belg.*, **122**, 1-184. This study of the association of Ash and *Carex remota* is in two parts. First, general ecological and distributional

characteristics, based on surveys of areas in France, Belgium and Switzerland are given; the atlantic form of the association is shown as occurring in England. It is found typically by streams and never far from water and comprises several subassociations and variants. Secondly, a particular example at Rouge-Cloître is analysed in detail to show the effect of seasonal variations, etc. *Carex strigosa* is found to be a good indicator. Floristic lists, diagrams and two plates of habitat photographs illustrate the work and there are two appendices on the molluscan population of the particular example.—[E.B.B.]

OVINGTON, J. D., 1953, Studies of the Development of Woodland conditions under different trees, *J. Ecol.*, **41**, 35-52.

PESOLA, V. A., 1952, Paraisten ja Lohjan kalkkilouhosten kasvilisuudesta, *Arch. Soc. Zool. Bot. Fenn. 'Vanamo'*, **7**, 57-77. An ecological account of the vegetation of the limestone quarries of Parainen and Lohja in south west Finland.—[D.H.K.]

PFEIFFER, H., 1951, Über die Pflanzengesellschaft des kleinsten Igelkolbens in wassergefüllten Torfstichen, *Phyton*, **3**, 112-120. The ecology of *Sparganietum minimi* is discussed and it is suggested that it is probably a sociologically independent association, although this may not appear evident at once to the ecologist.—[D.H.K.]

PURI, G. S., 1952, The Field Method in the Study of Plant Communities, *J. Ind. Bot. Soc.*, **31**, 204-213. The transect method in the study of plant communities is described. The methods of laying a transect and charting quadrats are given. The ways of collecting and analysing vegetational and environmental data are described in detail and the methods of their representation and correlation with each other are enumerated. The chief merits of this method are its simplicity and the great amount of information it provides at a relatively low cost. The applicability of this method to the study of every type of vegetation is shown.—[D.H.K.]

QUENEY, A., 1950, La flore rudérale des bords du Rhone en amont du pont Boucle, *Bull. Soc. Linn. Lyon*, **19**, 228-232. Ecological studies of various stretches of the river Rhone near the city of Lyon.—[D.H.K.]

QUEZEL, P., 1952, A propos des forêts de Hêtres (Buxeto-Fagetum) dans les canolles du Causse Noir, *Bull. Soc. Bot. France. Mém.*, 12-16. An account of the communities found within the Box-Beech associations of the narrow gorges of the Causse Noir cliffs. An interesting feature is the abundance of Orchid species, mostly British.—[E.B.B.]

QUEZEL, P., 1952, L'Association à *Corylus Avellana* L. et *Galanthus nivalis* L. dans la zone sud-orientale des Causses, *Monde des Plantes*, **287-288**, 27-28. Floristic and ecological details of this association in south west France are given to show that it is a definite phytosociological entity.—[E.B.B.]

RAABE, E. W., 1949, Der Zeigerwert der Ackerunkräuter im östlichen Holstein, *Biol. Zentralbl.*, **68**, 471-488. Gives an account of studies on the indicational value of the field weeds in eastern Holstein.

The different species of the field vegetation in the area depend to a strictly limited, though varying degree on the size of the grains, the amount of water available and the acidity of the soil, on certain methods of cultivation and on climatic influences. Thus there is the possibility of replacing single influential factors, or groups of factors, by others.—[D.H.K.]

ROSE, F., 1953, A Survey of the Ecology of British Lowland Bogs, *Proc. Linn. Soc.*, **164**, 186-211.

SAVILLE, D. B. O., 1951, Changes in Grassland near Ottawa, Ontario, following Prolonged Flooding, *Canad. Field-Nat.*, **65**, 42-45. A strip of grassland adjoining the Ottawa River was flooded throughout May and June 1947. Nearly all the herbaceous plants were killed by this flood. By September 1947 *Lysimachia nummularia* had invaded large areas of the denuded ground. During 1948 *L. nummularia* was partly replaced by *Potentilla argentea* and grasses. By September 1950, recovery of the grass sod was almost complete, except in areas where soil was extremely scarce.—[Author's summary.]

ŠMARDÁ, J., 1950, Mechová a Lisejníkouá Společenstva, *Čas. Morav.*, **35**, 79-156. An ecological account of the flora of the Hrubý Jeseník mountains in north eastern Czechoslovakia.—[D.H.K.]

SOUGNEZ, N., 1951, Essai d'une classification phytosociologique des Prairies du Pays de Herve, *Bull. Soc. Roy. Bot. Belg.*, **84**, 123-151. An ecological account of grasslands, subjected to cutting or grazing, dominated by *Arrhenatherum elatius*; these are classified into sub-associations, each with its variants. Illustrated by graphs, diagrams and photographs.—[E.B.B.]

VAN BERGHEM, C., 1949, L'Association à *Isolepis setacea* et *Stellaria uliginosa* en Moyenne Belgique, *Bull. Soc. Roy. Bot. Belg.*, **82**, 71-80. This association, found along damp forest paths where stagnant water accumulates in cart-ruts, etc., is analysed in a table compiled from twenty five stations. *Peplis portula* and *Callitriche stagnalis* among other British species are given as important constituents. In spite of the difficulty of defining its characteristic species the association is widely recognisable in the mid- and northern-atlantic areas of Europe; a comparative table from seven stations in this wide area is given.—[D.H.K.]

VAN BERGHEM, C., 1951, Landes Tourbeuses et Tourbières Bombées à Sphaignes de Belgique, *Bull. Soc. Roy. Bot. Belg.*, **84**, 157-226. The ecological group covering the peat- and raised sphagnum-bogs of Belgium is the Ericeto-Sphagnetalia. The two subgroups it comprises are (a) Sphagnion europaeum, of natural associations characterised by hygrophile species of Sphagnum, and (b) Ericion tetralicis, of associations on peaty heathlands dominated by *Erica tetralix*, which are able to maintain their floristic composition only through the agency of man's agricultural activities. Tables, diagrams and photographs illustrate the floristic and synecological account of these groups.—[E.B.B.]

VAN BERGHEM, C., 1951, Les Prairies à *Molinia* de Belgique, *Bull. Soc. Roy. Bot. Belg.*, **83**, 373-403. In this study of Molinieta in Belgium floristic tables are provided to exemplify the two types (a) Molinietum coeruleae atlanticum, and (b) Eu-Molinietum coeruleae; these are differentiated geographically and, although having the same dominant, contain other species having different frequencies in each (e.g. *Crepis paludosa* and *Cirsium anglicum*, frequent in (b) but rare in (a) are good differentiating species). The effects of scything on some *Molinia* grasslands is considered as a factor influencing succession; microclimatic, edaphic and ethological factors are also discussed. Two habitat photographs are included.—[E.B.B.]

VAN BERGHEM, C., 1952, Contributions à l'étude des Bas-Marais de Belgique, *Bull. Jard. Bot. Brux.*, **22**, 1-64. The ecology of Belgian peat-bogs is analysed in some detail. The associations described are grouped under four main conformations:—Rhynchosporion albae (Caricetum limosae and Rhynchosporietum albae); Caricion lasiocarpae (Caricetum lasiocarpae and Calletum palustris); Caricion Davallianae (Schoenetum nigricantis and Drepanocladeto-Caricetum trinervis); Caricion canescentis-goodenoughii (Cariceto canescentis-Agrostidetum caninae). General synecological aspects are discussed under microclimatic, edaphic and ethological headings.—[E.B.B.]

VAN BERGHEM, C., 1953, Contribution à l'étude des groupements végétaux notés dans la vallée de l'Ourthe en amont de Laroche-en-Ardenne, *Bull. Soc. Roy. Bot. Belg.*, **85**, 195-276. The main vegetation groups studied are forest, which comprises the major part of this area of the Belgian Ardennes, and aquatic from the river valleys. Various types of association are floristically listed and analysed, diagrams, photographs and a vegetation map providing the illustrations.—[E.B.B.]

WESTHOFF, V. & W. G. BEFTINK, 1950, De Vegetatie van Duinen Slikken en Schorren op de Kaloot en in het Noord-Sloe, *De Levende Natuur*, **53**, 124-133 and 225-233.

WESTHOFF, V. & VAN DIJK, J., JR., 1952, Experimenteel Successie-Onderzoek in Natuurreserveaten, in het Bijzonder in het Korenburger veen bij Winterswijk, *De Levende Natuur*, **55**, 5-16.

EXHIBITION MEETING, 1953

An Exhibition Meeting was held in the Lecture Hall of the British Museum (Natural History), South Kensington, by kind permission of the Trustees, on Saturday, November 28, 1953, from 2.30 to 5.45 p.m. The attendance created a new record, comprising 253 members and guests. Exhibits were arranged by 45 individuals and institutions, and an account of these is given below. The meeting was followed by a *Conversazione* at the Glendower Hotel attended by 55 members.

THE HERBARIUM OF JONATHAN SALT

Jonathan Salt (1759-1810) was a master cutler by trade. He compiled a large herbarium, the majority of his specimens being collected in the environs of Sheffield between 1796 and 1807. He also received specimens from Sowerby and G. Don. The collection is now preserved at the City Museum, Sheffield. A number of representative sheets from the herbarium were exhibited, together with a copy of a printed "catalogue", published in 1889.

F. W. ADAMS.

LOTUS HISPIDUS IN WALES

Specimens of *Lotus hispidus* Desf. ex DC. collected by the exhibitor from near Dale, Haverfordwest, Pembroke (v.c. 45)* in June 1953 were shown. The plant was hitherto known mainly from scattered coastal localities in south-west England. Its discovery in quantity in Wales is therefore of interest. The species occurs on cliff-tops, and in adjacent grassland in association with *Carex punctata* Gaudin (also exhibited). It is interesting to note that both these species have a similar western distribution, and are frequently found growing together. The geological formation is Old Red Sandstone, and the soil pH is approximately 5.2 (Johnson's Indicator Paper).

F. W. ADAMS.

A CARDAMINE NEW TO BRITAIN

A sheet was exhibited from the Druce herbarium, Oxford, of a *Cardamine* collected in Snowdonia in 1892 by Dr. G. C. Druce. The specimen is labelled "*C. pratensis* var. *palustris* (Peterm.)", but is fairly typical of *C. crassifolia* Pourr., a species confined to alpine springs and bogs between 3,000 and 9,000 feet in the Pyrenees, Corbières, Cevennes, Alps, and probably Carpathians. Except for its dwarf habit it closely resembles the lowland species *C. hayneana* (Reichb.) Jüngst, of which

*A further locality in v.c. 45, near Marloes, Haverfordwest, is reported by C. D. Pigott.—ED.

it is perhaps better regarded as only an alpine subspecies. Moreover, these two species agree in having very small, globose pollen grains; in the other British representatives of the *C. pratensis* complex the pollen grains are ovoid or ellipsoid and considerably larger.

D. E. ALLEN.

SOME INTERESTING IRISH PLANTS.

MISS F. M. BARTON.

HYPERICUM UNDULATUM IN MERIONETH

Hypericum undulatum Schousb. ex Willd. was first recognised in Merioneth (v.c. 48) in August 1951, when a specimen was collected from Arthog Bog in the west of the county.

The new station is the northern limit of known world distribution. This markedly "Atlantic" species is otherwise confined in the British Isles to Cornwall and Devon (v.cc. 1, 2, 3 and 4), where it is fairly widespread, and to single stations in Pembroke (v.c. 45) and Cardigan (v.c. 46). Extra-British distribution (Clapham, Tutin and Warburg, 1952): W. Spain, Portugal and Azores. Carmarthen (v.c. 44) would seem a likely place for the species.

The plant is locally abundant in the new station, where it grows in ditches and wet boggy places on apparently fairly acid peat. A specimen from the new locality was exhibited, together with a map showing the distribution of the species in Arthog Bog and in the British Isles.

P. M. BENOIT.

THE DISTINGUISHING CHARACTERS OF *JUNCUS BULBOSUS* AND *J. KOCHII*

The exhibit consisted of herbarium sheets of the two species, together with drawings showing their distinguishing characters. The most important of these are:—

Juncus bulbosus L. Plant weak. Stamens 3. Capsule 2.5-3 mm., oblong, obtuse, not retuse at apex, bluntly trigonous, about equalling or rather shorter than the light brown, or greenish, perianth-segments. Capsules closely sessile in a neat level row in the cluster.

Juncus kochii F. W. Schultz. Plant often stouter. Stamens 6. Capsule 2.2-5 (-3) mm., obovoid, blunt, slightly retuse, acutely trigonous at top, usually exceeding the blackish-brown perianth-segments. Capsules irregularly placed in the cluster, usually closely sessile, often a few pedicellate.

Both species are widespread in the British Isles, though *J. kochii* is a neglected plant and its distribution very imperfectly known.

P. M. BENOIT.

SOME INTERESTING PLANTS FROM THE EUROPEAN HERBARIUM OF THE BRITISH MUSEUM.

(1) SPECIMENS CONNECTED WITH PAPERS IN *WATSONIA*

This exhibit was prepared to enable examples of some interesting and uncommon plants discussed in recent parts of *Watsonia* to be seen. The following herbarium specimens were shown:—

Rhynchosinapis wrightii (O. E. Schulz) Dandy; see Bowen, *Watsonia*, **2**, 303; from Lundy Island, N. Devon (v.c. 4), collected by the original finder, F. R. Elliston Wright.

Sagina nodosa var. *moniliformis* Lange; see Wright, *op. cit.*, **2**, 369; northern examples from N. Lancs. (v.c. 69).

Acanthus mollis L.; see Ribbons, *op. cit.*, **2**, 392; a gathering from W. Cornwall (v.c. 1) from the herbarium of the late James Groves.

Rumex × *wrightii* Lousley (*R. conglomeratus* × *cuneifolius*); see Lousley, *op. cit.*, **2**, 396; a duplicate of the type no. from N. Devon (v.c. 4).

Orchis traunsteineri Sauter; see Heslop-Harrison, *op. cit.*, **2**, 371; two sheets from the herbarium of the late H. W. Pugsley, one from Ballyman Glen, and the other from Newcastle, both Co. Wicklow (v.c. H.20).

Carex microglochin Wahlenb. and *C. rupestris* All.; see Davies, *op. cit.*, **2**, 300; the former from Lady Davy's original locality in mid-Perth (v.c. 88), and the latter from W. Sutherland (v.c. 108), from the herbarium of the late T. J. Foggitt.

(2) A "SPECIES PAIR"

Two sheets to illustrate the distinction between *Cardaria draba* (L.) Desv. and *C. chalepensis* Hand.-Mazz. The former from Middlesex (v.c. 21), A. H. G. Alston, 1953, showed the broadly cordate fruit (broader than long) with persistent style, emarginate at the base at maturity. The latter from Cumberland (v.c. 70), R. Martindale, 1952, showed the fruit longer than broad, cuneate at the base at maturity.

BRITISH MUSEUM (NATURAL HISTORY).

VERONICA SECTION BECCABUNGA

The exhibit illustrated:—

1. The distribution of *V. anagallis-aquatica* L., *V. catenata* Pennell and their hybrid in the British Isles.

2. The distribution of all described species of the section throughout the world.

3. The distribution of endemic species of *Veronica* throughout the world.

4. The crossing and fertility relationships of the known diploids and tetraploids of the section *Beccabunga*.

It was concluded that a probable centre of origin of section *Beccabunga* was the area Caucasus-Iran, and that this coincided with a centre

for other species of the genus. A final map illustrated the probable history of the section.

J. H. BURNETT.

EXHIBITS BY MEMBERS OF THE BOTANY SCHOOL, UNIVERSITY OF CAMBRIDGE

(1) THE DISTRIBUTION OF *IMPATIENS* SPP. IN BRITAIN

Maps were shown indicating the dates of the first evidence for, and present status in, the Watsonian vice-counties, of the four *Impatiens* spp. now found wild in Britain. *I. noli-tangere* L. has been recorded from at least fifty-seven vice-counties and is known to persist in ten, but it is almost certainly not native in four of these. It was certainly established locally for a period in ten v.cc. and there are authentic records for eleven more where it was only fugitive. In the remaining twenty-six v.cc. it was demonstrably recorded in error, or was unlikely on various grounds. *I. capensis* Meerb. shows a fairly good correlation between date of first evidence and present abundance. It is still spreading in the northern and eastern Midlands, and is certainly present in twenty-eight v.cc. (probably also in v.cc. 18 and 57). *I. parviflora* DC. (correctly recorded from fifty-five v.cc.) is locally well established in woodlands in south-east England where it has been known for many decades, but in the West and North it is now abundant on some river-banks where in several cases it has only comparatively recently been observed. *I. glandulifera* Royle is now correctly recorded from seventy-two v.cc., excluding Ireland, where it is spreading; it may be present in four more English and Scottish vice-counties (viz. v.cc. 1, 40, 90 and 92). It is now most abundant in the industrial regions of England and Wales, on the Wye, and in Devon and Cornwall, but it is rather rare in most of lowland England, except around London.

D. E. COOMBE.

(2) *KOENIGIA ISLANDICA* IN THE SCOTTISH LATE-GLACIAL

The exhibit consisted of microphotographs of a single pollen grain recovered from late-glacial layers at Whitrig Bog, Berwickshire, and displaying all the characteristic morphological features of *Koenigia islandica* L. Too much cannot be argued from a single pollen grain, but, as contamination during preparation is most improbable, the evidence points towards the presence of *Koenigia* in southern Scotland in late-glacial time.

H. GODWIN.

(3) (a) PHOTOGRAPHS OF BRITISH DACTYLORCHIDS AND SOME SCOTTISH PLANTS

The photographs shown included *Orchis cruenta* O. F. Müll. in Co. Clare and Co. Mayo, *O. occidentalis* (Pugs.) Wilmott, *O. purpurella* T. & T. A. Stephenson, *O. praetermissa* Druce and *O. strictifolia* Opiz.

The photographs of Scottish species included a varied assortment of general interest, taken during the summer of 1953:—*Polystichum lonchitis* (L.) Roth, *Thelypteris phegopteris* (L.) Slosson, *Cerastium cerastoides* (L.) Britton, *Astragalus alpinus* L., *Salix lapponum* L., *S. lanata* L., *S. arbuscula* L., *S. myrsinites* L., *Gentianella septentrionalis* (Druce) E. F. Warburg, *Erigeron borealis* (Vierh.) Simmons, *Carex vaginata* Tausch, *C. norvegica* Retz., *Poa glauca* Vahl and *Cutabrosa aquatica* (L.) Beauv.

M. C. F. PROCTOR.

(b) VARIATION IN *HELIANTHEMUM GUTTATUM*

Herbarium sheets were exhibited showing the effect of cultivation on this species from some British and Continental localities.

Seed from three localities, in Ireland, Brittany and Portugal, was sown at the same time (March 1953), and grown under identical conditions: representative plants from each sample were pressed in mid-August. The three samples showed striking differences in size and habit. The Portuguese plant was the largest, with numerous long many-flowered inflorescences, while the Irish plant remained compact with short flowering axes. In most respects the French plant was intermediate between the other two, but the Irish plant alone had a few bracts on the lower part of the inflorescence. These differences were associated with differences in photoperiodic response, and are probably to some extent a function of this. It is clear that while a simple experiment of this kind will show the existence of genotypic differences, a more detailed experiment is necessary to analyse the nature of these differences, or to give a precise statement of them. It is hoped to do this during the summer of 1954.

The species, like many other annuals, is extremely plastic. This was shown clearly by herbarium sheets of wild material from Ireland and Portugal, and wild and cultivated material from Anglesey.

M. C. F. PROCTOR.

(c) THE CYTOLOGY OF THE BRITISH SPECIES OF *HELIANTHEMUM* AND THEIR ALLIES

The exhibit showed some of the results of chromosome studies carried out on British and Continental species of *Helianthemum* Mill. (sens. lat.) during 1952-3. In general the chromosome counts support the delimitation of genera used by Grosser in his monograph of the Cistaceae (1903, *Pflanzenreich*, IV, 193) and accepted by most recent authors.

The chromosome numbers found in the genera are:—

<i>Halimium</i> (Dunal) Spach	...	...	18
<i>Tuberaria</i> (Dunal) Spach	...	...	14, 36
<i>Helianthemum</i> Mill.	...	...	20, 22
<i>Fumana</i> (Dunal) Spach	...	...	32

The chromosome numbers of the British species as assigned to these genera are:—

<i>Tuberaria guttata</i> (L.) Fourr. (<i>Helianthemum guttatum</i> (L.) Mill.)	...	36
<i>Helianthemum apenninum</i> (L.) Mill.	...	20
<i>H. chamaecistus</i> Mill.	... ..	20
<i>H. canum</i> (L.) Baumg.	... ..	22

It is intended to prepare a fuller account of the investigation for publication later.

M. C. F. PROCTOR.

(4) SOME RARE AND INTERESTING HAWKWEEDS RE-DISCOVERED IN 1953

This exhibit of eight herbarium sheets comprised four species of *Hieracium* from Wales, and four from the Lake District. All were collected during the summer of 1953, the majority after an interval of at least half a century since they were last recorded. All except one, however, came from the recorded stations.

J. E. RAVEN.

(5) (a) *ALCHEMILLA MINOR* HUDS. IN SCOTLAND

This very distinct *Alchemilla*, which is locally abundant on the Yorkshire limestone round Ingleborough, occurs in one isolated region in Ireland (from which specimens were exhibited last year) and had also been recorded from Wester Ross by Wilmott. A successful search was made this year (by M. S. Campbell, J. E. Raven and S. M. Walters) to re-find the P's locality; this resulted further in the discovery of the plant in W. Sutherland also.

The Wilmott locality is on the narrow band of limestone which crosses the road just south of Ullapool ("The Braes of Ullapool"). Here *A. minor* occurs, rather sparingly, in damp, grazed limestone turf around outcropping rock, on a S.W.-facing slope. The situation is not one which suggests a recent introduction.

At Inchnadamph, W. Sutherland, *A. minor* occurs very locally on a sheltered S.-facing limestone bank on very open rabbit-grazed ground. It should be looked for elsewhere in the vicinity (e.g. Elphin, and Cnochan rocks), although it seems unlikely that the plant is anywhere very abundant.

J. E. RAVEN & S. M. WALTERS.

(b) THE INCHNADAMP *ROEGNERIAS*

Roegneria doniana (F. B. White) Meld., formerly thought to be confined to the Lawers range, has been shown (Raven, J., 1952, *Watsonia*, 2, 180) to be locally frequent in the vicinity of Inchnadamph, W. Sutherland. A visit to Inchnadamph this season enabled a further study to be made, which revealed that, in addition to "good" *R. doniana* and *R. canina* (L.) Nevski, a plant occurred with these which was mor-

phologically intermediate between them, possessing the palea characteristic of *R. doniana* and the long awn of *R. canina*. These plants seem to be rather uniform, and the situation in the field suggested a relatively simple case of hybridisation. Dr. A. Melderis has examined the putative hybrid, however, and finds no pollen sterility (which is always evident in the comparable *R. canina* hybrids in Scandinavia); so that the status of the intermediate is still obscure.

J. E. RAVEN & S. M. WALTERS.

(6) *VERONICA SPICATA* L. AND *V. HYBRIDA* L.

These two Linnean species have generally been merged into *Veronica spicata* by Continental systematists, but the existence of extreme forms in Britain has encouraged British botanists to think of them as specifically distinct. Cultivation and cytogenetic experiments confirm the Continental view that even the extreme ecotypes of chalk grassland and limestone cliff should be included in the one variable species, for the characters are merely those of habit and leaf shape and size, and moreover plants from the different British populations all prove to be highly infertile, with the same chromosome number ($2n = c. 68$). A diploid ($2n = 34$) exists in Central Europe, but is much less vegetatively vigorous, and a Swiss plant in cultivation has unfortunately died. It is interesting that the diploid does not seem to have received any taxonomic recognition.

A Breckland plant (VI) was shown, together with one of origin Avon Gorge, Bristol (V4), and the vigorous, fertile hybrid between them (V1 \times V4).

S. M. WALTERS.

(7) RECENT CAMBRIDGESHIRE RECORDS

1953 has been an exceptionally productive season in the recording of the Cambs. flora. The introduction of printed record cards has enabled the recording of distribution to be speeded up and put on a Grid Reference basis, and already over 200 such lists have been compiled for the County.

Notes on one or two of the more interesting 1953 records exhibited:

Alchemilla vestita (Bus.) Raunk. A most interesting confirmation of an old record. Babington records *Alchemilla vulgaris* agg. for "the outskirts of Balsham Wood", but states that it "was ploughed up and extirpated" in 1863. A small quantity of the plant, however, still persists in old rough-grazed pasture by the wood, in what was probably a locality known to Ray in 1660!

Epilobium lanceolatum Seb. & Mauri. A new county record. There is some evidence that this south-western species is extending its range in eastern England; it was first recorded in Bedfordshire in 1943, and has also been recorded for W. Suffolk this year.

Sonchus palustris L. Formerly a native of Cambs., but extinct by the middle of the 19th century, is now apparently spreading back into

the county from its centres of re-introduction at Wood Walton, Hunts. This "aggressive" behaviour is a very curious phenomenon in view of the past history of the species in the Fenland.

Stachys arvensis (L.) L. The first record this century for what must have been a not uncommon weed in earlier times, to judge from the records. Its decline, like that of *Chrysanthemum segetum* L. may be due to improved agricultural methods, particularly to generally higher base-status in arable soils.

S. M. WALTERS.

(8) WILD AND CULTIVATED SPECIMENS FROM SIX POPULATIONS OF *EUPHRASIA NEMOROSA*

Plants representing six wild populations of *Euphrasia nemorosa* (Pers.) H. Mart. were grown in the experimental garden at University College, Leicester, using *Plantago lanceolata* L. as the host-plant. The use of this host resulted in luxuriant development.

The wild populations were located as follows:—two in Leicestershire, and one in Northamptonshire, all being situated on oolite; two from different parts of the Chilterns, on chalk, and one from Box Hill, Surrey, also on chalk.

The first three could not be distinguished from each other under cultivation on general appearance, though some differences have been detected. One of the Chiltern forms, while agreeing essentially with the first three, was easily distinguished in the garden by its small flowers and leaves. The other Chiltern form, and that from Box Hill, differed markedly from one another and from all the other populations. The Chiltern one approaches the Continental *E. condensata* Jord. (*E. stricta* Host, non Kunth) in leaf characters. The Box Hill plant had short internodes and may be Pugsley's *E. nemorosa* var. *calcareae*.

The principal differences between the populations grown were in internode length, leaf size, leaf shape, number of leaf teeth, leaf texture, breadth and texture of calyx teeth, flower size, and details of shape of lower lip. The *condensata*-like form, and the one from Box Hill, showed differences in more characters, and of a more pronounced degree, than the other populations.

The experiment was illustrated by herbarium sheets of both wild and cultivated plants from the same populations, and by contact prints of flowers and leaves of cultivated plants as well as photographs of plants growing in the garden.

The maximum numbers of leaf teeth were 9, 8, 8 (Leicestershire and Northamptonshire), 7, 6 (Chilterns), and 4 (Box Hill), the means ranging from 7.4 to 3.7.

P. F. YEO.

FRESH AND DRIED MATERIAL OF *EROPHILA CONFERTA*

The type specimen of *Erophila conferta* Wilmott from Herb. Mus. Brit. was shown together with living specimens from N. Essex (type-

locality) and central Perthshire. It is a point of interest that whilst the original specimens were in full flower when gathered in the Island of Rhodes on March 8, 1934, plants have been noted in flower in Perthshire in November (1951), and the Essex specimen here exhibited (gathered three days before the meeting) bore flowers. In both localities the majority of plants flower in the spring.

For a description of the plant, and the history of its introduction into Britain, see Wilmott, *Watsonia*, **1**, 137-138 (1948) and Campbell, *Scot. Nat.*, **63**, 49 (1951).

Miss M. S. CAMPBELL.

A BRITISH EPIPHYTIC FLORA

The exhibit was intended to illustrate some of the problems associated with the study of British epiphytic floras, and the opportunities they afford for co-operation between botanists and ornithologists and other zoologists.

The exhibit was based on observations on a group of pollarded willows, on the bank of the river Stour, near Flatford Mill, E. Suffolk. Suggestions concerning the probable means of dispersal of epiphytic plants to the tree tops were made, together with an analysis of the species represented. At Flatford the willows studied were mainly *Salix fragilis* L. with some *S. alba* L., but apparently the species of willow does not affect its consequent epiphytic flora.

Pollarding produces a bowl-shaped depression at the top of the trunk, which gradually becomes filled with leaf-mould and wind-blown material, having an average pH of 5.0. Pollarding provides a greater surface suitable for the establishment of epiphytic plants than is available in a non-pollarded willow. The effect is purely quantitative, and non-pollarded willows may sometimes support quite a rich flora. Thirty species of flowering plants were recorded in the hundred willows studied at Flatford. Over a period of three years only very slight fluctuations in the number and frequency of the epiphytic species were recorded. *Galium aparine* appears to be the most efficient coloniser of epiphytic habitats in the British Flora; this conclusion is supported by the classical work of Willis and Burkill at Cambridge (1893), and by Thompson, working between Bath and Bristol (1925). Thomas at St. Dizier (France) also obtained similar results (1904). It seems probable that this species may be dispersed by three distinct methods to the tops of the willows: as birds' food, attached to birds' feet and feathers, and as a constituent of birds' nests. Some of the epiphytic plants are obviously well established and may form large shrubs (e.g. *Rosa* and *Rubus* spp.), while others may only appear as ephemerals (e.g. *Fagopyrum*). *Epilobium* spp. (especially *E. hirsutum* L.) are very abundant in the neighbourhood, and apparently are well equipped for dispersal, but they do not appear in this epiphytic flora.

The trees were re-pollarded six months before the 1953 investigation and this appears to have had surprisingly little effect on their epiphytic

flora. An observed decrease in the representation of *Crataegus monogyna* Jacq. was thought to be apparent rather than real, and to be due to slow regeneration from the stem stumps, mutilated in the pollarding process. These small shrubs were very difficult to find in the dense new growth of the willow crowns. *Rubus* and *Rosa* on the other hand had regenerated very quickly, and after six months had re-formed as quite large shrubs.

Information relating to the location of other groups of willows, etc., bearing epiphytic floras would be very welcome, as it is hoped to extend these studies. We are greatly indebted to Mr. F. J. Bingley, M.A., Warden of Flatford Mill Field Study Centre, for his assistance and encouragement in this work.

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J. F. M. CANNON.

Miss M. J. HERBERT.

SOME NATURAL AND ARTIFICIAL HYBRIDS IN THE *CAREX FLAVA* AGGREGATE

It now seems clear that the five British members of the *Carex flava* aggregate (*C. flava* L., *C. lepidocarpa* Tausch, *C. demissa* Hornem, *C. serotina* Mérat and *C. scandinavica* E. W. Davies) may be regarded as ecospecies, and the group as a whole as one coenospecies. Some natural and artificial hybrids between these ecospecies were exhibited, together with photographs showing their highly irregular meiosis.

Miss E. W. DAVIES.

ANEUPLOIDY AND CHROMOSOME MORPHOLOGY IN THE CYPERACEAE

Photographs of meiosis in *Isolepis*, *Eleocharis*, *Schoenus*, *Eriophorum* and several species of *Carex* were exhibited. These indicated the presence of aneuploidy and the range of chromosome size and morphology in the *Cyperaceae*.

Miss E. W. DAVIES.

DRAWINGS OF BRITISH PLANTS

Miss FITCHEW.

EGERIA Densa IN BRITAIN

Miss L. W. FROST.

BEWICK WOODCUTS FROM THORNTON'S NEW HERBAL

Mrs. A. N. GIBBY.

POLYGALA VULGARIS AND "*P. OXYPTERA*"

The purpose of the exhibit was to demonstrate that "*Polygala oxyptera* Rehb." is not specifically distinct from *P. vulgaris* L.

It was in two parts, as follows:—

(a) Capsules of *P. vulgaris* and "*P. oxyptera*" were displayed. These were arranged in a continuous series to show the intergradation, and also to show that wing shape is independent of size. A parallel series in *P. serpyllifolia* Hose was also displayed.

It was pointed out that the differences between *P. vulgaris* and "*P. oxyptera*" are not of the same order as those separating the other British species; capsules and seed of these were shown for comparison, and the chief differences were listed.

(b) It was suggested that the frequent occurrence of small flowers with reduced wings on small plants with few-flowered spikes is due to the fact that these are reduced plants from exposed habitats. A series of specimens from one population was shown. It included both small "*oxyptera*" type plants from the exposed crest of a hill, and larger typical *vulgaris* plants from more sheltered conditions below.

It was suggested that *P. amara* L. and *P. austriaca* Crantz also may not be specifically distinct, but that, as so little material is available in Britain, the final decision must depend on examination of Continental material.

D. R. GLENDENNING.

EPILOBIUM LINNAEOIDES HOOK. IN BRITAIN

Specimens of the alien, *Epilobium linnaeoides* Hook f., a native of New Zealand, from Helsby, Cheshire, and Leenane, Connemara, were shown, together for comparison, with the well-established *E. pedunculare* A. Cunn.

Epilobium linnaeoides was determined by G. M. Ash from material gathered at Helsby, Cheshire, in 1938 (it still persists there though it did not flower in 1953) and from near Leenane, W. Galway, where it is well established for about a mile along the roadside west of the village. Near Leenane it grows on the wet banks in association with *Epilobium pedunculare* and *Chrysosplenium oppositifolium* L. A description of *Epilobium linnaeoides* from Cheeseman's *Manual of the New Zealand Flora* was attached.

MISS V. GORDON.

[See also **Plant Notes.**—Ed.]

EPIPOGIUM APHYLLUM

The exhibits were based entirely on the colony discovered in July 1953, in Buckinghamshire.

These included photographs by Messrs. J. P. M. Brennan, J. E. Lousley and J. E. Raven, paintings by Mrs. John Chapple and Miss Roles, and three specimens.

On loan from Kew was a small specimen preserved in a spirit bottle. The most interesting exhibit, however, was a plant bearing a capsule from which seed had been largely dispersed—a feature hitherto unrecorded from Britain and occurring only rarely on the Continent.

R. A. GRAHAM.

VEGETATION MAP OF THE BRECON BEACONS NATIONAL PARK

A vegetation map was displayed summarising the results of the exhibitor's ecological work in the Brecon Beacons and Black Mountains. The ecology was studied on the wider bases of reconnaissance and primary survey. Much intensive work was undertaken though the degree of investigation was, of necessity, subject to the extreme limitations inherent in the survey.

Mapping was conducted on a 6" scale and the data reduced to the scale of 1/25000. The "2½" map" was further reduced to a 1" = 1 mile scale (the exhibit itself) with little loss of detail. The map is an innovation in that it is more than a static picture of the existing vegetational pattern, for by careful study and diligent interpretation of the explanatory text, the trends of vegetational change may be read into the map.

The Vegetation Map is proposed for exhibition in the public galleries of the Department of Botany, National Museum of Wales, Cardiff.

D. P. M. GUILF.

THE FORMS OF *SILENE NUTANS* IN BRITAIN

This exhibit illustrated the paper on *Silene nutans* L. previously published in *Watsonia* 2: 80 (1951) and did not seek to present any new information. An example of each of the several forms of the plant in Britain was exhibited and these were in turn grouped into the two varieties *smithiana* Moss and *salmoniana* Hepper. Herbarium sheets corresponded to switches which, when depressed, illuminated the respective localities on a large map of Great Britain suspended behind the exhibit, thus showing the distribution of each variety. Living plants from cultivation and photographs supplemented the information given with the dried specimens. For comparison with the British plants, a specimen of *S. nutans*, from what is believed to be the type locality in Sweden, was also shown. This plant has been grown at Kew for four years and has remained extremely small in all its parts compared with the British plants growing beside it.

F. N. HEPPEL

MONSTROUS FORMS OF *CALYSTEGIA SYLVESTRIS* AND *GALIUM VERUM*

The monstrous form of *Calystegia sylvestris* (Willd.) Roem. & Schult. from Kilereggan, Dunbartonshire, possessed many flowers with

5 petals free to the base. There were also some flowers with only 2 or 3 free petals, but none was typically gamopetalous. The corolla was white.

A specimen of *Galium verum* L. from the cliff-top near Arbroath, Angus, showed a remarkably erect habit which distinguished it at once in the field from the surrounding vegetation. But more remarkable still was the fact that the flowers had been wholly replaced by branchlets. That vegetative propagation was effective was obvious by the fact that this form covered an area of 6 sq. ft. and 130 stems were counted.

F. N. HEPPER.

BRANCHING IN FOUR *EQUISETUM* SPECIES

The exhibit was part of the results of a preliminary investigation into the variation of habit and habitat within the genus *Equisetum*. Random samples of individual shoots were collected from populations and the various characters of the plants were measured or counted. This preliminary survey was done on *E. fluviatile* L., *E. palustre* L., *E. sylvaticum* L. and *E. telmateia* Ehrh.

The results showed (1) there were significantly fewer nodes on the fruiting shoots than there were on the sterile shoots of the same population; (2) a combination of number of nodes per shoot and number of whorls of branches per shoot gave a good separation of the four species for the 20 populations examined.

It is proposed to collect samples from populations of all species from throughout Great Britain and to make an extensive study of (1) branching; (2) sheath and teeth characters; (3) habitat factors.

B. HOPKINS.

TILLAEA MUSCOSA IN SURREY

Miss S. HOOPER.

NAJAS MARINA

The exhibit consisted of two parts. The first showed the present distribution of *Najas marina* L. in Europe and in Britain. A map of E. Norfolk (v.c. 27), indicated the spread of the species in that vice-county from its original discovery by Arthur Bennett in July of 1883, in Hickling Broad. A few years later it was found by Hanbury and Holmes in Martham Broad, but it was not until 1949 that it was discovered much further inland in Barton Broad. Two years later members of the B.E.S. excursion found *N. marina* in Upton, a land-locked broad, and its latest extension was in 1952, when Dr. J. M. Lambert and D. H. Barry found it to be abundant in Hoveton Little (Inner) Broad. Little evidence has come to light as to why the plant has suddenly spread. Ecological factors show very little correlation, and NaCl concentration, once thought to be a factor, was shown on the map to be very variable.

The second part consisted of herbarium specimens of two apparently distinct forms, collected from the same square metre of water at White Slea, near Hickling Broad, in September 1953. One had short, narrow leaves (1.2 cm. long) each with 4-7 spines on each side and with 1, 2 or 3 spines on the back of the leaf. The short, spiny internodes, the obovoid fruit (4.4.5 × 2.2.5 mm.) and the pentagonal markings on the seed-coat, suggested, with the luxuriant growth (up to 100 cm.) that the specimen may have been the variety that Rendle saw only from N. Germany and in his monograph on the genus (1899) called var. *brevifolia*.

The other specimen was slightly different in having somewhat longer internodes which were completely spineless. The leaves were longer (1-) 2.4 cm., and had 5-10 short teeth on either side with very few, if any, on the midrib. The oblong fruit (4.4.5 × 1.5.2 mm.) was narrowed towards the sub-obtuse apex, and along with these other characters suggested a form intermediate between that originally collected by Bennett in Hickling Broad—which Rendle terms form β —and the N. European specimens called by Rendle var. *angustifolia*.

Both specimens were of fertile female plants and it is worth noting that, as far as is known, no male plants have been recorded from Norfolk. It would be interesting to know if any male plants are recorded as Norfolk material in any Herbarium.

A. C. JERMY.

DRAWINGS OF SOME ISRAELI PLANTS

Mrs. R. KOPPEL.

APIUM NODIFLORUM AND *A. REPENS*

Some "typical" specimens of *Apium nodiflorum* and the rare *A. repens* were shown, together with some intermediate "problem" plants. The two species can be distinguished by their habit, leaf shape, length of peduncle and the number of bracts below the umbel. There are a very large number of plants combining some characters of both species, even from localities where *A. repens* is not known. At present I do not feel able to say whether these are hybrids, or merely forms of the variable *A. nodiflorum*. I should be very grateful for further records and specimens.

Miss S. M. LITTLEBOY.

A HYBRID *SENECIO* NEW TO BRITAIN

Material was exhibited of *Senecio sylvaticus* L. and *S. viscosus* L. from Frensham Little Pond, Surrey (v.c. 17), and of the hybrid between them (*S. × viscidulus* Scheele). Two forms of the hybrid were shown, one a good intermediate and the other with the evidence of *S. sylvaticus* less obvious.

J. E. LOUSLEY.

[See also **Plant Notes**.—Ed.]

ARTEMISIA NORVEGICA

Specimens were shown of plants in flower collected in 1953 from the locality in north-west Scotland discovered by Sir Christopher Cox, together with photographs and a list of associated species.

J. E. LOUSLEY.

A WILD ARUM HYBRID

A living plant of a wild hybrid between *Arum neglectum* (Townsend) Ridley and *A. maculatum* L., found at Arundel, Sussex, was exhibited, together with herbarium specimens of this plant and *A. neglectum*. Drawings of chromosome counts at first anaphase of meiosis in *A. neglectum*, *A. maculatum*, and the hybrid plant were also shown.

It has been shown that in this country at least the vast majority of *A. maculatum* has $2n = 56$ chromosomes. Cytological examination of plants of *A. neglectum* from Cornwall, Dorset, and Sussex has shown that this species has $2n = 84$ chromosomes or occasionally an immediate aneuploid derivative of 84.

The plant exhibited has $2n = 69$ or 70 chromosomes, which may be regarded as sufficient evidence that this plant is an example of a wild first-generation hybrid between *A. neglectum* and *A. maculatum*.

J. D. LOVIS.

THE SYNTHESIS OF *ASPLENIUM* \times *BREYNII*

Six plants of *Asplenium* \times *breyneii* (*A. septentrionale* \times *trichomanes*) have recently been raised as the result of hybridisation experiments carried out by us in the experimental gardens of the Department of Botany of the University of Leeds. Success has been obtained only when the diploid form of *Asplenium trichomanes* is used as the male parent in attempted crosses.

Cytological examination of meiosis in one of these synthesised plants shows the same features, i.e. 36 bivalents and 36 univalents, as had already been found in wild plants of *A. \times breyneii* by Professor I. Manton. The triploid nature, $3x = 108$, of the synthesised plants has also been established by means of root-tip squashes.

While our experiments were in progress we received a communication from Dr. D. E. Meyer of Berlin which includes an account of the successful synthesis of *A. \times breyneii* so our exhibit was not the first example of the synthesis of this hybrid fern.

Herbarium specimens of both wild examples and of a synthesised plant of *A. \times breyneii* were exhibited, together with herbarium material and live plants of the two parent species.

Maps showing the distribution in the British Isles of the hybrid and its parents, a photograph of a synthesised plant of *A. \times breyneii*, and photographs of cytological preparations of meiosis in wild examples of the hybrid and of root-tip mitosis in synthesised *A. \times breyneii* completed the exhibit.

J. D. LOVIS & Miss M. G. SHIVAS.

COMPARATIVE FIGURES OF BRITISH PLANTS

REV. W. KEBLE MARTIN.

SOME INTERESTING GRASSES COLLECTED AT FORRES

A selection of grasses from the Society's excursion at Forres (1953) was exhibited. The following specimens were collected:—

1. In v.c. 95, Elgin: *Deschampsia setacea* (Huds.) Hack. (Culbin Sands); *Corynephorus canescens* (L.) Beauv. (Lossiemouth); 2 phenotypically different forms of *Poa subcoerulea* Sm., one from the sea-shore (Culbin Sands) and the other from a grove (Forres); a peculiar form of *Festuca arundinacea* Schreb. having greyish lower sheaths, short, rigid leaves and dark-purplish spikelets (sand dunes, Findhorn); a hybrid *F. arundinacea* Schreb. \times *F. gigantea* (L.) Vill. (Greshop Wood); 3 coastal forms of *F. rubra* L., viz. f. *litoralis* Hack. (sea-shore, Culbin Sands), var. *arenaria* (Osbeck) Koch (sand dunes, Culbin Sands) and var. *glaucescens* (Hegetschw. & Heer) Nym. (near Garmouth); *F. vivipara* (L.) Sm. (bank of River Findhorn, Darnaway Forest) and *Bromus lepidus* Holmb. (Forres).

2. In v.c. 96, Easternness: *Deschampsia cespitosa* (L.) Beauv. (viviparous) and *Poa flexuosa* Sm., both on Coire an Lochan (Cairn Gorm).

A. MELDERIS.

A METHOD FOR THE ANALYSIS OF A SUSPECTED HYBRID POPULATION BETWEEN *CENTAURIUM MINUS* AND *C. LITTORALE*

Populations of *Centaurium* on the sand-dunes at Freshfield, S. Lanes. (v.c. 59) were studied in an attempt to determine the extent of hybridisation between *Centaurium minus* Moench and *C. littorale* (Turner) Gilm. The two species were first defined by an adaptation of Wilmott's (1950) method for the analysis of critical species, population samples being analysed for the morphological characters usually used to distinguish the two species.

On the basis of this analysis 6 characters were considered to be sufficiently distinct to be used to separate the two species. A suspected hybrid population was scored for these characters. Using Anderson's (1936) Hybrid Index method a numerical index was obtained for each individual. The population was summarised as a frequency distribution which showed a range of intermediates between the two species. Herbarium sheets of the two species and the putative hybrid were included in the exhibit.

ANDERSON, E. 1936, Hybridization in American Tradescantias, *Ann. Mtss. Bot. Gard.*, **23**, 511.

WILMOTT, A. J. 1950, A New Method for the Identification and Study of Critical Groups, *Proc. Linn. Soc.*, **162**, 83-98.

Miss W. T. M. O'CONNOR.

A REMARKABLE VARIETY OF *RANUNCULUS FLAMMULA* FROM ORKNEY AND SHETLAND.

The exhibit illustrated the distinguishing morphological characteristics of an unusual variety of *Ranunculus flammula* L. found in the Orkney and Shetland Islands in June 1953. The plant grows in exposed situations by the sea and is dwarfed, with short internodes and thick fleshy leaves which are very broad with a cordate base. It appears to be somewhat similar to *R. flammula* forma *minima* A. Benn., but it is suspected that there is a genetical basis for the unusual morphology and that the plant is therefore worthy of higher rank than a "forma".

Miss P. A. PADMORE.

A *HYPOCHOERIS* HYBRID

Last August in company with Mr. F. C. Wallace, I found a number of plants of an evident hybrid between *Hypochoeris glabra* L. and *H. radicata* L., growing in a sandy field in Surrey, with both parents. The plants were obviously intermediate, particularly in the fully open capitula, and the achenes were all sterile. The capitula are nearer those of *H. glabra*, but always wider when open, and the bracts much exceed the involucre. Herbarium specimens of the hybrid and both parents were exhibited.

N. Y. SANDWITH.

HYBRIDS OF *EPIPACTIS HELLEBORINE* AND *E. PURPURATA*

C. A. THOMAS.

SOME MEMBERS OF *CAREX* SECTION *ACUTAE*

T. G. TUTIN.

SALICORNIA. A DISPLAY OF IGNORANCE

The exhibit consisted of specimens (preserved in 70% alcohol) of representatives of the five groups into which the British species can be divided by way of a preliminary classification.

Salicornia perennis Mill. is a very distinct species and the only perennial one in this country.

The numerous annual species are difficult to classify, probably mainly because of the extreme reduction of the floral and vegetative parts and the consequent lack of orthodox "characters".

The accompanying table (Table 1, page 100) shows the representatives of four fairly clear-cut groups of species.

In each of these groups there appear to be a number of distinct entities which probably represent species. Two of these belonging to the *dolichostachya* group were shown. In order to attempt the clarification of the position I should be grateful for population samples from as many localities as possible. Fresh material travels perfectly if placed in polythene food bags (obtainable from Boots or Woolworth's) and packed to prevent crushing. It is useful in flower (usually August to September) or fruit (late September to end of October) or, best, if specimens can be obtained in both flower and fruit from the same place.

T. G. TUTIN.

TABLE 1.

PLANT	BRANCHES	FERTILE SPIKES	CYMES	SEED	PERIANTH	HABITAT
<i>S. DOLICHOSTACHYA</i>	Erect and very bushy : deep green, becoming brownish.	Some in fours, nearly all simple, long and tapering.	3-flowered, central flower rounded above, long-cuneate below, larger than lateral ones.	1.5-1.7 x 1 mm.; hairs very short, hooked.	Apparently persistent and eventually splitting at the top.	Soft, wet mud below high-water neap tides.
<i>S. STRICTA</i>	Erect : yellow-green, becoming yellow.	In pairs, simple or, in large plants, branched again. Lower branches are normally shorter than main stem.	3-flowered, all three flowers approximately the same size.	1.5 x 0.8 mm. with hooked hairs.	Falling when seed is ripe, leaving the seed on the plant.	Soft mud in <i>Aster-Salticornia</i> zone and round cuttings and channels at higher levels.
<i>S. PROSTRATA</i>	± Prostrate : reddish to magenta.	In pairs, the primary ones mostly once or twice branched; ultimate branches short (5-15 mm.). Lower branches about as long as main stem.	3-8 flower rounded below and not separating the smaller lateral flowers.	1.4 x 0.9 mm. with hooked hairs.	Apparently tough and persistent or sometimes coming off with the fruit attached.	Firm clay or muddy shingle often in places only submerged at spring tides. <i>S. appressa</i> , <i>S. smithiana</i> and <i>S. ramosissima</i> appear to belong to this group.
<i>S. DISARTICULATA</i>	Erect and bushy : glaucous-green, turning yellow.	In pairs, simple or with short secondary branches.	1-flowered, flower almost circular, brown or reddish-brown.	1 x 0.6 mm. with few short hooked hairs and some longer curved ones.	—	Forming a narrow zone at about high-water spring tides.

THE RANGE FORMS OF *DRYOPTERIS DILATATA* AND THE SEPARATION OF A NEW SPECIES

The wide range of form existing in tetraploid *Dryopteris dilatata* (Hoffm.) A. Gray was illustrated by herbarium sheets. A diploid form, collected on Ben Lawers, Mid-Perth, by Mr. A. H. G. Alston, is considered worthy of specific separation owing to its morphological and cytological distinction. Hybrids between the diploid and tetraploid forms have been synthesised and found to be triploid or sterile with approx. "n" bivalents and "n" univalents at meiosis ($n = 41$ in *Dryopteris*).

S. WALKER.

CUSCUTA AUSTRALIS

The appearance of this species as an accidental introduction to the London Region was evidenced by the specimens shown.

The first case was brought to light by Miss J. Maude, M.Sc., of Enfield Grammar School, who sent specimens to the British Museum (Nat. Hist.) and to one of us (J.F.S.). These specimens were parasitising Chinese Asters (presumably *Callistephus chinensis* (L.) Nees) growing in the garden of a Mr. Hedgley at Enfield, Middlesex (v.c. 21); though we have not been able to follow this up fully, it seems that the host plants were raised from seed imported from Austria and elsewhere and there can be little doubt that the Dodder seed was introduced in one of these samples.

The second specimen was found by S. T. Jermyn and B. T. Ward while searching for aliens on the Barking Municipal Rubbish-dump, S. Essex (v.c. 18); the following hosts were noted:—

Artemisia verlotorum Lamotte
Senecio squalidus L. (immature)
Polygonum aviculare agg.

and one other plant which had possibly been killed by the parasite.

No explanation for this particular occurrence is apparent but it is obvious that it may have originated in a specimen thrown out by a gardener or, more likely in view of its associates, the seed may have been deposited there with cleanings or packings.

With the help of Dr. A. Melderis this dodder has been referred to the variety *cesatiana* (Bertoloni) Yuncker (see T. G. Yuncker, The Genus *Cuscuta*, in *Mem. Torrey Bot. Cl.*, **18**, 113-331 (1932)).

We wish to express our gratitude to Dr. A. Melderis and Mr. E. B. Bangerter for assistance in staging this exhibit and to "Artricia Photographs" of Enfield for permission to include the photograph of infested asters, taken in the laboratory of Enfield Grammar School.

B. T. WARD & J. F. SHILLITO.

[See also **Plant Notes.**—Ed.]

SORBUS ARIA AND ITS ALLIES IN BRITAIN

Specimens and maps of the British distribution of the following species were exhibited:—*Sorbus aria* (L.) Crantz, *S. leptophylla* E. F. Warb., *S. eminens* E. F. Warb., *S. hibernica* E. F. Warb., *S. porrigentiformis* E. F. Warb., *S. lancastriensis* E. F. Warb., *S. rupicola* (Syme) Hedl. and *S. vexans* E. F. Warb.

E. F. WARBURG.

ERICA MACKAIANA IN IRELAND AND SPAIN

This species has long been known from Connemara and northern Spain, having been discovered in both regions almost simultaneously. Recently I have been able to show that it is also present in abundance round the shores of Upper Lough Nacung in West Donegal. The valley here has been scheduled for hydro-electric development and the level of the lough is to be raised; the flooding, together with associated constructional work and peat-cutting, constitutes a serious threat to a very rare species and the Society's Conservation Committee is supporting efforts to save as much as we can.

The great abundance of this species over two very restricted areas in Ireland is connected with the fact that it never sets seed there, but spreads vegetatively. In Spain, though vegetative spread is important, dispersal by seed also takes place.

The exhibit included maps showing the distribution in Ireland and Spain, and details of the distribution round Upper Lough Nacung, the earliest known specimen of the species collected by William McCalla from Roundstone, Connemara, in 1834, specimens from Spain, and material of *Erica* × *praegei* Ostenf. (*E. mackaiana* × *tetralix*) from L. Nacung.

D. A. WEBB.

CERASTIUM SUBTETRANDRUM—NOT A BRITISH SPECIES

By means of a discriminant analysis (Fisher, 1941; Whitehead, in the press) it was shown that the Scandinavian populations described by Murbeck as *Cerastium subtetrandrum* differed from both Scandinavian and British populations of *Cerastium tetrandrum*. The characters most important in this distinction were pollen size, length/breadth ratio of the petals, and seed size, but other characters, e.g. ratio petal length/sepal length, were also correlated to varying degrees. An examination of British material from the herbaria at Edinburgh, Kew and Oxford, which had previously been determined as *C. subtetrandrum* showed that it should, on the basis of this analysis, more properly be assigned to *C. tetrandrum* Curt.

So far no British material examined had been found to lie within the range of variations typical of the Scandinavian species *C. subtetrandrum* and it was concluded that at present *Cerastium subtetrandrum* (Lange) Murbeck must be excluded from the British Flora.

FISHER, R. A., 1941, *Statistical Methods for Research Workers*, 8th edition.

F. H. WHITEHEAD.

VARIATION IN THE GENETICAL STRUCTURE OF THE *CANINAE* ROSES

Some of the consequences of variation in chromosome behaviour at meiosis in the *Caninae* were illustrated. These included the formation of aneuploids, whose frequency in different pentaploid and hexaploid families of seedlings was shown, together with details of meiotic behaviour in some of the aneuploids. They retain the *Canina* system more or less unimpaired. The occurrence of hexaploids (from fertilisation of unreduced eggs) and of tetraploids (following development of a normal egg without fertilisation) in otherwise pentaploid families indicates one possible way in which the different levels of polyploidy in the *Caninae* may have arisen.

MISS A. WYLIE.

A further account of the various exhibits displayed may be found in *Nature*, **173**, 113 (1954).

REVIEW

The Natural History of the City. By R. S. R. FITTER and J. E. LOUSLEY. Published by the Corporation of London, Guildhall, E.C.2. Pp. 36, with 14 photographs. 1953. Price 2/3, post free.

No less than 269 flowering plants and ferns, 3 mammals, 31 birds, 56 insects and 27 kinds of other invertebrates have been recorded from bombed sites in the City of London. The chapters on birds, mammals and insects are written by R. S. R. Fitter, and those on plants by J. E. Lousley.

A short history is given of the study of City plants from William Turner's *Names of Herbes* (1548) to the outbreak of the recent war. Special attention is given to the mode of introduction of the seeds of many of the species found in the area, e.g. wind-dispersed (*Chamaenerion angustifolium*, *Senecio squalidus*, *Erigeron canadensis*, *Pteridium aquilinum*, etc.); by horse-traffic (*Scandix pecten-veneris*, *Trifolium pratense*, *T. hybridum*, *Polygonum convolvulus*, etc.); on wheels and boots (*Plantago lanceolata*, *P. major*, *Polygonum aviculare*, *Matricaria matricarioides*, etc.); by commerce (*Lycopersicon esculentum*, *Ficus carica*, *Anethum graveolens*, *Fagopyrum esculentum*, etc.); by birds (*Sambucus nigra*, *Solanum nigrum*, *Lemna minor*, etc.); and from gardens (*Buddleja davidi*, *Colutea arborescens*, *Linaria purpurea*, *Ailanthus altissima*, *Papaver atlanticum*, etc.).

Three plants named after London are also fully treated, viz.:—*Senecio* × *londinensis*, *Platanus* × *acerifolia* (London plane) and *Sisymbrium irio* (London rocket). An appendix gives a list of all the flowering plants and ferns found in the City since 1942, with indications of their relative frequency.

D. H. KENT.

OBITUARIES

MARGARET KNOX (— - 1952) died at an advanced age on April 29th, 1952. She was of Scottish extraction, her father hailing from Peterhead. Miss Knox was born in London: she studied painting at the Slade School of Art and for several years spent the summer vacation with Walter Russell's sketching party in Cornwall. A number of her paintings of wild flowers dating from 1899 exist and form the nucleus of the collection which she made during her long and active life. After the death of her father she made an extensive tour in the Dominions during which she crossed Canada, travelled widely in New Zealand and spent a few weeks in Australia. In subsequent years she visited the Continent from time to time. She does not, however, appear to have painted when abroad. During the interval between her earlier sketches in Cornwall and the departure on her world tour she made a few additions to her paintings of wild flowers as opportunity offered, but after returning to England she took up painting in earnest and formed the ambition to make as complete a collection of paintings of British plants as she could. Her note-books show that she planned during winter a programme to cover the flowering period for the following year, which would enable her to visit some of the least accessible stations in the United Kingdom at the time of flowering of the rarer plants. If, as occasionally happened, the plant in question could not be found, some other plant would be chosen to occupy the available time. In order to secure fidelity of form and colour, every plant had to be seen in its native haunt. The writer and his wife made their first ascent of Ben Lawers in the summer of 1932. Approaching the summit, they spied Miss Knox toiling slowly ahead in what proved to be an abortive attempt to see *Saxifraga cernua* in flower. It seemed as natural to find her on this mountain as in her home in Highgate. For almost twenty years she climbed Ben Lawers chiefly to see this saxifrage in flower and eventually her quest was rewarded. On this memorable climb in 1932 we spent a long afternoon on the summit being shown many of the rarities for which Ben Lawers is noted. The following morning we were travelling between Killin and Aberfeldy: we called at the Lawers Hotel to enquire after her health after her exertions of the previous day. She had partaken of an early breakfast and was "away on the mountain"!

Miss Knox became a member of the School Nature Study Union many years ago and we shared her company in many rambles during our long period of membership. Soon after the opening of the South London Botanical Institute, she became a member, took part in its varying activities, became a member of the Council in 1936 and served until her death. In 1931 she joined the British Bryological Society and usually

took part in the spring and autumn meetings. She was at Dorchester during the spring meeting when she became ill, passing peacefully away a few days after being removed home. She shared with some other field botanists a strong antipathy to the activities of the old Botanical Exchange Club, and it was only when convinced that our Society held very different objects from the B.E.C. as she had known it that she became a member. She carried her age lightly and attended many of our excursions and meetings, at some of which she exhibited a number of her paintings. On the advice of the late A. J. Wilmott she gave her large collection of water-colour paintings of British wild flowers to the nation and they have been transferred to the Department of Botany at the British Museum (Natural History). A few local paintings have been bequeathed to the citizens of Peterhead.

Margaret Knox possessed those virtues particularly associated with the Scottish character in a high degree. She retained an active memory and seemed to extract humour from every incident in her long and busy life. She had an inexhaustible supply of good stories and many botanists will recall how, after the day's work was over, she would entertain a botanical party at some hotel with her reminiscences, so that the veriest stranger amongst us became drawn into that friendly circle which is so outstanding a feature when field botanists come together.

I am indebted to Mrs. V. M. Hale of Bromley and to Mrs. Adriana White of Ampfield for information concerning Miss Knox's early life. I am glad to have the opportunity of paying a tribute to the gracious lady whose friendship I so valued in life, and of whom I shall retain happy memories so long as I retain memory itself.

J. E. WOODHEAD.

ROBERT LLOYD PRAEGER (1865-1953).—The death of Robert Lloyd Praeger on May 5th, 1953, at the age of 87, marks the end of an epoch in the biological exploration of Ireland. He was the last survivor of a remarkable group of men who belonged to the pre-specialist age of scientific natural history, and whose achievement, thanks to the combination of very wide interests and enthusiasm with great physical energy and stamina, has something of an epic quality. Praeger in his most active period of field work would average 20 to 25 miles of cross-country walking day after day, accumulating each day several hundred records; would spend the evening writing up notes and preparing perhaps 50 herbarium specimens, and could find time meanwhile to ferret out anything of geological, zoological or archaeological interest which lay near his route. He was sustained, not by the daemonic energy of the sort that enabled H. C. Hart to traverse all the mountain ranges of Ireland, botanising at six miles an hour, but by a dogged and tireless persistence which enabled him to "keep on going when the rest had stopped". Utterly indifferent to weather or terrain, he maintained that the best boots were those with plenty of holes in them to let the water out, regarded swimming a stream in his clothes as a perfectly normal

part of field-work, and held that the naturalist who felt under an obligation to keep reasonably dry and clean missed much that was revealed to those who would "poke their enquiring noses, like terriers, into every hole, be it dry or wet". In his later years he did not disdain motor transport when occasion offered (he found the third Irish station for *Alchemilla alpina* by stopping the car at the foot of an undistinguished Kerry mountain and sitting there while his companion, at his suggestion, went up to see what grew on its top); and although a puritan streak did not allow him to feel comfortable in a first-class hotel, he did not practise toughness for its own sake—he simply saw that the programme was carried through in the most rapid and practical way. It is in this spirit that we may picture him as Secretary of the Belfast Field Club struggling up the Mourne Mountains in a blinding storm when all others had turned back; swimming through subterranean lakes at Mitchelstown with a candle in his hat; camping on Inishturk in an abandoned shed in a medley of wire, dynamite, fish-scales, petrol, cement and sawdust ("an ideal existence", he comments); exploring the dense vegetation of Connemara lake-islands clad in a vasculum and walking-stick; digging bronze-age cairns on Carrowkeel and sifting eskers for marine shell-fragments; joining in deep-sea trawling off Cork and attempting to land on Rockall.

But Praeger was much more than a vigorous, enterprising and versatile naturalist. Directing all this activity was a brain which, though limited perhaps in imaginative range, was acute and shrewd, which could very rapidly ascertain and marshal all the relevant facts, and could expound them with quite remarkable lucidity. Though scholarly he was never finicky, and was quite innocent of the disastrous pride in unpublished knowledge which besets so many naturalists. The skill with which he collated and set out in *Irish Topographical Botany* and *The Botanist in Ireland* his own records and those of his predecessors means that, although Ireland remains less thoroughly explored botanically than Britain, the results of the exploration are far more effectively integrated and codified.

Born near Belfast in 1865, Praeger received as a schoolboy his first training in biological study from the Belfast Naturalists' Field Club, which included then a large number of exceptionally keen and talented workers. He trained as an engineer at Queen's College; and his earliest substantial publication was on the sub-fossil molluscs in the estuarine clays of Belfast which he came across in the course of his work on the construction of a dock. In this now classic paper he brought forward for the first time evidence that since the last glaciation the climate has been warmer than it is to-day, and may therefore claim to be the discoverer of the neolithic climatic optimum. His prospects as an engineer seemed dependent on accepting a post which would cut him off from his botanical and geological contacts, so with characteristic courage and decision he gave up his career, and after two or three years of an uncertain future came to Dublin in 1892, where a post had been found for

him in the National Library. Here he remained for over thirty years, succeeding eventually as Librarian a few years before circumstances consequent on the setting up of the Irish Free State enabled him to retire on favourable terms at a relatively early age.

It was soon after he came to Dublin that he formed the project of compiling an *Irish Topographical Botany*. The library side of the task (which was to include the making and sorting of over 30,000 slips, and assembling a bibliography of almost 1,000 references) would have daunted many men; but it was the least part of the work. For a survey of the literature in 1895 revealed that of the forty county-divisions in Ireland only eleven were at all adequately explored (one by Praeger himself a few years earlier); for seven others some sketchy lists existed; but over half were virtually unknown. Praeger determined to devote his holidays for five years to the exploration of these; and 200 days of field-work, carefully planned and unflaggingly executed during this period, enabled the work to be published in 1901. Alike in the completeness of its lists, the citation of its authorities, and the indications of frequency and ecological preferences it compares very favourably with its English counterpart.

Supplements to *Irish Topographical Botany* appeared at intervals throughout Praeger's lifetime, but the compiling of local records was no longer his major occupation, and he turned from this rather solitary work to a number of co-operative enterprises. With Pethybridge he carried out an ecological survey of the mountainous region south of Dublin, and soon after this he became a member of the British Vegetation Committee. Already joint editor of the *Irish Naturalist* (a post he retained throughout its thirty-two years of life), he became in 1903 Librarian of the Royal Irish Academy and editor of its *Proceedings*, retaining the former post till 1931 and the latter till 1945. A triennial series of joint conferences and excursions by all the Irish Field Clubs under Praeger's leadership was held from 1895 to 1907. The experience and contacts developed in these led him to organize the general biological survey of Lambay Island (1905-6), which proved so rewarding that it led on in its turn to the celebrated Clare Island survey of 1909-11. Although the most sensational and substantial results of this survey were in the realm of zoology, the knowledge gained of the distribution of plants, especially cryptogams, over a wide area of western Ireland which had hitherto been worked only in the neighbourhood of the principal hotels, was of considerable importance: over 500 species new to Ireland were recorded, and 11 new to science described. Nobody but Praeger could have assembled in this remote spot such a distinguished team of specialists, organised tolerable working conditions for them, and bullied them into publishing their findings within a very few years. The problems of insular distribution, which originally prompted the survey, led him to undertake at this time a very extensive series of experiments on the power of flotation of seeds and fruits of British plants—a pioneer piece of experimental ecology which deserves to be extended and consolidated.

In this way Praeger became a sort of godfather to most of the societies in Ireland which related to any form of natural history; and there are few of them which he did not either found, or see through hard times, or rescue from the doldrums and revivify. This was notably true of the Dublin Naturalists' Field Club; of the Geographical Society of Ireland (of which he was first President); of the Royal Horticultural Society of Ireland; and of the Royal Zoological Society of Ireland, to the adornment of whose gardens with flowering shrubs he devoted much care and labour during the second War (amusing tales were told of the grubby gardener who, when questioned, turned out to be the President). His interest in horticulture and exotic floras grew during the second half of his life; and in the twenties he undertook the monographing of *Sedum* and *Sempervivum* for the Royal Horticultural Society. This bore fruit in two admirably clear and practical volumes, which make one regret the curious diffidence he showed in tackling taxonomic problems in the native flora. In preparing these monographs he travelled to the Canaries and Bulgaria; and about the same time he took part in the International Phytogeographical Excursions through the Alps and Scandinavia. These travels, together with some personal contacts (his father was Dutch and his wife German), gave him an awareness of contemporary continental botany which was at that time not very common among British field workers.

The year 1934 saw two great achievements. One was the publication of *The Botanist in Ireland*, a brilliant synthesis of fifty years' field experience, with a comital flora thrown in for good measure. The second was the launching of the work of the Irish Quaternary Research Committee. Praeger alone saw that the problems that were vexing archaeologists and phytogeographers could both be illuminated from the same source—bog-borings and pollen-analysis; and he alone knew that Jessen of Copenhagen was the man to start off the work. To his obstinate hammering in of these two points at one committee after another we owe Jessen's impressive volume on the post-glacial vegetation of Ireland and the training of G. F. Mitchell in quaternary research.

Three years later *The Way That I Went* appeared and soon ran through three editions. It is a happy blend of topographical commentary on Ireland with autobiographical reminiscence, and is the best of his numerous popular works (though mention should be made of his excellent guide to Co. Down, written in 1898 for the local railway company). Its success helped to make him a public figure in Ireland, well known to many whose interest in natural history was slight.

Up to the age of eighty Praeger remained remarkably youthful in mind and body, though it was generally felt that he had left till too late the composition of his two last books, a general natural history of Ireland, and a series of biographical sketches of Irish naturalists. Both are useful for reference, but they fall far short of his best work both in accuracy and originality of conception. When the I.P.E. visited Ireland in 1949, though unable to accompany them into the field, he took great pleasure in presiding at their opening session. But in his

last few years disabilities and misfortunes befell him; he was unable to walk far, he was cut off from his friends by deafness which became total in 1950, and he lost his wife, the devoted companion of all his wanderings. When the end came none of his friends could feel it was too soon.

Praeger possessed in full measure the bluff, and at times gruff manner which is traditionally associated with his native Ulster; and there were times when the practical scepticism with which he greeted a project which one hoped deserved enthusiastic praise could be chilling. But although he had a shrewd and accurate estimate of his own abilities he was quite devoid of vanity, and was free from jealousy and touchiness to a quite remarkable degree. If he were criticised he replied vigorously, but bore not the least ill-will and was prepared to turn round and work with his critic immediately. And to any younger man who was really fired with enthusiasm and was prepared to work, Praeger's generosity with his time, his effort, and often with his money, was unbounded.

The bulk of his estate is bequeathed to a fund, originally collected by his admirers on his eightieth birthday and administered by the Royal Irish Academy, to promote field studies in natural history. It is a fitting memorial; but no less fitting is the memorial he will leave to at least one generation—the spur to extra effort that is given us when we compare our achievement with his.

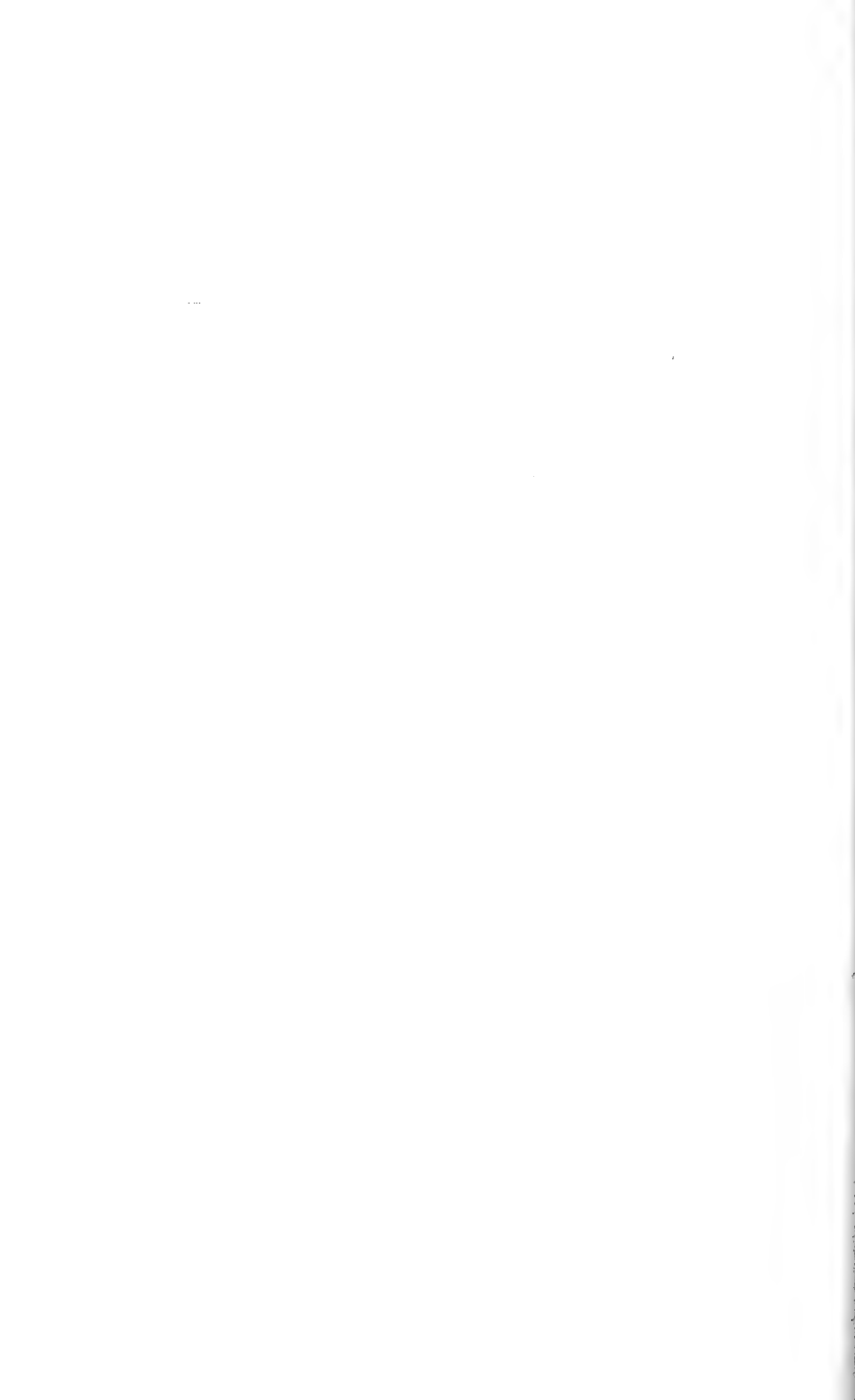
D. A. WEBB.

FRANCIS RILSTONE (1881-1953) was born at Penhallow near Perranporth, Cornwall, on November 5th, 1881, and died in hospital at Truro after a short illness on January 22nd, 1953. He was the elder son of John Rilstone, a mine blacksmith, who became a J.P. and took a prominent part in the social and religious life of the parish. As a boy he attended Penwartha school where he became a pupil teacher and from there went to Treleigh near Redruth and then to Westminster College, London, for professional training. After teaching for some years at St. Mary's School, Truro, he became headmaster first of St. Agnes Boys' School and in 1914 of the County Primary School at Polperro. Here he remained until he retired on a break-down pension in 1934. His life at Polperro was evidently very full. He was a freemason, a Methodist local preacher and for some years chairman of the parish council. When he retired he went to live in the cottage on the hill between Penhallow and Perranzabuloe which had been his boyhood home. He was a bachelor.

He began botanising in 1905 or 1906 when F. H. Davey was preparing his *Flora of Cornwall* and with W. Tresidder for a companion spent the whole of at least one summer holiday exploring the country within a five mile radius of Penhallow. Afterwards he supplied records to E. Thurston and C. C. Vigurs for a Supplement. But he told me his first good find for the Supplement, *Nitella gracilis*, was made when he was looking for small algae in a marsh pool. From the first, Rilstone was as keenly interested in cryptogams as in phanerogams. He used to



FRANCIS RILSTONE, 1881-1953



quote Isaac Foot's conundrum, "What is the difference between a Rilstone and a rolling stone?" The answer is that Rilstone was a bryologist. He became acquainted with W. H. Pearson and D. A. Jones and at the latter's invitation joined the Moss Exchange Club, Section II, of which he soon became distributor. He was present at the meeting at Dolgelley in 1922 when the two sections of the old club were merged to form the British Bryological Society and continued for a further period to act as distributor of mosses. Then at a meeting at Ross-on-Wye in 1925 Dr. Rhodes persuaded him to take up the study of micro-fungi. It was a great joy to him when the Mycological Society held their spring foray at Perranporth in 1952 and he was able to show them the fungus treasures of his garden. A manuscript record of his work in this subject was presented to the Royal Institution of Cornwall. His work on mosses and hepatics culminated in "A Bryophyte Flora of Cornwall" which was published in 1948.

Rilstone began to study brambles seriously in 1919 and sent his first twenty gatherings to Kew to be named by R. A. Rolfe. Later on he came to know H. J. Riddelsdell and relied on him for determinations. Riddelsdell helped him generously with specimens of standard species not found in Cornwall, but could make very little of the Cornish plants he was asked to name. However a visit which Riddelsdell made to Looe in 1924 cleared up some difficulties and enabled Rilstone to publish his first important paper on the brambles of the county. About 1930 he acquired a set of between 300 and 400 gatherings of *Rubi* from C. C. Vigurs which he claimed were of great help to him. They were specimens which had been distributed through the exchange clubs in the years immediately preceding and following the turn of the century and illustrated the views of Rogers, Ley, the Lintons, Marshall, White and other batologists of the day. In addition to these plants he collected personally about a thousand numbers mainly from Cornwall, but also from the London commons, Wiltshire, the Cotswolds and North and South Wales. Then he purchased from W. C. Barton a splendid series of photographs (about 600 prints) of authentic specimens from the herbarium of W. O. Focke. All this, added to his study of the printed word, gave him confidence to publish first a Key to the brambles of Cornwall and then a Key to the species of all Britain.

But undoubtedly his most valuable work in this field was the elucidation of the Cornish species. He knew the Cornish brambles very well indeed and his list of 16 new species was not the outcome of a precipitate judgment but of long and patient observation in the field. He was convinced that the *Rubus* flora of Cornwall was very different from that of other parts of Britain and claimed that of 25 common or frequent brambles found within a two mile radius of Penhallow only 9 were described in Rogers' *Handbook*. Time will show how many of these names can stand: at present it is a gain to have them. The importance of Rilstone's work as a batologist is acknowledged in the name *Rubus rilstonei* Barton & Riddelsdell.

Rilstone was a member of the Berliner botanischer Tauschverein before the war and of both the British exchange clubs, acting as distributor for the B.E.C. in 1933. In 1932 he became a member of the Royal Institution of Cornwall and in the same year was awarded the Henwood Gold Medal for his botanical work. Five years later he was elected an Associate of the Linnean Society, *honoris causa*, and in 1949 became an Honorary member of the B.B.S. in recognition of nearly 40 years of active bryological work. In 1951 he became a Bard of the Cornish Gorsedd with the name Whyler Dreys which means "Searcher-out-of-Brambles".

During the years of his retirement he rarely travelled far from his house and garden, but he lived a strenuous mental life and had a wide circle of correspondents. His letters were full of detailed information and a delight to read. He had a strong sense of humour. My correspondence with him began in 1933 and developed with increasing momentum until his death. During recent years we corresponded almost every week in the winter season and when discussing brambles I have had as many as three letters in one day. He had a gift for clear and often picturesque expression and spared himself no trouble when helping others with their botanical problems.

In addition to his botanical studies Rilstone had a special interest in Cornish place names and popular speech, the results of his investigations being published regularly in the *Devon and Cornwall Notes and Queries* and the Perranzabuloe parish magazine. In 1949 he completed a vocabulary of the countryside, a treatise of about 150 type-written foolscap sheets, recording the words in general use in his own village in his younger days. This was offered to and accepted by the Philological Society.

Rilstone was a great Cornishman and a distinguished amateur botanist. His passing is a grievous loss to all who were privileged to know him. His herbarium, which he estimated to contain 10,000 sheets of flowering plants and 10,000 packets of mosses and hepatics, has been presented to the British Museum (Natural History) except for about 300 sheets of *Rubi* which were given to me. The more important of his botanical books have been privately sold. I am greatly indebted to Mrs. K. A. Rilstone and to Mr. E. Rilstone for help in writing this memorial notice.

The following list of publications may not be complete, but it contains all the chief botanical papers and as many of the short notes as I have been able to trace.

- 1917-8: New Cornish Mosses and Hepatics. *J. Roy. Inst. Cornwall*, **20**, 310 ff.
- 1918: Notes on Cornish Plants. *J. Bot.*, **56**, 114.
- 1919: Cornish Mosses and Hepatics. *J. Bot.*, **57**, 3-10.
- 1920: *Scilla campanulata*. *J. Bot.*, **58**, 274.
- 1922: Cornish Sphagna. *J. Bot.*, **60**, 263-67.
- 1923: The Distribution of *Euphrasia* in Cornwall. *J. Bot.*, **61**, 54-6.
- 1926: Cornish Mosses and Hepatics. *J. Bot.*, **64**, 178-83.

- 1927: Cornish Rubi, *J. Roy. Inst. Cornwall*, **22**, 269-80.
 1928: Cornish Rubi, *J. Roy. Inst. Cornwall*, **23**, 364.
 1929: *Erica ciliaris* \times *tetralix*, *Rep. Bot. Soc. & E.C.*, **1928**, 631.
 1930: *Myosotis caespitosa*, *J. Bot.*, **68**, 153.
 1931-2: A Key to the Species of Rubi or Brambles in Cornwall, *J. Roy. Inst. Cornwall*, **23**, 462-76.
 1932: Abnormal Panicles of *Rubus argenteus*, *J. Bot.*, **70**, 318-19.
 Rust Infection in Species of *Rubus*, *J. Bot.*, **70**, 319.
 1933: *Rumex rupestris*, *J. Bot.*, **71**, 107.
 1935: A Key to the Species of Rubi of the London Catalogue, *Rep. Bot. Soc. & E.C.*, **1934**, 931-55.
 Cornish Micro-Fungi, *J. Bot.*, **73**, 95-104.
Plantago lanceolata var. *anthoviridis*, *J. Bot.*, **73**, 234-35.
 1936: Cornish Bryophyta, *J. Bot.*, **74**, 234-36.
 1938: Some Flowering-Time Facts and Problems, *Rep. Bot. Soc. & E.C.*, **1937**, 525-26.
Isoetes hystrix at the Lizard, *J. Bot.*, **76**, 56-7.
Anagallis arvensis var. *carnea*, *J. Bot.*, **76**, 85.
 Notes on Davey's Flora of Cornwall, *J. Bot.*, **76**, 134-36.
 The Flowering of *Corylus Avellana*, *J. Bot.*, **76**, 292-95.
 Cornish Micro-Fungi, *J. Bot.*, **76**, 353-61.
 1940: A New *Rubus* from Cornwall, *J. Bot.*, **78**, 13-4.
 Three East Cornwall Brambles, *J. Bot.*, **78**, 164-67.
 A New Fungus from Devon, *J. Bot.*, **78**, 192.
 1941: Fungus Notes, *J. Bot.*, **79**, 13-5.
 The Effect of *Trochila Tini* on *Viburnum Tinus*, *J. Bot.*, **79**, 173.
 A Hyphomycete on Resin, *J. Bot.*, **79**, 187-89.
 1945: A New Staffordshire Bramble, *N.W. Nat.*, **20**, 161-63.
 1947: The Stability of *Rubus* Species, *Rep. Bot. Soc. & E.C.*, **1945**, 77-9.
 The Meaning of Spore Form in Aquatic Hyphomycetes, *N.W. Nat.*, **22**, 117-18.
 Notes upon Bramble Seedlings, *N.W. Nat.*, **22**, 180-82.
 1948: *Geranium Endressi* and *G. versicolor*, *Rep. Bot. Soc. & E.C.*, **1946-47**, 258-59.
Rubus Daltrei, *Rep. Bot. Soc. & E.C.*, **1946-47**, 260.
 Fluctuations of *Sibthorpia europaea*, *N.W. Nat.*, **23**, 130-31.
 Exotic Fungi on Bamboo, *N.W. Nat.*, **23**, 167-68.
 A Bryophyte Flora of Cornwall, *Trans. Brit. Bryol. Soc.*, **1**, 75-100, 153-65.
 1950: Some Cornish Rubi, *J. Linn. Soc. (Bot.)*, **53**, 413-21.
 1952: Rubi from Dartmoor to the Land's End, *Watsonia*, **2**, 151-62.
 1953: Exotic Fungi on Bamboo, *N.W. Nat. (New Series)*, **1**, 101.
 Cornish Fungi, *N.W. Nat. (New Series)*, **1**, 563-67.

KARLIS STARCS (1897-1953), a Latvian botanist, was born on 18 May 1897 at Lidere, Latvia, and died on 2 February 1953 at Indianapolis, U.S.A. He was educated at the University of St. Petersburg, Russia, and at the Faculty of Mathematics and Natural Science of the University in Riga, Latvia, where he graduated Mag. rer. nat. in 1936. He was employed as a botanist at the Bio-entomological Station, Priekuli, and later at the Institute for Plant Protection, Riga. Starcs was a critical botanist with a good general knowledge in nearly all groups of plants. He studied the taxonomy and distribution of Latvian plants, being particularly interested in trees and shrubs (*Salicaceae* and *Betulaceae*), garden plants, weeds and parasitic fungi of cultivated plants. More recently he had studied *Taraxacum*, mosses and lichens. About 65 papers, including some monographic studies on the Latvian forms of *Pinus* and *Salix*, as well as on *Philadelphus* and *Syringa*, have been published by him. He was a very keen collector and his beautifully prepared specimens enrich many foreign herbaria. Starcs edited *Betulaceae exsiccatae* (1931) in 60 sets and *Diseases of the Latvian Cultivated Plants* (1937-1944) in 150 sets. In 1944 when he was forced to leave Latvia, as a refugee, for Germany, he left behind him a large private herbarium containing about 100,000 specimens, and nearly as many duplicates. In 1945 he was appointed a temporary conservator at Haussknecht's herbarium in Weimar, and from 1946-1947 he was a lecturer in Dendrology and Phytopathology at the University of U.N.R.R.A. at Munich. Living in primitive conditions in a camp of displaced persons in Thuringia and Bavaria, he studied the local flora with great assiduity and collected about 80,000 specimens, including 35,000 *Taraxaca*. In 1947 he went to the U.S.A. where he began the formation of another collection. His dream of returning to his native country to work on his fine herbarium was not however to be fulfilled. He joined the Society in 1951, and was a member of 22 other scientific societies in the U.S.A., Germany and Latvia.

The following taxa have been named in his honour:—*Phegopteris robertiana* var. *starciana* Kummerle, *Rosa glauca* subsp. *starciana* Matsson, *Ascochyta starcii* Sydow and *Anthostomella starcii* Sydow.

A. MELDERIS.

M. L. WEDGWOOD (1854-1953).—Mrs. M. L. Wedgwood, who died at Slough on April 17, 1953, in her 99th year, was an outstanding character of what we may call the "Druce period" in the history of our Society. She was Mary Louisa Bell, born on November 23, 1854, and was twice married, her grand-daughter by the first marriage being our member, Miss Mary McCallum Webster. Her favourite son, Allen, the only child of her second marriage, was educated at Marlborough and Cambridge. They went botanising together and began to form a herbarium. Then Allen was caught by the first World War and in 1915, at the age of 22, he was sent to Gallipoli. He was reported missing and was never found. This entirely altered his mother's mode of existence. She devoted her

whole life to the completion of a herbarium of British plants for Marlborough College. Time and money were no object. She hired a car, with chauffeur, by the year and scoured these islands in search of every species, variety and hybrid, as listed in the *London Catalogue*. The quest introduced her to every botanist of the period, and she made the school collection at Marlborough something which is quite unique: a nearly perfect representation of the British flora, with all the critical forms verified by the specialists of that time. She also gave a playing-field to Marlborough in memory of her son, and was a passionate, if quite unexpected, believer in the public schools and all they have given to our country. During the second World War, when she had retired from London to Marlborough, she published (in 1944) the *Wedgwood Catalogue* of the herbarium. This will be of permanent use to British botanists, as well as to the Marlborough boys of future generations. The beautiful book-plate with the noble quotation from Plato's *Apology* had been designed many years earlier by her friend, Emery Walker. Let us hope that the authorities at Marlborough will always value and take care of the Wedgwood Herbarium.

It would be quite out of place now to give any long description of Mrs. Wedgwood's most unusual personality: the "Druce period" and all that it meant have vanished for ever, but she would have delighted as much as anyone in the rebirth (or should we call it the transformation?) of the Society and its modern approach to the study of our flora. She became one of Druce's intimate friends—he had come to her help when she lost Allen—but stood quite outside the circle of his more fashionable acquaintances. Long ago, at the turn of the century, she had entertained the "Bloomsbury" of her day in her house on Campden Hill, and she had travelled widely in India and the Mediterranean before she became interested in plants. To the country botanists on whom she later descended she may have seemed formidable or even a little odd, with her outspoken opinions, keen intelligence and experience of the world, and there may even be amusing recollections of some of those Cleopatra-like whims which go with the imperious manner of a great beauty. Those who were lucky to become her friends remember her with deep affection as the neat little figure in black in a very large car, sometimes severe, but full of kindness and fun and enchanting conversation, able even in extreme old age to cast a spell over one or two of the younger men whom she decided to take up and civilise. She served for six years on the General Committee which was formed after Druce's death, and her name is commemorated in a Bramble, *Rubus wedgwoodiae* Barton & Riddelsd.

N. Y. SANDWITH.

PERSONALIA AND NOTICES TO MEMBERS

FLORA OF WICKEN FEN, CAMBS.

Dr. S. M. Walters, Botany School, Cambridge, would be very grateful for *any* records of the flora of Wicken Fen, particularly of any date earlier than 1935. These may be simply notes of the occurrence (or abundance) of a particular species of plant in a particular year on the Fen, or lists, *however incomplete*, of plants seen, for example, in the brick-pits, or on the Main Drove, in a particular year. Many botanists probably have notes of this kind in field note-books, which could contribute a great deal to our knowledge of floristic change on the Fen. Copies of photographs taken on the Fen in a particular year would also be very welcome. Any lists or photographs can be returned if the owner so desires.

Species about which field notes would be particularly interesting include the following:—*Potentilla* (*Comarum*) *palustris*, *Menyanthes trifoliata*, *Stellaria palustris*, *Stellaria alsine* (*uliginosa*) and *Epilobium palustre*.

THE SOCIETY'S ANNOTATED COPY OF *BRITISH PLANT LIST* (ED. 2).

An annotated copy of the *British Plant List* (Ed. 2) kept up to date by the late P. M. Hall was left by him to the Society. Additions and corrections were made for a number of years by the late A. J. Wilmott. The volume was used as a standard for corrections to nomenclature.

Since the death of A. J. Wilmott enquiries have been made regarding this book, but so far it has not been possible to trace its whereabouts. Any member who may be able to give information as to the present location of this important volume is urgently requested to get in touch with the Hon. General Secretary.

The Society's annotated copy of *Comital Flora* is in the custody of Mr. E. C. Wallace who is at present responsible for Plant Records.

INDEX OF BRITISH HERBARIA

The Society is preparing for publication an index to the location of herbarium collections of British flowering plants and ferns. It is proposed to include details of private collections and members are invited to send details of their herbaria to Mr. D. H. KENT, 75 Adelaide Road, London, W.13. The information should include their full Christian names, approximate number of sheets, and a note of any groups or areas especially well represented. Work on this project is now well advanced and members are requested to send information as soon as possible.

MYXOMATOSIS IN RABBITS

The first outbreak of the fatal disease of myxomatosis in wild rabbits was reported from near Edenbridge, Kent, in the autumn of 1953, and shortly afterwards it appeared near Robertsbridge, and also near Lewes, in Sussex. By the end of February 1954 at least 11 outbreaks had been reported and it appears to be spreading northwards from Kent and Sussex in the Eastern Counties. Warmer weather in spring and summer is likely to favour a rapid extension of the disease, and the rabbit population may be very greatly reduced.

Considerable changes in the vegetation of localities where rabbits now abound would follow their removal and members may like to take the opportunity of making an immediate record of the flora of selected areas likely to be affected. Chalk grassland and the East Anglian Brecklands are examples of habitats where considerable changes are likely to occur. Rare species, including a number of orchids, dependent on the surrounding vegetation being kept down by grazing, may suffer. If the threat materialises arrangements will be made later for the collection of information, but in the meanwhile members may like to have this preliminary notice.

PERMITS FOR VISITING NATURE RESERVES

The Nature Conservancy have now acquired and declared the following Reserves: Cavenham Heath, Suffolk; Yarner Wood, Devon; Moor House, Westmorland; Holme Fen, Huntingdonshire; Kingley Vale, Sussex; Ham Street, Kent; and Beinn Eighe, Ross-shire, and Morton Lochs, Fifeshire, in Scotland. Permits to collect are required for all reserves; permits to visit are required for all reserves except Cavenham Heath and Kingley Vale.

A small pamphlet, "Visiting Nature Reserves", setting out the considerations which govern the Nature Conservancy's policy in permitting visits may be obtained from the Conservancy's headquarters at 91 Victoria Street, London, S.W.1. Applications for permits may be sent to this address for the English Reserves, or to The Nature Conservancy, 12 Hope Terrace, Edinburgh, 9, for those in Scotland, or to the Regional Officers of the Conservancy concerned. Visitors who wish their permits to include the right to collect and take away specimens should say so in making application and should specify what it is that they wish to collect.



THE CHANGING FLORA OF BRITAIN

A report of the Conference held in 1952. Edited by J. E. Lousley, pp. 204 + 6 half-tone plates and 25 figures in the text. Bound in buckram. The book contains contributions covering many aspects of the subject, including ecology, palaeo-botany, plant geography, the influx of alien plants, and conservation. The contributors include Dr. Maurice Burton, Prof. A. R. Clapham, Dr. H. Godwin, Canon C. E. Raven, Sir Edward Salisbury, Sir Arthur Tansley, Prof. G. T. Tutin, Dr. S. M. Walters, and Dr. E. F. Warburg. The volume provides much information which is not easily available elsewhere, and some that is new. It should be in the hands of all interested in British field botany. The price of the publication is 15/-, plus 9d. postage.

THE STUDY OF THE DISTRIBUTION OF BRITISH PLANTS

being a Report of the Conference arranged by the Society in 1950. Edited by J. E. Lousley. Demy 8vo., pp. 128, with about 28 plant distribution maps and other illustrations.

This book contains full accounts of the papers, exhibits and discussions at the Conference: much of the information included is not easily available elsewhere and some of it is new. The aims of the study of the distribution of British plants are discussed from various angles and the methods employed in this and other countries are described and compared. This volume should be in the hands of everyone interested in British field botany. The price of the publication is 10/-, plus 4d. postage.

BRITISH FLOWERING PLANTS AND MODERN SYSTEMATIC METHODS

being the Report of the Conference on "The Study of Critical British Groups", arranged by the Society in 1948. Edited by A. J. Wilmott, pp. 102 + 18 half-tone plates. This book contains accounts of some of the latest work on British Flowering Plants. The price of the publication is 10/-, plus 4d postage.

PUBLICATIONS OF THE BOTANICAL SOCIETY OF THE BRITISH ISLES

A list of publications available for sale appeared in the Society's Year Book for 1953. Copies of the list may be obtained from the Hon. General Secretary. Orders for all publications should be sent to E. B. BANGERTER, c/o Dept. of Botany, British Museum (Natural History), Cromwell Road, London, S.W.7, and payment made on receipt of invoice.

Instructions to Contributors

PAPERS, ARTICLES AND NOTES

are invited both from Members of the Society and others. They should be of general interest concerning the British Flora. Papers should be typed. They should be double-spaced and typed on one side of the paper only. The form adopted in this part should be used for citations and references. Full references should be put at the end, except where special reasons exist (e.g., the citation of place of publication of a plant name) or in very short papers. Illustrations, which may take the form of line drawings or photographs, will be considered for publication. Twenty-five separates of each paper are given free to the author, and further copies may be obtained on payment; requests for extra copies should be made when proofs are returned. Papers should be sent to the Editor, Mr. D. H. Kent, 75 Adelaide Road, London, W.13.

PLANT RECORDS

Instructions are given in the Year Book, 1953, 71-73. Records may be sent either to the Editor or Mr. E. C. Wallace, 2 Strathearn Road, Sutton, Surrey.

PLANT NOTES

Instructions are given in the Year Book, 1953, 73. Notes should be sent to the Editor

OBITUARIES

These should include date of birth and death, summary of life so far as events have a bearing on botanical work, whereabouts of herbarium and any manuscripts, and chief botanical publications. Offers to write obituary notices may be sent either to the Editor or to Mr. J. E. Lousley, 7 Penistone Road, Streatham Common, London, S.W.16.

IRISH NATURALISTS' JOURNAL

A Magazine of Natural History

Published Every Quarter by the I.N.J. Committee.

EDITED BY MISS M. P. H. KERTLAND, M.Sc., with the assistance of
Sectional Editors.

Annual Subscription, 10/- post free. Single Parts, 3/6.

All communications to be addressed to:—

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OF THE BOTANICAL SOCIETY OF THE BRITISH ISLES

Editor : D. H. KENT

Vol. I

NOVEMBER 1954

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PUBLISHED AND SOLD BY THE
BOTANICAL SOCIETY OF THE BRITISH ISLES

c/o DEPARTMENT OF BOTANY, BRITISH MUSEUM (NATURAL HISTORY),
LONDON, S.W.7

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BOTANICAL SOCIETY of the BRITISH ISLES

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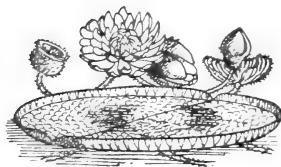
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Continued on inside of back cover

BOTANICAL SOCIETY of the BRITISH ISLES

Victoria regia



Floreat Flora

PROCEEDINGS

VOL. 1 PART 2

EDITOR

D. H. KENT

NOVEMBER 1954

Printed for the Society by
T. Buncle & Co. Ltd., Market Place, Arbroath, Angus

PUBLISHED AND SOLD BY
THE BOTANICAL SOCIETY OF THE BRITISH ISLES, c/o DEPARTMENT OF BOTANY
BRITISH MUSEUM (NATURAL HISTORY), LONDON S.W.7

PRICE TEN SHILLINGS

THE DISTRIBUTION MAPS SCHEME

By S. M. WALTERS

HISTORY OF THE PROJECT

The collection and publication of data on the distribution of British plants has been a major activity of our Society from its earliest days, and the interpretation of these data in the study of plant geography has always interested the members, both amateur and professional. This interest was well shown at the Society's very successful second Conference which met in April 1950 to consider the whole field of the study of the distribution of British plants in the light of the requirements of modern botanical science. *The Times* (12 April 1950) devoted a fourth leader to some aspects of the work of this Conference under the title of 'Mapping the Cat's Ear'.

The Conference Report, edited by J. E. Lousley and published in 1951, made available in convenient form the papers, illustrations and discussions, and stimulated further interest amongst British botanists as a whole.

At the closing session of the 1950 Conference, Professor A. R. Clapham had put forward a detailed proposal for a scheme to prepare and publish a set of distribution maps of the British flora, and a resolution was passed asking the Council of the Society to discuss the possibility of preparing and producing such a series of maps. The Council, accordingly, discussed Professor Clapham's suggestion at a meeting in May 1950, and appointed a Committee to consider the part the Society might play in the project. This Maps Committee consisted of:—

Professor A. R. Clapham
Mr. J. E. Lousley
Mr. E. Milne-Redhead
Professor T. G. Tutin
Mr. E. C. Wallace
Dr. E. F. Warburg

and at its first meeting, Mr. Lousley was elected Chairman and Professor Clapham, Secretary. Much careful investigation of the practical difficulties followed, and members undertook experimental mapping of a number of species from the existing records to reveal inadequacies of data and of methods of representation. Early in 1953 the Committee felt sufficiently sure that, given adequate financial support, the project to prepare and publish an atlas of distribution maps of British vascular plants was a practical one and, accordingly, an approach was made to the

Nuffield Foundation for a grant for a five years' project. This approach was successful, and the offer of a grant of £10,000 for the Scheme was gratefully accepted by the Council in December 1953. The Council further appointed myself as Director of the Scheme, which was to be centred in Cambridge, where facilities were available in the Botany School through the co-operation of the Professor of Botany and the General Board of the University. The Maps Committee was re-formed and enlarged, with power to co-opt representatives of other bodies, and the Council accepted its recommendation to appoint Mr. F. Perring as full time Senior Worker from 1 October 1954, and Miss A. Matthews as full time Secretary from 6 April 1954. The 'Maps Office' thus came into being just before the Scheme was officially launched at the Society's Conference on April 9 and 10, 1954—exactly four years after the foundations were laid. Public acknowledgment was made of the generous grant of the Nuffield Foundation, and of valuable financial assistance from the Nature Conservancy, in the form of a grant of £1,000 per annum for the four years of the Scheme (commencing April 1955), and the cost of the Powers-Samas punched-card recording system adopted by the Committee for the incorporation of the vast body of data and the automatic production of maps. At the end of the Scheme, the Conservancy will take over the machinery, and the punched cards, as the basis of a permanent recording system.

At the April Conference it was possible to demonstrate the system of incorporating data and 'mechanised mapping'; in addition, Professor Clapham and I outlined the history of the project and the part field botanists could play in it. What follows is largely an expansion of the talks and demonstrations given on this occasion.

OUTLINE OF METHOD

The basis of the scheme is to indicate by means of a conventional symbol the presence of each species of vascular plant in each 10 kilometre square of the Ordnance Survey National Grid, thus producing a distribution map of the species concerned. The National Grid does not cover Ireland; we have had to extend it backwards from the N-S baseline (which, roughly, bisects Ireland). There are roughly 3,500 such squares on the map of the British Isles and it is hoped to map some 2,000 species. Assuming each species to be present in roughly one-third of the squares, some 2,500,000 individual records will have to be assembled and transferred to maps. This will be done in the following way:—

A small 40-column punched card (fig. 1) will be prepared for *each record*. It will carry, as 'essential information', the following data:—

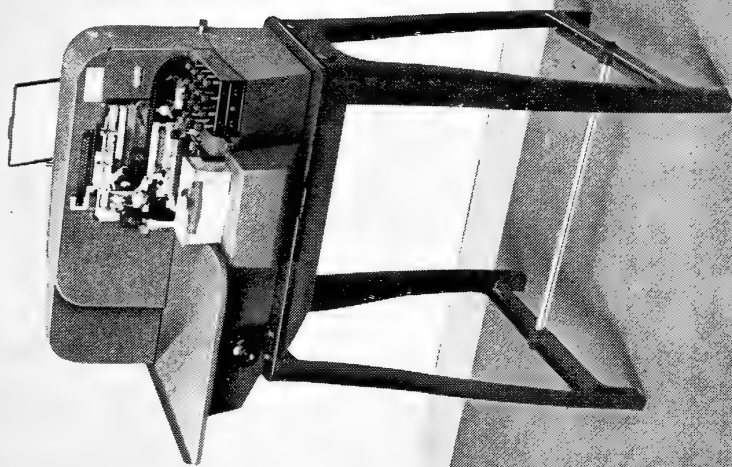
- (a) the 'code number' of the species (each species is assigned a serial code number for the purposes of the scheme). (Columns 1-4).
- (b) the date of the record (*at least* the year). (Columns 5-7).
- (c) the National Grid Reference of the locality (*at least* to the 10 kilometre square (e.g. 52/41); if available, in more detail (e.g. 52/4010 or 52/400100)). (Columns 8-15).
- (d) the vice-county number. (Columns 16 and 17).

In addition, columns 18 and 19 have been assigned for data which, though not absolutely essential to mapping, are valuable and relatively easily obtained; column 18 is for altitude (in 100') and 19 for a coarse habitat classification (12 major types, e.g. woodland, aquatic, etc.). The remaining 21 columns of the card are not yet assigned; they are available for the Nature Conservancy's permanent recording scheme.

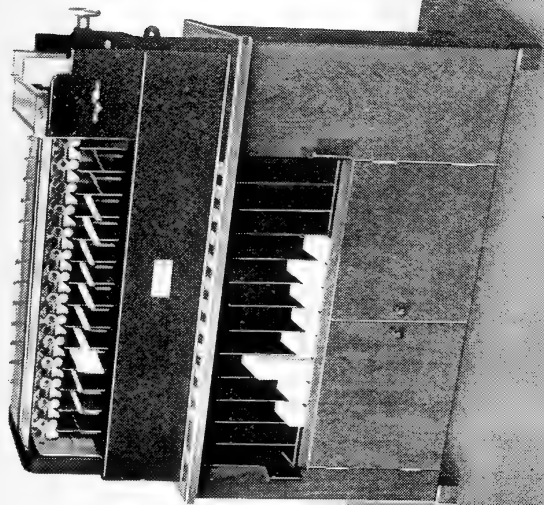
The punching of the card (done on an *automatic key-punch*, resembling a typewriter (fig. 2a)) transfers the data to the card in the form of holes, each hole indicating a particular digit (1-9). The face of the card is occupied by compartments for written data, and from which the required information for punching can be obtained; it is thus a 'dual purpose' card, and an individual record (e.g. from a herbarium sheet) can be transcribed directly on to it (figs. 1a and 1b).

Data will also be available in the form of *lists* of species made at the same locality at the same date; for these the system has the great advantage that information (e.g. grid reference) common to all the species can be punched *automatically* on all the cards in one operation. It is thus apparent that large, reliable lists constitute the most rewarding type of data for the scheme.

All the punched cards referring to a particular species (e.g. *Lamium album*) will carry the same code number (1098); they can therefore be sorted mechanically for this number, with the aid of the second piece of essential machinery, *the sorter* (fig. 2b), at a speed of 40,000 per hour. Similarly, if it is required, all the cards bearing, e.g., the same 10 kilometre Grid Reference (e.g. 52/41) can be sorted out. Finally, packs of cards for a particular species are sorted into sequence of Grid Reference, and given to the largest machine, *the tabulator* (figs. 2c and 2d), which transfers each 10 kilometre Grid Reference on to a base-map as a symbol, at a rate of about 100 per minute. In this way, a complete map (fig. 3) can be tabulated automatically in about half an hour. Mechanical map tabulation is, incidentally, so far as we are aware, an entirely new departure; and owes its existence to the ingenuity and enthusiasm of the representatives of Powers-Samas, who converted our tentative suggestions into reality with remarkable promptitude.

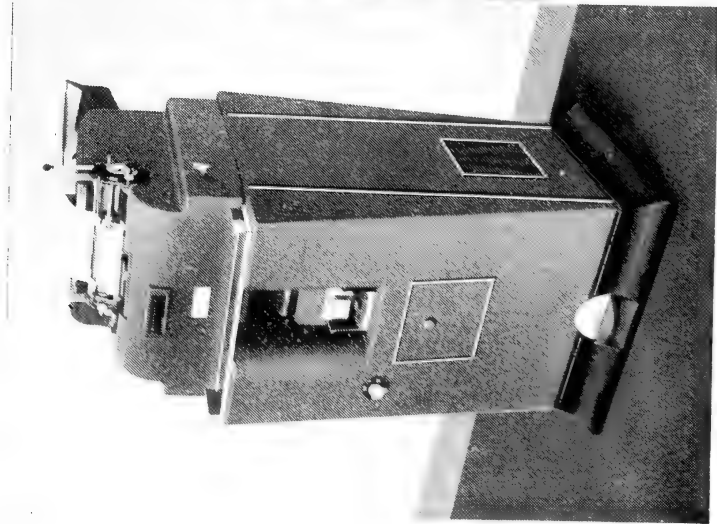


2a. AUTOMATIC KEY-PUNCH



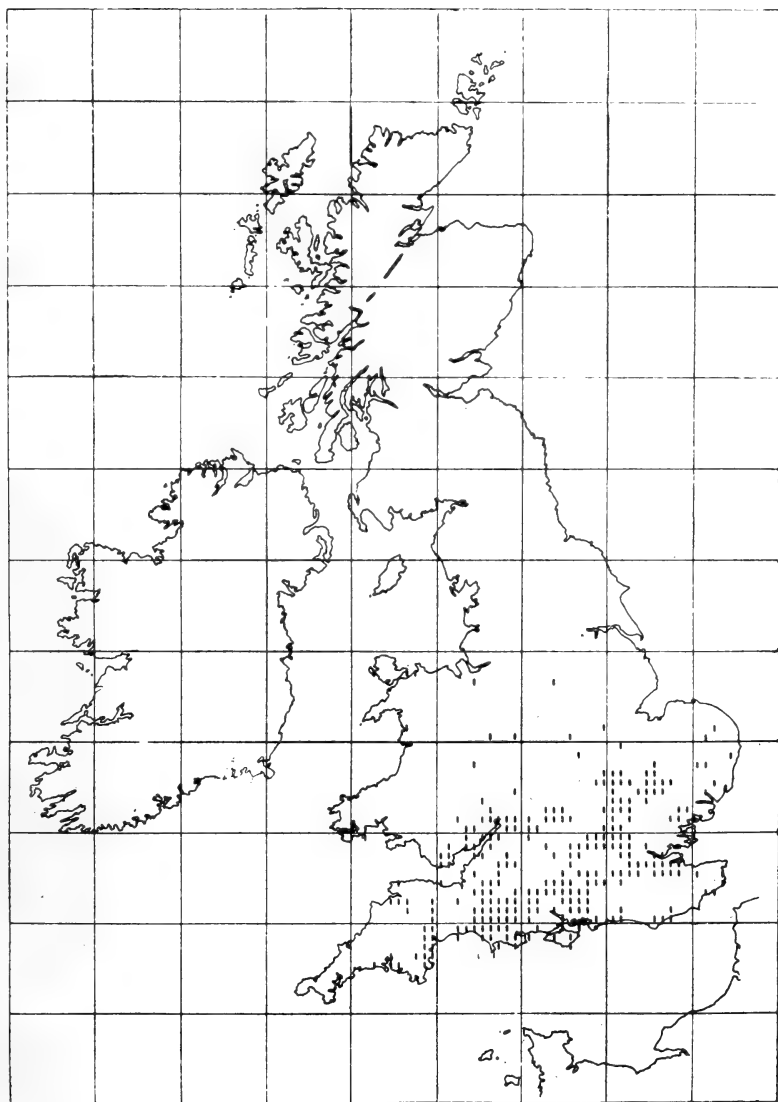
2b. SORTER

PLATE 3



(Above) 2d. TABULATOR PRODUCING A MAP AT THE APRIL
CONFERENCE DEMONSTRATION

(Left) 2c. TABULATOR



3. TABULATED MAP OF DISTRIBUTION OF *Clematis vitalba* L.

(DATA SUPPLIED BY E. MILNE-REDHEAD.) [This map is given as an example, and should not be taken as representing the known distribution.]

So much for the mechanics of assembling and using the records. We can now turn to the method of acquiring data. The use of correctly determined herbarium specimens provides, of course, the ideal method; in practice, however, not only are many species (especially common ones) very poorly represented in herbaria, but also the labour of abstracting the data, and particularly of supplying a Grid Reference to the locality, is very great indeed for relatively small reward. E. Milne-Redhead (whose *Clematis* data are tabulated on the map (fig. 3)), has estimated that as much as 95% of the herbarium material of this species was for varying reasons (e.g. duplication, inability to localise) unproductive! The Committee has faced this difficulty and decided that the principal herbaria should be used in the first place to supply data on the *rarer* species, and has approved the part-time appointment of Mrs. B. Welch to begin such extraction of data from the Herbarium of the British Museum. It will clearly be impracticable to extract *all* herbarium data; but we hope that in this task many members of the Society will feel able to help in the winter months by offering to extract records from their own or some local herbarium with which they are familiar, particularly if the collection covers a restricted area and is, therefore easily localisable to a 10 kilometre square.

Individual literature records, particularly in the B.S.B.I. publications, are, of course, another source of information which can be extracted in the same way: again these will mostly yield data for the less common species.

The other principal source of data is field lists compiled by reliable observers; a great deal of information, much of it embodying precise records for *common species*, is in fact already in the possession of field botanists throughout the country, and its extraction from note-books for incorporation in the recording system is an urgent and highly productive task. Members are invited to offer such records and at the same time to indicate whether they are able to spare some time to put these into a convenient form for use in the Scheme, i.e., on regional record cards (see below).

All this is *existing data*; but it is quite clear that a major part of the Scheme will be the collection of new data, particularly from botanically neglected areas. For this work, we are producing regional record cards (fig. 4), which provide an easy method of listing species present in a particular locality; and also a 'common species card' listing some 100 common and (we hope) unmistakable species, which might be used by less experienced workers. Experience already gained with the use of similar cards in County Flora Schemes (e.g., Cambridgeshire, Derbyshire) has proved their extreme value for simple recording. Members able to produce data in this way are invited to offer their services; in particular a commitment to work in a specified 10 kilometre square is of great value.

Grid Ref. 5264-69	LOCALITY <i>Chippendale Ten.</i>	SOUTH EAST	
	HABITAT <i>Rough grassland</i>	Date 7.1945	V.C. No. 29
		V.C. <i>Cambs</i>	
		Alt. 30'	Code No 100

3 Acer	catn	207 Astra	dan	361 Carex	dein	538 Colch	aut	771 Eupho	exi	961 Helic	pra
5	pse	208	gly	363	dia	540 Coniu	mac	772	hel	962	pub
6 Acera	ant	211 Atbyr	nl	366	distan	541 Conop	maj	777	peplus	968 Herac	sph
7 Abell	mal	212 Atrip	gla	367	disticha	544 Convo	arv	2213 Euphr	azg	976 Hierac	pil
9	pta	214	has	368	divisa	548 Cornu	san	783	ang	979 Hippo	com
12 Acino	arv	217	lit	369	divuisa	550 Coron	var	798	ang	980 Hippo	ria
15 Acoru	cal	218	pat	370	ech	551 Coron	did	801	pos	981 Hippo	vul
19 Adora	mos	216	sab	371	eia	552 Coryd	cla	804	pos	983 Holcu	lan
20 Aegop	pod	220 Avena	fat	373	eri	555 Coryd	cla			984	mol
2241 Aescu	hip	221	lud	374	ext	556	lut			988 Honke	pep
21 Aethu	cyn			376	flacon	557 Coryl	ave	810 Fagus	syl	989 Horde	eur
22 Agrim	edu	224 Balde	ran	381	hur	569 Crata	mon	813 Festu	ara	991 Horde	mar
23	oep	225 Ballo	nig	382	hor	570	oxy	816	gsg	992	mur
26 Agrop	can	229 Barba	vul	385	lae	571 Crepi	bie	821	ova	993	sec
28	jun	231 Belm	res	386	las	572	cap	823	pra	995 Hotto	pal
32	pun	232 Berbe	vul	387	lep	578	tar	824	rub	996 Humul	lup
33	rep	234 Berul	ere	393	nig	588 Cuscu	epi	830	Filag	998 Hydro	mor
35 Agros	can	235 Beta	mar	396	otr	589	epith	831	nun	998 Hydro	vul
36	gig	240 Betul	puc	397	ova	592 Cyrtu	mar	831	Calp	1003 Hyper	and
39	sto	239	ver	398	pai	596 Cynog	off	834	vul	1004	cal
40	ten	241 Biden	cer	399	pal	597 Cynes	ori	835 Foeni	vul	1006	dub
41 Aira	car	242	tri	400	panicea			838	Fraga	1008	elo
42	pra	243 Black	per	401	panicula	607 Dacty	glo	839	ves	1010	hur
46 Ajuga	rep	244 Blech	spi	404	pen	617 Daphn	lau	839	Frang	1011	hum
57 Alche	ves	245 Blysm	com	405	pil	620 Dacty	car	841	Fraxi	1014	per
60	xan	248 Botry	lun	406	pol	627 Dacty	car	847	Fumar	1015	pul
62 Alism	lan	249 Brach	pin	407	pse	628	flie	849	muc	1016	
63	pla	250	syl	408	pul	630 Descu	sop	854	off	1018 Hypoc	gla
64 Allia	pet	251 Brass	nap	412	rein	434 Desma	mar	856	par	1020	rad
75 Alliu	urs	252	nig	413	rip	435	rig	858	vai		
76	vin	253	ole	414	ros	640 Digit	pur			1022 Iberi	ama
77 Alnus	glo	254	rad	419	ser	644 Diplo	mur			1023 Ilex	aqu
79 Alope	aeq	256	med	421	syl	645	ten	862 Galeo	lut	1030 Inula	com
82	gen	258 Broru	arv	424	ves	646 Dipsa	ful	863 Galeo	ang	1036 Iris	coe

FOLD HERE											
84	myo	262	com	427 Carl	vul	647	pil	867	spe	1038	pse
85	pra	268	lep	428 Carpi	bet	657	Drose	rot	868	*tet	1047 Isole
87 Altha	off	269	*mol	432 Casta	sat	661	Dryop	aus	871 Galin	par	
97 Amnop	are	270	mol	433 Catab	aqu	664	*hl	872 Galia	ang	1048 Jasio	mon
98 Anaca	pyr	271	rac	440 Centa	cya	666	*spi	873	apa	1050 Juncu	acu
99 Anaga	arv	273	sec	444	nig			875	cru	1054	art
100	ten	275	tho	446	sca			877	ere	1057	bul
105 Anemo	men	276 Bryon	dio	451 Centa	min	670 Echiu	vul	878	ber	1058	*bul
106	pul	288 Butom	umb	453	pul	673 Eleoc	aci	879	*mol	1062	com
109 Angel	syl			456 Centu	min	674	mul	880	mol	1063	con
113 Anisa	ste	291 Cakil	mar	457 Cepba	dum	675	pal	882	pal	1067	eff
117 Anthe	arv	292 Calap	can	461 Ceras	arv	677	pau	886	tri	1069	ger
118	cot	293	epi	466	glo	678	uni	887	on	1070	ad
121 Antho	odo	296 Calam	asc	469	sem	679 Eleog	flu	888	ver	1072	mar
123 Anthr	neg	298	nep	462	tet	681 Elode	can	891	Genis	1075	squ
125	syl	303 Calli	int	467	vul	682 Elym	are	893	tun	1076	ead
126 Anthy	vul	304	obt	471 Cerat	dein	687 Endym	non	897	Genti	*ama	1077
128 Antir	oro	307	sta	474 Chaen	tom	688	ade	906	Geran	col	1080
131 Aphan	arv	305	ver	476 Chaer	ten	689	adn	907	dis		Junip
132	arv	309 Callu	vul	477 Chama	ang	692	luc	909	luc	455 Kentr	rub
133	mic	310 Calth	pal	480 Cheli	maj	694	lan	911	mol	1082 Kickx	spa
134 Apium	gla	311 Calys	sep	481 Cheno	*alb	695	mon	914	pra	1083	eiu
135	inu	312	sol	484	bon	696	obs	916	pys	1084 Knaut	arv
137	nod	313	fic	487	fic	697	pal	917	pyr	1087 Koele	gra
142 Arabi	tha	315 Campa	glo	493	pol	698	par	918	rob		
146 Arabi	hir	321	rap	502 Chrys	leu	700	ros	919	rot	1094 Lactu	ser
151 Arcti	lap	320	rapunculo	503	par	705	Epipa	hel	923	san	1095
152	min	322	rot	504	seg	708	pal	923	Geum	1098 Laniu	alb
153	vul	323	tra	506 Chrys	opp	710	ses	924	riv	1099	amb
161 Arena	*ser	325 Caspe	bur	509 Cicho	int	712 Equis	arv	925	urb	1100	hyb
162	ser	327 Carda	ama	513 Circa	lut	713	lu	929	Glauc	fla	1103
163	lep	328	fic	514 Cirs	aca	717	pal	930	Glaux	nar	1104
166 Armer	mar	329	hir	515	arv	721	tel	931	Glech	hed	1107
167 Armor	rus	331	pra	516	dis	726 Erica	cin	932	Glyce	dec	1108
169 Arthro	ste	333	Carda	dra	517	eri	731	tet	933	flu	1112
170 Artem	abs	335	Cardu	cri	520	seg	733	Erige	acr	934	max
172	mar	337	nut	522	vul	735	can	935	can	935	ped
175	vul	341	Carex	acu	523	Cordi	mar	740 Eriop	ang	936	pli
176 Arum	mac	340	acuta	525 Clayt	per	745 Erod	*cic	940 Gnaph	syl	1117	syl
182 Asper	cyn	342	app	528 Clerna	vit	753 Eroph	*ver	941	uli	1125	Lemna
183	odo	344	are	530 Clino	vul	759 Erysi	che	948 Gymna	con	1126	min
185 Asple	adi	350	bin	532 Coch	ang	762 Euony	eur			1127	pol
192	rut	355	car	533	dan	763 Eupat	con	949 Halim	por	1128	tri
194	tri	357	con	535	off	764 Eupho	amy	952 Heder	hel	1129	Leont
204 Aster	tri	359	cur	537 Coelo	vir	769	*esu	955 Helia	cha	1130	his

As the Scheme proceeds, it is hoped that the Society's field meetings may be increasingly planned and used to produce lists of species from under-worked areas. Some experience, it is hoped, will be gained this season in a 'pilot scheme' which will enable such planning to be made for 1955.

Special arrangements are being made individually with vice-county recorders and compilers of County and Local Floras to avoid duplication of the work of collecting and assembling the data. In certain counties (e.g. Warwickshire) where a scheme is already in operation for the collection of data on a 1 kilometre Grid Square basis, such arrangements are particularly easy to make and could be mutually advantageous. Regional arrangements are also in hand for Wales (with the co-operation of the National Museum of Wales), and, also for Scotland. For Ireland, the Committee has accepted gratefully an offer of co-operation from Professor D. A. Webb of Trinity College, Dublin, whereby a separate Regional Office for Irish records is being set up; this will collect Irish data for incorporation and mapping in the head office in Cambridge.

At present, the main work of the Maps Office in Cambridge is concentrated on the planning and production of the cards for the filing system and for recording, and the correspondence with individuals offering to supply data. The quite considerable press publicity attendant on the launching of the Scheme has naturally produced a good many offers of help, each of which necessitates an individual reply, at least in some stage in the correspondence. In addition to *The Times* leader, articles or notes on the Scheme have appeared in *The Scotsman*, *News Chronicle*, *Country Life*, *Amateur Gardening* and *Gardening Illustrated*, and, more recently, in *Nature* (Vol. 173, p. 1079) and the *Irish Naturalists' Journal* (Vol. 11, pp. 201-203). An account has been published in the *School Science Review*, and an outline of the Scheme will appear in the *Journal of Ecology*.

Delivery and installation of some at least of the punched-card machinery is planned for September, when the incorporation of collected data can begin. It is hoped that the complete machinery will be installed by April 1955, so that some 'interim map' production can be undertaken to show areas obviously inadequately covered, to which field meetings and special recording parties may be directed.

It is the intention of the Committee that all native and naturalised species of vascular plant should be mapped (including, as far as is practicable, apomictic microspecies); but detailed decisions on final mapping must be postponed, both with regard to the inclusion or exclusion of particular species, and the desirability of producing more than one map of a species (i.e., of pre- and post-1900 records) to show a change of range.

Recorders are, however, encouraged to submit data about *all* wild species, including casuals and garden-escapes, because of the long-term value of the data as part of the Nature Conservancy's permanent record system. Detailed guidance as to the treatment of planted species and garden-escapes is being prepared, and will be available for all recorders.

DIFFICULTIES INHERENT IN THE SCHEME

(a) *Duplication of records*

A rough estimate of the total number of individual records needed for approximate completion of the Scheme is 2,500,000. Some duplication (either of the same locality, or of a locality within the same 10 kilometre square) is inevitable; but a great deal can be avoided by attempting to assign particular 10 kilometre squares to particular observers, and directing attention to unworked areas. In this way 'list' duplication of common species records can be kept to a minimum.

(b) *Indication of frequency*

The basic scheme is merely to indicate presence or absence per 10 kilometre square. It is not practicable to include an objective estimate of frequency on the punched card. It would, however, probably be practicable to indicate, by some appropriate symbol, dots *known* to be based on a single (or very few) records (e.g., in Cambridgeshire the records for *Melandrium dioicum* for grid squares 52/54, 52/65, 52/55, 52/35); in this way the final map would be much more informative.

(c) *Accuracy of records*

This is a considerable problem for which no single solution exists. Absolute accuracy is impossible; even the voucher specimen in a herbarium can be labelled in error with an incorrect locality. Several safeguards are, however, being adopted. Wherever possible, lists are to be submitted to the County Recorders for comment; voucher specimens will be required for any questioned records. Records backed by herbarium specimens will be so indicated on the punched cards; these can, therefore, if it is considered desirable, be indicated by a different symbol on the final maps. Further, when interim and final maps are produced, outlying records can be noted and checked individually.

(d) *Incomplete survey*

It is impossible to forecast how effectively the British Isles can be covered in five years. A good 'scatter' of records, even if far from complete, will, however, be an adequate basis for publication. Clearly there is no possibility of an absolute completion of the survey, if only because of constant floristic and vegetational change.

CONCLUSION

The project offers an opportunity, on a scale not previously known in botanical science in this country, of fruitful co-operation between amateur and professional in a field in which the amateur contribution has always been recognised as of first-rate importance. Its successful completion will provide scientists, (botanists, agriculturists, entomologists and many others) not only in this country but internationally, with a work of reference of major importance. The Botanical Society of the British Isles is a flourishing and expanding body; the Maps Scheme offers to its members at this time of active growth an opportunity of co-operative work which is unlikely to be paralleled for many years to come.

THE LIMONIUM BINERVOSUM COMPLEX IN WESTERN AND NORTHERN IRELAND

By H. G. BAKER
(University of Leeds)

It is quite clear that *Limonium binervosum* (G. E. Sm.) C. E. Salmon, *L. recurvum* C. E. Salmon, *L. transwallianum* Pugsley and *L. paradoxum* Pugsley are all members of an apomictic complex (Baker, 1950, 1953, etc.). It is also quite certain that the conventional classificatory treatment accorded to sexual species cannot be applied satisfactorily to this complex. An attempt is being made to classify these taxa and also the populations which do not fall neatly into them. In this attempt the results from a cytogenetic survey of natural populations are being used as an adjunct to morphological studies. This work is not nearly complete but it may be stated, already, that there is no evidence to support the belief of Pugsley (1924, 1930, 1931) that the populations ascribed to *L. recurvum*, *L. transwallianum* and *L. paradoxum* are more than local derivations from *L. binervosum*. They agree with *L. binervosum* in pollen and stigma type (Baker, 1950, 1953) and in each of the type-localities (Portland for *L. recurvum*; Giltar Point, Pembrokeshire, for *L. transwallianum*; St. David's, Pembrokeshire, for *L. paradoxum*), evidence can be found to support the belief that they have arisen locally (probably fairly recently) from *L. binervosum*, which accompanies them in each case. Consequently, it is reasonable to consider them together as members of a single complex.

A certain coastal population in Co. Clare has been claimed by Pugsley (1930) to contain *L. transwallianum*, while he also believed (Pugsley, 1931) that a population at Malin Head represented a northern Irish occurrence of *L. paradoxum*. However, an inspection of the literature has revealed considerable confusion about the history of this complex in western and northern Ireland. Alleged endemic species are fair game for speculations on the history of the British flora and it is important that this confusion should be removed. In presenting this brief historical survey it will be possible to consider whether or not the *L. binervosum* complex is relict or spreading in this region. The implication hitherto (Pugsley, 1924, 1931; Wilmott, *in litt.*) has been that the known populations are relics from a much earlier period which may have been inter-glacial or even pre-glacial.

The oldest Irish reference that I have seen to a *Limonium* which might have belonged to this complex is that given by Smith (1756) who refers to "*Limonium* Ger." occurring "Along the

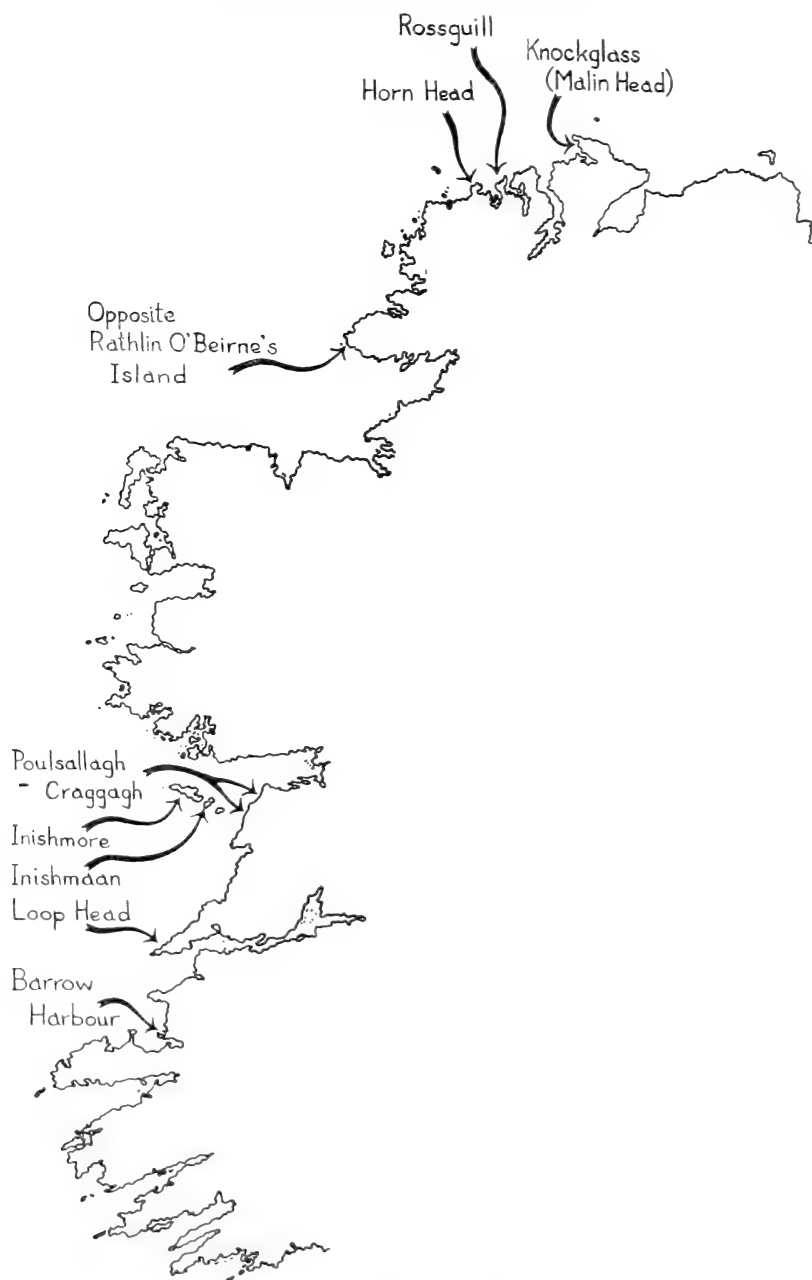


Fig. 1. The known stations for the *Limonium binervosum* complex in western and northern Ireland.

sea-coast in Iveragh" (a district of Co. Kerry). Scully (1916), in his *Flora* of that county is inclined to consider that this refers to *Limonium humile* Mill., but even that species has not been seen in recent years from the Iveragh district. Nevertheless, this may be the basis for the statement by Mackay (1836) in the *Flora Hibernica* that *L. binervosum* (as *Statice spathulata* Desf.) occurs in "many places on the Kerry coast."

The oldest Irish specimen of this complex that I have seen was collected in 1829 on Howth Hill (Co. Dublin) and rests in the Walker-Arnott herbarium (now incorporated in the herbarium of the Royal Botanic Garden, Edinburgh). In the *Flora Hibernica* (Mackay, 1836) it is recorded from four localities in Co. Dublin as well as from the Kerry coast as mentioned above. Specimens continued to be collected and referred to and there is a (misleading) taxonomic note by Babington (1854) on a Waterford collection. Moore and More (1866) give a larger number of vice-comital records but it is only with those referring to western and northern Ireland that we are now concerned.

In their *Contributions towards a Cybele Hibernica*, these authors repeat Mackay's (1836) statement of occurrence in Kerry and then give two stations for County Clare (with the Aran Isles). They also cite two stations for Donegal. The occurrences of the complex in these three areas are worthy of separate analysis, beginning with the most southerly.

NORTH KERRY (v.c. H.2).

The first certain North Kerry record was made by Scully (1888): "In some plenty on rocks at both sides of the entrance to Barrow Harbour, over a limited area, and on an adjoining old tower on the east side" (see Fig. 1 for all known populations in western Ireland). *L. binervosum* was seen here again by Scully in 1902 and he repeats the record in his *Flora* of the county (Scully, 1916). I visited this locality in 1948 and found strong plants growing in cracks between rocks and on the rather grassy old limestone walls. Rebuilding of the walls has undoubtedly reduced the numbers of plants at this station.

During 1952, members of the B.S.B.I. visited this region and collected plants from the low limestone cliffs below a round tower which must be the one referred to by Scully. In addition they found a large colony at Banna Strand, about a mile or so from the previous station. This colony appeared to be increasing in size and was growing on muddy sand which was not yet fully stabilised. This is an unusual ecological situation for this species, nevertheless the specimens are truly referable to *L. binervosum*. Mr. O. Buckle has grown a specimen from the Banna Strand population in his garden and is satisfied that it is true *L. binervosum*.

Opinions have been expressed that these plants should be referred to *L. recurvum* C. E. Salmon. However, I do not think that the spikes of these plants can be described as "arcuately recurved" (most material from the western shores of the British Isles shows a greater recurving of the spikes than south-eastern British plants); they are not remarkably dense-flowered and stout; they are not particularly congested at the ends of the branches and scape and the characteristic formation of the spikes into a cross at the tip of scape is not seen. The spikelets are not arranged with the same remarkable regularity that they show in material from Portland and they are not "so compressed that (the) outer bracts of (the) same row are distinctly imbricate" (Salmon, 1903). The bract sizes do not agree with those of true *L. recurvum* and the colour of the bracteoles is different. The scapes of the Kerry plants are not remarkably stout and they disagree with Portland plants in tapering from the base upwards rather than in the reverse direction. On the other hand, it must be agreed that, in leaf shape and the asperity of the scape, there is relatively close agreement. Nevertheless, in the last character, *L. binervosum* itself shows considerable variation between populations in the British Isles.

Thus, although individual plants may approach *L. recurvum* in some characters, I do not believe that the populations as a whole show these characters in the striking manner of the Portland plants and I do not believe that their ancestry shows any direct connection with that of the Portland population. I think that the not unaggressive North Kerry populations are best referred to *L. binervosum*, at least until cytological determinations have been made.

CLARE (v.c. H.9).

Farther north, across the estuary of the River Shannon, at the extreme south-west tip of Co. Clare, is the peninsula which terminates in Loop Head. The first record of *L. binervosum* from here is by Praeger (1909, *a*, *b*) who records that it is to be found on the steep cliffs between Kilkee and Loop Head itself. Although I have not seen any material from this region, the descriptions of the local ecology and the associated species given by Praeger raise no doubts as to the correctness of the species-identification. He says that "On spray-swept stony slopes, *Suaeda maritima* grows 100 feet above the sea, with the three *Spergularias*, *Statice occidentalis* and *Cochlearia danica*". Nevertheless, an earlier survey of the area published by Stewart (1890) does not include *L. binervosum*.

This vice-county includes the Aran Isles and the first record of this complex from them is by C. Moore (Moore & More, 1866): "On the west side of Great Aran Island." Hart (1875) expanded this by stating that '*Statice occidentalis*' is found along the cliffs

between Dun Aengus and Bungowla; abundant at the western extremity of the Great Island". All of these statements refer to the island best known as Inishmore. There is no further mention of the species in the reports of Nowers and Wells (1892), Colgan (1893) or Praeger (1895) but the last-named author repeats the record in "Irish Topographical Botany" (Praeger, 1901) and later (Praeger, 1909 *a*) adds the island of Inishmaan.

On the mainland opposite the Aran Isles there is a very famous population of this complex. Probably no other population has suffered so much confusion. The first record seems to be that by Moore & More (1866): "On rocks by the road-side south of Black Head, Clare". These authors performed what must have been one of the very first experiments in "genecology" for they remark that the form found in the Aran Isles and in the Clare population "differs remarkably in appearance from the ordinary state of the species as found along the east coast, being only about half the size with a less branched panicle, and it does not survive the ordinary winter at Glasnevin when planted in the open ground". They were not only the first botanists to record these populations but were more observant than some succeeding authors who noticed no difference between plants from Co. Clare and those from other parts of the British Isles.

Hart (1875, p. 16) also refers to the occurrence of this species "at Poulsallagh, on the opposite coast (from Aran) of Clare". This is the first exact location of this famous population. Praeger (1901) presumably was not unaware of it and says that the species was 'local' in the 'Burran' (sic!). He also records it from Fanore on the authority of a collection in 1900 by Miss Knowles. Collections in the west of Ireland dating from this period are not always very accurately localised but Fanore School is $5\frac{1}{2}$ miles north of Poulsallagh. Praeger (1909 *a*, p. 116) mentions that '*Statice occidentalis*' was "local in (the) Burren" apart from recording 'var. *intermedia* Syme' from "near Poulsallagh". The Poulsallagh population was probably ascribed to this variety because of the determination by Arthur Bennett of specimens collected there by P. B. O'Kelly in 1891 and 1892. O'Kelly described the locality as "Ballyryan, near Poulsallagh". Actually the specimens are no closer to (or farther from) *intermedium* than any other of the western Irish plants. Praeger's belief in the heterogeneity of the northern Clare plants is maintained in *The Botanist in Ireland* (Praeger, 1934) where, on p. 350, he refers to the occurrence of both *L. binervosum* and *L. transwallianum** in the Burren. In his census list (p. 517), *L. binervosum* is recorded from v.c. H.9 as well as *L. transwallianum*.

Nevertheless, other authors appear to have been unaware of variation. It was in 1930 that Pugsley claimed that his species

*By a curious slip, Praeger (1934, p. 133) refers to *transwallianum* and *paradoxum* as segregates of *L. humile* Mill.!

L. transwallianum (which had been described in 1924) was to be found in Co. Clare (although A. J. Wilmott had wanted to give this name to some specimens in 1925). Pugsley (1930) gave the locality as Ballyvaughan and based his determination on living material grown by T. J. Foggitt at Thirsk, in Yorkshire. According to the label of a herbarium sheet (now in Herb. Mus. Brit.) containing a collection made by Mr. Foggitt at this locality, the material must have been in cultivation for 32 years before being seen by Pugsley. During this time it had preserved its diagnostic characters.

Wilmott (1930) stated that his material was gathered farther south at Poulsallagh and dismissed Ballyvaughan as a possible station "as there is no suitable ground for the plant at that place" and he was no more inclined to accept Foggitt's alternative labelling (on his herbarium sheet) of "Black Head, Ballyvaughan". Wilmott (l.c., p. 347) then makes a most remarkable statement: "When Mr. Francis Druce and I collected there in 1925, Mr. P. B. O'Kelly, who showed us the plant, said that it was the only locality for *L. binervosum* in the west of Ireland. Evidently, therefore, all the records refer to the one place, which was a small cleft in a rather isolated low rock-cliff at a considerable distance from both the Black Head and Ballyvaughan". It is surprising that O'Kelly should have said this and amazing that Wilmott should have accepted it! Apparently, both were quite unaware of the long-standing records from Barrow Harbour, Loop Head and the Aran Isles, apart from those from farther north.

Nevertheless, it is reasonable to trust Mr. O'Kelly's judgment as far as the more restricted area of the Burren is concerned. There can be no doubt that his knowledge of this fascinating region, in which he spent his life, was extraordinarily detailed. As the coastline of the Burren is easy of access, he must have covered it thoroughly and it is very likely that when he demonstrated the plants in 1925, the "small cleft in a rather isolated low rock-cliff" represented the extent of the distribution of the *L. binervosum*-complex in the Burren. O'Kelly died in 1931.

When I visited this region in 1948, I was assisted in searching suitable localities by my wife and by members of the South Wilts. Speleological Society (who were investigating the caverns of Poulmagollom in Slieve Elva). There was no difficulty in locating the Poulsallagh station, although the number of plants appeared to have increased considerably since 1925, for the population consisted of two relatively compact colonies about 80 yards apart, each containing at least 50 mature plants. Seedlings were frequent and occasional plants connected the colonies. It seemed that the grassiness of the cliffs away from the sites already occupied might be restricting the expansion of the population.

Although the plants showed the narrow petals of *L. transwallianum* and many of them possessed narrow leaves without

discernible petioles, there was considerable variation in leaf-shape, some plants possessing quite broad, spathulate leaves. Plants brought back to Leeds and cultivated there have retained their distinguishing characters.

On July 25th, 1948, Miss Brenda Sugden discovered plants of this complex on the rocks of the headland opposite Craggagh, about $4\frac{1}{2}$ miles farther north than the Poulsallagh population. Subsequently, other plants were seen between these stations, and collections were made. There can be no doubt that the *L. binervosum*-complex is spreading on the coast of the Burren.

Apart from those collections already cited, there are a few others made since 1925. P. B. O'Kelly is distressingly vague in the labelling of his 1931 collection, but in 1935 H. S. Redgrove labelled a specimen (now at Kew) as being from "Fanore" which may represent a similar population to that found by Miss Sugden (or even the same one). In June 1952, Miss B. M. C. Morgan collected material, specimens from which are in the herbaria at Kew and the British Museum. The locations are extremely vague, the dates of collection are uncertain and the specimens are tiny and very immature. Again it has been suggested that these plants should be ascribed to *L. recurvum*, but there is less justification for this than with the Kerry plants. Pugsley's ascription of the Burren plants to *L. transwallianum* is much more satisfactory, but even this breaks down for the broad-leaved plants. A detailed cyto-taxonomic study of all the segregates of *L. binervosum* is being made and, until that is completed, these plants are best referred to the aggregate species, with a note of their morphological resemblance to *L. transwallianum*.

It is probable that if Pugsley had seen the wild population at Poulsallagh (rather than herbarium specimens) before naming it in 1930 he, too, would have hesitated before describing it as belonging to the same species as that at Giltar Point in Pembroke-shire. When he visited the locality in 1933 for the first time, he collected specimens (now at the British Museum) which even he hesitated to name *L. transwallianum*.

DONEGAL (v.cc. H.34 and H.35).

The confusion which has clouded the occurrence of this complex in County Clare has also shadowed the only record from the northern part of the west coast. In v.c. H.35 (W. Donegal) there is a record by Hart (1885): "On rocks at the signal tower on the mainland abreast of Rathlin O'Beirne's Island, west of Slieve League". This record for the south-west of the county is repeated in the *Flora of Donegal* (Hart, 1898) and by Colgan and Scully (1898), but I have found no record of this important population ever being revisited, although it is referred to by Praeger (1934).

Passing to the north coast, but still within the bounds of v.c. H.35, there is a well-documented record. This is from "one

place only on the west side of Horn Head" and is attributed to Moore (Moore & More, 1866). The plants were seen again by Hart (1879), but although the record is repeated (Colgan & Scully, 1898; Praeger, 1901) there is no record of any subsequent visitor. Hart (1898), in his Flora of the county, gives greater precision to the record saying that the plant occurs "Near MacSwyne's Gun, Horn Head", and noting that Mr. Arthur Bennett had determined the plant as the variety *intermedia* of Syme. This would seem to indicate a resemblance to the western Irish populations already referred to and is an important point because plants from the next population, only about eight miles to the east, were determined (also by Mr. Bennett) as of the variety *occidentale* Syme and, therefore, showing a greater resemblance to Scottish and much eastern Irish material. It is highly desirable that some suitably situated botanist should revisit these Donegal populations.

This next population occurs "On the cliffs at Boyeagher Bay, Rossgull" (or Rossguill according to the *Times Survey Atlas*). This peninsula lies between Horn Head and Fanad Head. The record first appears almost simultaneously in Hart (1898) and Colgan & Scully (1898), and is variously attributed to one or more of the Misses Kinahan. There is a passing reference to this population in Praeger (1934) but I know of no other visitor to it.

The most famous Donegal population is across the vice-comital border in v.c. H.34 (E. Donegal) and was discovered by C. Moore (Moore & More, 1866). This has received attention because Pugsley (1931) claimed it for his new endemic species *L. paradoxum* (otherwise known only from St. David's in Pembrokeshire). Pugsley (1931, p. 44) refers to a single specimen in the herbarium of the British Museum collected in 1898 by Hart. This is now preserved as a paratype specimen. Pugsley (*loc. cit.*) believed that the population was "possibly a relic of an early Atlantic flora. . . Its occurrence on two headlands jutting out into the Atlantic, one the most westerly in Wales, the other the northernmost point of Ireland (Malin Head), indicates that it is an ancient survival and affords an interesting parallel to what is known of the more normal species *L. transwallianum* L."

These dogmatic words were written before Pugsley, himself, visited the Donegal coast with Mr. C. R. Nodder and collected *L. paradoxum* in 1937. There is no evidence that he was at any time aware of the existence of other Donegal populations.

Reference to Hart's account of "Botanical Excursions in Donegal" (Hart, 1899) gives us full details of his encounter with this population. He describes (*l.c.* p. 126) how he left the town of Malin and followed the coast, passing along mud flats to the sandy beach of the Back Strand. He continued along here until he reached the first rocky point below Knockglass. He then continued "along the base of these disintegrating rocks, some-

times of a black basaltic nature". "About a mile along the base of these cliffs there is a grand show of *Statice binervosa*. This is C. Moore's old record, "rocks of Dunargas". His herbarium sheet is labelled "between Knockglass and Caloort". He was still about four miles from Malin Head itself (which may explain why some later searchers for this species have failed to find it there). On p. 156 of the same paper, Hart repeats the record and observes that Mr. Bennett had referred his specimens to var. *intermedia* Syme and comments (not without truth) that *intermedia* "seems to be the commonest form in Ireland, as it is in nearly all western stations in England". C. E. Salmon has annotated the British Museum specimen: "*L. occidentale*, O.K. Abnormal growth; caused by stem being damaged". Pugsley's later specimens show that this is not true and the reduced and irregular development of the spikes is characteristic of the population through time.

This is not the place to discuss the significant differences between these specimens and those from Pugsley's type-locality at St. David's Head but it does not seem in the least likely that the populations have had a direct common origin. They are almost certainly of separate derivation from *L. binervosum* stock. However, there is some morphological resemblance between the Knockglass population and small plants of the well-known Mull of Galloway (Wigtown) form of *L. binervosum* (which was named *L. binervosum* var. *humile* (Gir.) by Salmon (1907). Similarly, there is considerable resemblance in leaf-shape and in the reduction of the foliar mucro between both of these populations and the western Irish ones. Geographically all these populations form a series, so that a common ancestor does not seem impossible.

In summary, one may say that there seems little likelihood that the discontinuous distribution of the *L. binervosum*-complex on the west coast of Ireland is due to the persistence of isolated populations from inter-glacial or even pre-glacial times. The *L. binervosum*-complex is generally distributed, in suitable habitats, around the coasts of England and Wales. It reaches no farther north than Lincolnshire on the east coast and the Mull of Galloway in extreme south-western Scotland. This does not suggest that any member of the complex is (or was) physiologically suited for survival in a nunatak. It seems quite reasonable to believe that this apomictic complex is a post-glacial immigrant into the British Isles. In such a case the relative abundance of *L. binervosum* on the east and south coasts compared with the west and north may be the result of longer tenancy. The present distribution of the complex on the west coast of Ireland is spotty but there is some evidence that the gaps may be slowly filling. Occasional seeds may be dispersed to a considerable distance from the parent population and, because of the apomictic nature of the plants, a single seed may be sufficient to start a new, seed-

reproducing colony in a fresh locality. Fruiting calyces of *L. binervosum* may be distributed by wind or by adhesion to the feathers of birds. Tests have shown that the seeds can withstand immersion in sea-water.

The following specimens, supporting the records and observations mentioned above, have been seen by the author. The locations and dates are given *in extenso* because of their importance in this instance.

NORTH KERRY (v.c. H.2)

- Herb. H. G. Baker.* Barrow Harbour; limestone rocks. July 14, 1948.
H. G. Baker.
Herb. O. Buckle. Banna Strand, near Ardfert. June 20, 1952.
O. Buckle.
Herb. Kew. Mud flats at Banna Strand, N. of Tralee. June 20, 1952.
Miss B. M. C. Morgan.
Herb. Mus. Brit. Low limestone cliffs below Round Tower at N. entrance to Barrow Harbour. Aug. 13, 1952. *A. P. Fanning.*
Herb. Mus. Brit. Same locality. ~~Aug. 13,~~ 1952. *Miss Muirhead,*
P. M. Newey and Mrs. B. Welch. *juv.*

CLARE, WITH ARAN ISLES (v.c. H.9)

- Herb. Kew; Herb. Mus. Brit.* Near Ballyryan. July 20, 1891.
P. B. O'Kelly.
Herb. Mus. Brit. (2 sheets); *Herb. Yorks Phil. Soc.; Herb. Univ. Sheffield.* Ballyryan, near Poulsallagh. Aug. 12, 1892. *P. B. O'Kelly.*
Herb. Mus. Brit. Rocks $\frac{1}{4}$ to $\frac{1}{2}$ mile from sea, Black Head, Ballyvaughan. July, 1898. *T. J. Foggitt.*
Herb. Mus. Brit. Limestone cliff facing sea, N. of Poulsallagh. June 18, 1925. *A. J. Wilmott.*
Herb. Mus. Brit. Inishmore, Aran Islands. Aug. 13-17, 1927. *C. St. G. Poole.*
Herb. Kew. The Burren. June 20, 1931. *P. B. O'Kelly.*
Herb. Mus. Brit. Rock face near Poulsallagh. May 18, 1933. *H. W. Pugsley and R. L. P(raeger).*
Herb. Kew. Fanore. Aug. 5, 1935. *H. S. Redgrove.*
Herb. H. G. Baker. Limestone headland, near Poulsallagh. July 21, 1948. *H. G. and I. Baker.*
Herb. H. G. Baker. Limestone rocks, opposite Craggagh. July 27, 1948. *Miss M. E. Bradshaw.*
Herb. Kew (as *recurrum*). Black Head, in limestone rock. c. June 24, 1952. *Miss B. M. C. Morgan.*
Herb. Mus. Brit. (as *recurrum*). On sheer limestone rocks, "Clare". June, 1952. *Miss B. M. C. Morgan.*

E. DONEGAL (v.c. H.34)

Herb. Mus. Brit. Paratype of *L. paradoxum*. Rocks between Knockglass and Caloort. Malin Head. Aug. 1898. *H. C. Hart*.

Herb. Mus. Brit. Cliff near Malin Head. Aug. 14, 1937. *H. W. Pugsley* and *C. R. Nodder*.

Herb. Mus. Brit. Near Malin Head (Hart's locality). Aug. 19, 1937. *H. W. Pugsley*.

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NOTES ON THE FLORA OF ALDERNEY

By JOHN OUNSTED

I had the good fortune to be able to spend the four days, May 30-June 2, 1953, camping in the island of Alderney. The greater part of my time was passed in botanising, and, as the island proved fruitful ground for a botanical holiday, a short account may prove of interest.

Alderney lies ten miles from the coast of France, nearer to it than any other part of the British Isles. For the most part it is a plateau about 250 feet above the sea, with steep cliffs in the south and west but some lower lying sandy areas in the north-east.

One great advantage of Alderney as compared with Jersey and Guernsey is that very little of the land is enclosed or cultivated, so that one can wander freely over most of the island. The climate also is more bracing, and winds prevail. The coastal scenery is attractive, although marred by the fortifications which have been built on the island by its invaders from the Romans of antiquity down to the Germans of the 1940's. Among the more rare and interesting plants are:—*Hirschfeldia incana*, *Helianthemum guttatum*, *Polycarpon tetraphyllum*, *Hypericum linarii-folium*, *Ononis reclinata*, *Lotus angustissimus*, *L. hispidus*, *Ornithopus pinnatus*, *Bupleurum opacum*, *Valerianella eriocarpa*, *Orobanche rapum-genistae*, *O. purpurea*, *Herniaria ciliata*, *Romulea columnae*, *Bromus diandrus* (*B. gussonei*) and *B. catharticus* (*B. unioloides*).

Part of the purpose of my visit was to see how the flora compared with that described by Marquand (1901), and in particular to see if the German occupation had produced any changes. The area of Alderney is about four square miles, so that in so short a visit nothing like a complete survey was possible. Nevertheless, of the 503 flowering plants and ferns listed by Marquand (1901), 290 were seen; and another 17 plants not included in his list were also noted.

C. C. Babington visited Alderney for a week in 1838 and listed almost the same number of species—313 (Babington, 1839). His was the first attempt at a full plant list for the island. In 1901 E. D. Marquand published his *Flora of Guernsey and the Lesser Channel Islands*. From 1902 to 1910 he annually listed additions in the *Transactions of La Société Guernesiaise*, these additions, with others, being brought together in 1924 as a Supplement to the Flora (McCrea, 1924). During the 1930's the island was

visited by A. B. & A. K. Jackson, H. K. Airy Shaw and J. D. Grose. These visits resulted in further important additions to the known flora being published (Jackson, 1933; Jackson & Shaw, 1937, and Grose, 1938). J. E. Lousley visited the island in 1950, and D. McClintock spent a few hours there in August 1953, and has kindly placed the interesting records that he made at my disposal.

In the list which follows the simple mention of a plant name indicates that the plant's present status seems the same as described by Marquand (1901). Plants new to the island are marked with an asterisk.

LIST OF FLOWERING PLANTS, FERNS AND FERN ALLIES FOUND ON THE ISLAND OF ALDERNEY

- RANUNCULUS REPENS L.
 R. ACRIS L.
 R. BULBOSUS L.
 R. FLAMMULA L.
 R. PARVIFLORUS L. N.W. coast. Cliffs by Essex Castle.
 R. TRICHOPHYLLUS Chaix. Mauney.
 PAPAVER SOMNIFERUM L.
 P. RHOEAS L.
 P. DUBIUM L.
 P. HYBRIDUM L.
 GLAUCIUM FLAVUM Crantz.
 *ESCHSCHOLZIA CALIFORNICA Cham. Fort Houmet, D. McClintock.
 MATTHIOLA INCANA (L.) R.Br. Well established on the cliffs of the flooded quarry near Corblets Bay.
 NASTURTIUM OFFICINALE R.Br. sens. lat.
 ARABIS HIRSUTA (L.) Scop.
 CARDAMINE HIRSUTA L.
 LOBULARIA MARITIMA (L.) Desv. Fort Houmet, etc.
 EROPHILA VERNA (L.) Chevall.
 ARMORACIA RUSTICANA Gaertn., Mey. & Scherb. Abundant near the Nunnery.
 COCHLEARIA OFFICINALIS L. Inland, a few plants by Longy Road.
 C. DANICA L.
 SISYMBRIUM OFFICINALE (L.) Scop.
 BRASSICA RAPA L.
 SINAPIS ARVENSIS L.
 HIRSCHFELDIA INCANA (L.) Lagrèze-Fossat. Abundant.
 DILOTAXIS TENUIFOLIA (L.) DC. Abundant.
 CAPSELLA BURSA-PASTORIS (L.) Medic.
 CORONOPUS DIDYMUS (L.) Sm.
 CARDARIA DRABA (L.) Desv.
 LEPIDIUM SMITHII Hook. Clanque, a single plant.
 TEESDALIA NUDICAULIS (L.) R.Br.

CRAMBE MARITIMA L. Has apparently increased, both at Fort Houmet and Platt Saline (cf. Grose, 1938).

CAKILE MARITIMA Scop.

RAPHANUS RAPHANISTRUM L.

R. MARITIMUS Sm. A conspicuous feature of the flora.

RESEDA LUTEOLA L.

HELIANTHEMUM GUTTATUM (L.) Mill. Apparently reduced in quantity (cf. Grose, 1938), perhaps due to the encroachment of *Ulex gallii*.

VIOLA RIVINIANA Rchb.

V. ARVENSIS Murr. sens. lat.

POLYGALA VULGARIS L.

SILENE MARITIMA With.

S. VULGARIS (Moench) Garcke (*S. cucubalus* Wibel).

S. CONICA L. A single small plant on Longy Common.

LYCHNIS FLOS-CUCULI L.

MELANDRIUM ALBUM (Mill.) Garcke.

M. DIOICUM (L.) Coss. & Germ. Scarce. Western cliffs.

CERASTIUM ATROVIRENS Bab. (*C. tetrandrum* Curt.).

STELLARIA MEDIA (L.) Vill.

*S. GRAMINEA L. In small quantity on a bushy hillside above Clanques.
Very rare in Guernsey.

ARENARIA SERPYLLIFOLIA L.

HONCKENYA PELOIDES (L.) Ehrh.

SAGINA SUBULATA (Sw.) C. Presl.

S. MARITIMA Don ex Sm.

S. PROCUMBENS L.

SPERGULA ARVENSIS L.

SPERGULARIA RUPICOLA Lebel ex Le Jolis.

POLYCARPON TETRAPHYLLUM (L.) L. Common.

HYPERICUM PULCHRUM L.

H. TETRAPTERUM Fr.

H. HUMIFUSUM L.

LAVATERA ARBOREA L.

MALVA SYLVESTRIS L.

LINUM BIENNE Mill.

L. CATHARTICUM L. Fairly common. Also in one or two places in the west of the island.

GERANIUM DISSECTUM L.

G. MOLLE L.

G. ROTUNDIFOLIUM L. Apparently increasing. Longy Road; railway near White Gates.

G. ROBERTIANUM L.

ERODIUM MARITIMUM (L.) L'Hérit. N.E. of island, and on the burnt west cliffs opposite Garden Rocks.

E. CICUTARIUM (L.) L'Hérit.

ACER PSEUDO-PLATANUS L.

ULEX EUROPAEUS L.

U. GALLII Planch.

SAROTHAMNUS SCOPARIUS (L.) Wimm. ex Koch. The subsp. PROSTRATUS (Bailey) Tutin is common on the south western cliffs, and looks very distinct.

ONONIS RECLINATA L. Not seen, possibly owing to the fact that it was too early in the season for the plant to be in flower. Grose (1938) records that it was seen in several parts of the coast in June 1937, but that it was not nearly as plentiful as would be expected from Marquand's *Flora*. [Plentiful in 1950, J. E. Lousley].

O. REPENS L.

TRIGONELLA ORNITHOPODIODES (L.) DC. Cliff top near Corblets Bay, abundant; Hanging Rock.

MEDICAGO SATIVA L.

M. HISPIDA Gaertn. Longy Road.

M. ARABICA (L.) Huds. Very common.

M. LUPULINA L.

MELILOTUS ALTISSIMA Thuill. Near the Harbour.

*M. INDICA (L.) All. Braye Bay, D. McClintock.

*TRIFOLIUM MEDIUM L. S. of Mauney Quarry.

T. ARVENSE L.

T. SCABRUM L.

T. STRIATUM L. The var. ERECTUM Gaspar was also seen.

T. SUBTERRANEUM L.

T. REPENS L.

T. GLOMERATUM L. Not rare on the southern cliffs.

T. SUFFOCATUM L. Not rare but easily overlooked. Rather plentiful on southern cliff paths and paths across Longy Common.

T. CAMPESTRE Schreb.

T. DUBIUM Sibth.

T. MICRANTHUM Viv. (*T. filiforme* auct.).

ANTHYLLIS VULNERARIA L.

LOTUS ULIGINOSUS Schkuhr.

L. CORNICULATUS L.

L. HISPIDUS Desf. ex DC.

L. ANGUSTISSIMUS L. Noticeably rarer than the previous species.

ORNITHOPUS PERPUSILLUS L.

O. PINNATUS (Mill.) Dr. Mauney Quarry and southern cliffs.

VICIA ANGUSTIFOLIA (L.) Reichard.

V. HIRSUTA (L.) Gray.

V. TETRASPERMA (L.) Schreb.

PRUNUS SPINOSA L.

POTENTILLA REPTANS L.

P. ERECTA (L.) Räusch.

*APHANES MICROCARPA (Boiss. & Reut.) Rothm. Common. *A. arvensis* was not seen, and it may well be that all the old aggregate records belong to *A. microcarpa*.

CRATAEGUS MONOGYNA Jacq.

UMBILICUS RUPESTRIS (Salisb.) Dandy.

SEDUM ACRE L.

S. ANGLICUM Huds.

S. ALBUM L. Near St. Annes, D. McClintock.

HIPPURIS VULGARIS L. Apparently increasing for it is now abundant in the pool in Mauney Quarry. Jackson (1933) states that it grew there sparingly.

*CHAMAENERION ANGUSTIFOLIUM (L.) Scop. I think that I saw this in the S.W. corner of the island, but find that I kept no specimen E. of St. Annes, D. McClintock.

*EPILOBIUM HIRSUTUM L. A large patch in Mauney Quarry.
E. PARVIFLORUM Schreb.

*OENOTHERA ERYTHROSEPALA Borbás. N. of St. Annes, D. McClintock.

*CARPOBROTUS EDULIS (L.) N.E.Br. Now well established on the rocky shore near Fort Houmet.

FRYNGIUM MARITIMUM L.

CONTUM MACULATUM L.

SMYRNIUM PERFOLIATUM L. Butes Hill, fairly plentiful.

BUPLEURUM OPACUM (Ces.) Lange. Longy Sandhills.

APIUM NODIFLORUM (L.) Reichb. f.

PETROSELINUM CRISPUM (Mill.) Airy Shaw.

ANTHRISCUS SYLVESTRIS (L.) Hoffm.

A. CAUCALIS Bieb. (*A. scandix* (Scop.) Aschers., *A. neglecta* Bois. & Reut.).

FOENICULUM VULGARE Mill.

CRITHMUM MARITIMUM L.

PASTINACA SATIVA L.

HERACLEUM SPHONDYLIIUM L.

DAUCUS CAROTA L.

D. GINGIDIUM L.

HEDERA HELIX L.

SAMBUCUS NIGRA L.

LONICERA PERI-CLYMENUM L.

RUBIA PEREGRINA L. Marquand (1901) forecasts its extinction, but there is still a little, probably in the same spot where Babington saw it in 1838 (cf. Jackson & Shaw, 1934).

GALIUM MOLLUGO L. Marquand (1901) calls it extremely rare and gives only one locality. A second station occurs W. of Val du Sud.

G. SAXATILE L. (*G. haccynicum* Weigel).

G. VERUM L.

G. APARINE L.

SHERARDIA ARVENSIS L.

CENTRANTHUS RUBER (L.) DC. With white flowers by the old railway.

VALERIANELLA ERIOCARPA Desv. Apparently decreasing. Seen only in a pasture W. of Essex Castle. Not seen by Grose (1938) or D. McClintock.

V. CARINATA Lois.

- ERIGERON ACRIS L. Quarry S. of Fort Albert, D. McClintock.
*E. CANADENSIS L. N. of St. Annes, D. McClintock.
PULICARIA DYSENTERICA (L.) Bernh.
ACHILLEA MILLEFOLIUM L.
ANTHEMIS NOBILIS L. Only seen in one place.
CHRYSANTHEMUM LEUCANTHEMUM L. So dense and fine on the cliffs as to be conspicuous from an aeroplane.
ARTEMISIA ABSINTHIUM L.
A. VULGARIS L. Stated to be "very rare" by Marquand (1901), but still at the sole locality on Braye Sands.
SENECIO JACOBÆA L.
S. SYLVATICUS L.
S. VULGARIS L.
CARLINA VULGARIS L. Only seen once.
ARCTIUM MINUS (Hill) Bernh.
CARDUUS NUTANS L. Mauney Quarry.
C. TENUIFLORUS Curt.
CIRSIIUM VULGARE (Savi) Ten.
C. ACAULON (L.) Scop. Hill above Longy Common.
C. ARVENSE (L.) Scop.
C. PALUSTRE (L.) Scop.
CENTAUREA NIGRA L. agg.
C. SCABIOSA L.
CICHORIUM INTYBUS L. Not seen by me, but reported by Major Palmer of the Nunnery to have appeared at Longy Common since the war though never seen before. E. of St. Annes, D. McClintock.
CREPIS VESICARIA subsp. TARAXACIFOLIA (Thuill.) Thell. Very common.
HIERACIUM PILOSELLA L.
HYPOCHOERIS RADICATA L.
H. GLABRA L.
TARAXACUM OFFICINALE Weber agg.
T. LAEVIGATUM (Willd.) DC.
SONCHUS ARVENSIS L.
S. ASPER (L.) Hill.
S. OLERACEUS L.
TRAGOPOGON MINOR Mill. Longy Road.
JASIONE MONTANA L.
CALLUNA VULGARIS (L.) Hull.
ERICA CINEREA L.
LIMONIUM LYCHNIDIFOLIUM (Gir.) Kuntze. Still about a dozen plants at Fort Houmet. Marquand (1901) recorded a dozen plants, Jackson (1932) an increase to 60, and Grose (1937) a reduction to 25. [At least 20 plants were present in 1950, J. E. Lousley].
L. BINERVOSUM (G. E. Sm.) C. E. Salmon. Fort Houmet.
ARMERIA MARITIMA (Mill.) Willd. Common. Also with white flowers.
PRIMULA VULGARIS Huds. Surprisingly still plentiful in flower at the beginning of June.

GLAUX MARITIMA L. Still at the single station given by Marquand (1901).
ANAGALLIS ARVENSIS L. Common. The var. AZUREA Wilmott occurred

W. of St. Annes, D. McClintock.

FRAXINUS EXCELSIOR L.

VINCA MAJOR L.

CENTAURIUM ERYTHRAEA Rafn (*C. minus* Moench).

SYMPHYTUM OFFICINALE L.

S. PEREGRINUM Ledeb. Essex Valley and S. of St. Annes.

BORAGO OFFICINALIS L. Scattered in the western parts of the island.

LYCOPSIS ARVENSIS L.

MYOSOTIS SECUNDA A. Murray.

M. ARVENSIS (L.) Hill.

M. HISPIDA Schlecht.

ECHIUUM VULGARE L. Conspicuous.

CALYSTEGIA SEPIUM (L.) R.Br.

C. SOLDANELLA (L.) R.Br.

*C. SYLVESTRIS (Willd.) Roem. & Schult. N. and E. of St. Annes, D. McClintock.

CONVOLVULUS ARVENSIS L.

CUSCUTA EPITHYMUM (L.) Murr. Conspicuous.

SOLANUM DULCAMARA L.

LYCIUM CHINENSE Mill.

VERBASCUM THAPSUS L. Two large plants in front of Essex Castle (cf. Grose, 1938). St. Annes and Braye Bay, D. McClintock.

CYMBALARIA MURALIS Gaertn.; Mey. & Scherb. W. of St. Annes, near the watch-tower.

DIGITALIS PURPUREA L.

VERONICA OFFICINALIS L. Marquand (1901) describes it as "very rare" and gives a single locality. Another station is Clanque, where a large patch has unusually dark flowers.

V. CHAMAEDRYS L.

V. PERSICA Poir. Now very common.

V. HEDERIFOLIA L.

EUPHRASIA OFFICINALIS L. agg.

PARENTUCHELLIA VISCOSA (L.) Caruel.

PEDICULARIS SYLVATICA L.

OROBANCHE RAPUM-GENISTAE Thuill. Still fairly plentiful in one spot, on the prostrate broom.

O. MARITIMA Pugsf.

O. MINOR Sm. Very common.

O. PURPUREA Jacq. Common in many parts of the island.

MENTHA AQUATICA L.

THYMUS SERPYLLUM L. agg.

*SALVIA PRATENSIS L. Near the Nunnery.

S. HORMINOIDES Pourr. Very abundant.

GLECHOMA HEDERACEA L. Still at Essex Castle quarry.

MARRUBIUM VULGARE L. Near the Nunnery.

*GALEOPSIS TETRAHIT L. Weed by the airfield.

LAMIUM PURPUREUM L.

L. HYBRIDUM Vill.

BALLOTA NIGRA L.

TEUCRIUM SCORODONIA L.

PLANTAGO CORONOPUS L.

P. LANCEOLATA L.

HERNIARIA CILIATA Bab.

SCLERANTHUS ANNUUS L. Marquand (1901) says "very rare . . . dying out", but I found a dwarf form quite common on the south cliffs, bearing much fruit and looking rather like the associated *Polycarpon tetraphyllum*.

CHENOPODIUM ALBUM L.

BETA MARITIMA L.

ATRIPLEX PATULA L.

A. LACINIATA L. (*A. sabulosa* Rouy).

POLYGONUM CONVULVULUS L.

P. AMPHIBIUM L. Still in the solitary station given by Marquand (1901)

P. AVICULARE L.

RUMEX CRISPUS L.

R. OBTUSIFOLIUS L.

R. PULCHER L. Very abundant.

R. ACETOSA L.

R. ACETOSELLA L.

EUPHORBIA HELIOSCOPIA L.

E. PARALIAS L.

E. PORTLANDICA L.

E. PEPLUS L.

MERCURIALIS ANNUA L.

URTICA DIOICA L.

U. URENS L.

PARIETARIA DIFFUSA Mert. & Koch.

POPULUS ALBA L. Val du Sud.

*ORCHIS PRAETERMISSA Druce. Plentiful in Rose Farm Valley. Perhaps this is the "*O. latifolia*" of Marquand (1901).

ANACAMPTIS PYRAMIDALIS (L.) Rich. Slope above Longy Road.

IRIS PSEUDACORUS L. Longy Pond.

I. FOETIDISSIMA L. Near Corblets Bay.

RUSCUS ACULEATUS L. Cliffs.

ALLIUM TRIQUETRUM L. Much increased. Common on both sides of Longy Road, etc.

SCILLA AUTUMNALIS L.

JUNCUS MARITIMUS Lam. Among rocks on east coast.

J. ACUTUS L. Still below Essex Castle at the foot of the cliffs, an untypical sort of habitat.

J. INFLEXUS L.

J. BUFONIUS L.

LUZULA CAMPESTRIS (L.) DC.

ELEOCHARIS PALUSTRIS (L.) Roem. & Schult.

SCHOENUS NIGRICANS L. Still abundant at Trois Vaux.

CAREX HIRTA L.

**C. DEMISSA* Hornem. The "*C. flava*" of Marquand (1901).

C. EXTENSA Good. Still in the single station given by Marquand (1901).

C. CARYOPHYLLEA Latour.

C. FLACCA Schreb.

C. SPICATA Huds. (*C. contigua* Hoppe).

C. PANICULATA L. Only at Marquand's one locality, but the "large clumps" referred to are now enormous.

C. ARENARIA L.

PHALARIS CANARIENSIS L. Sporadic on rubbish-tips.

ANTHOXANTHUM ODORATUM L.

ALOPECURUS PRATENSIS L. Only in a meadow near Rose Farm.

PHLEUM ARENARIUM L.

AMMOPHILA ARENARIA (L.) Link.

AIRA CARYOPHYLLEA L.

A. PRAECOX L.

HOLCUS LANATUS L. Dominant on some cliffs.

TRisetum FLAVESCENS (L.) Beauv.

ARRHENATHERUM ELATIUS (L.) Beauv. ex J. & C. Presl.

PHRAGMITES COMMUNIS Trin.

CYNOSURUS CRISTATUS L.

**KOELERIA ALBESCENS* DC. Common on Longy Common, confirmed by Dr. A. Melderis. Marquand (1901) gives only *K. cristata*.

DACTYLIS GLOMERATA L.

POA PRATENSIS L.

P. TRIVIALIS L.

P. ANNUA L.

**GLYCERIA* × *PEDICELLATA* Townsend (*G. FLUITANS* × *PILICATA*). Stream below Rose Farm. Neither of the parents was seen.

FESTUCA RUBRA L.

F. OVINA L.

VULPIA MEMBRANACEA (L.) Dum.

V. BROMOIDES (L.) Gray.

CATAPODIUM RIGIDUM (L.) C. E. Hubbard (*Desmazeria rigida* (L.) Tutin).

Very common.

BROMUS DIANDRUS Roth. (*B. gussonei* Parl.). Abundant.

B. STERILIS L.

**B. CATHARTICUS* Vahl (*B. uniolooides* H.B.K.). Abundantly established and very fine in hedgebanks and streamsides by Essex House.

B. MOLLIS L. Common, including diminutive forms.

B. THOMINII Hard.

BRACHYPODIUM SYLVATICUM (Huds.) Beauv.

LOLIUM PERENNE L.

AGROPYRON JUNCIFORME (A. & D. Löve) A. & D. Löve.

HORDEUM MURINUM L.

EQUISETUM ARVENSE L.

E. PALUSTRE L.

PTERIDIUM AQUILINUM (L.) Kuhn. Very common.

PHYLLITIS SCOLOPENDRIUM (L.) Newm. Clanque Valley.

ASPLENIO MARINUM L. Nunnery Gate.

A. ADIANTUM-NIGRUM L.

A. RUTA-MURARIA L. Wall N. of Longy Road, by the cemetery (cf. Grose, 1938).

DRYOPTERIS FILIX-MAS (L.) Schott. Mauney Quarry.

POLYPODIUM VULGARE L.

If one may draw a conclusion from so brief a visit it is that the strains of the twentieth century have made remarkably little difference to the flora of Alderney, and that the island remains a most attractive spot for the botanist, who will find plenty of scope for future work.

My thanks are due to my daughter, Miss Tanya Ounsted, for assistance with nomenclature, to Mr. D. McClintock for his kindness in allowing me to use some of his records, and to Mr. D. H. Kent for valuable help and advice.

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SCORZONERA HUMILIS L. IN WARWICKSHIRE

By J. G. HAWKES AND J. B. PHIPPS

A third locality has been found recently for one of Britain's rarest plants, *Scorzonera humilis* L.

This species was previously known in the British Isles from two localities in east Dorset* where it occurs in marshy fields. We have now discovered a small colony of five plants in a meadow in the Earlswood region of Warwickshire, some 10 miles south of Birmingham.

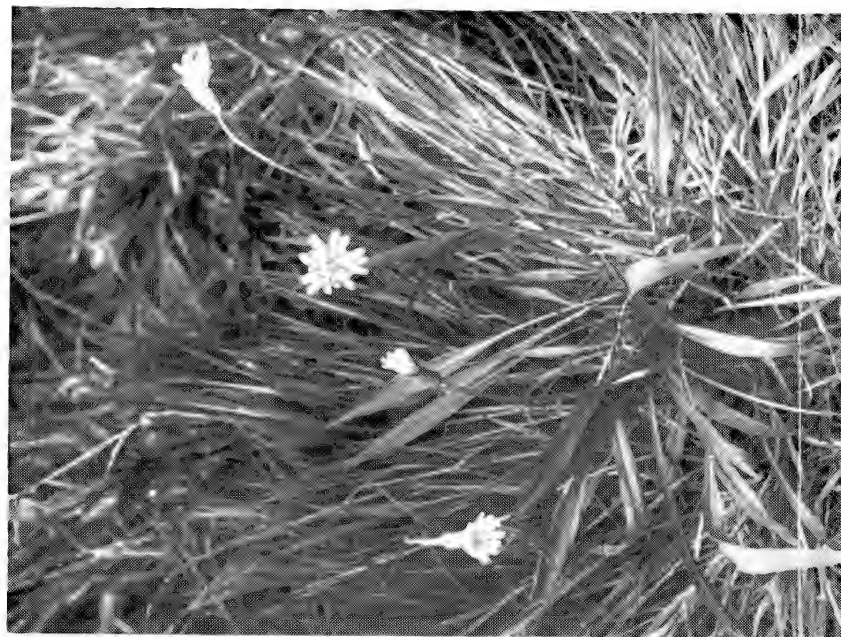
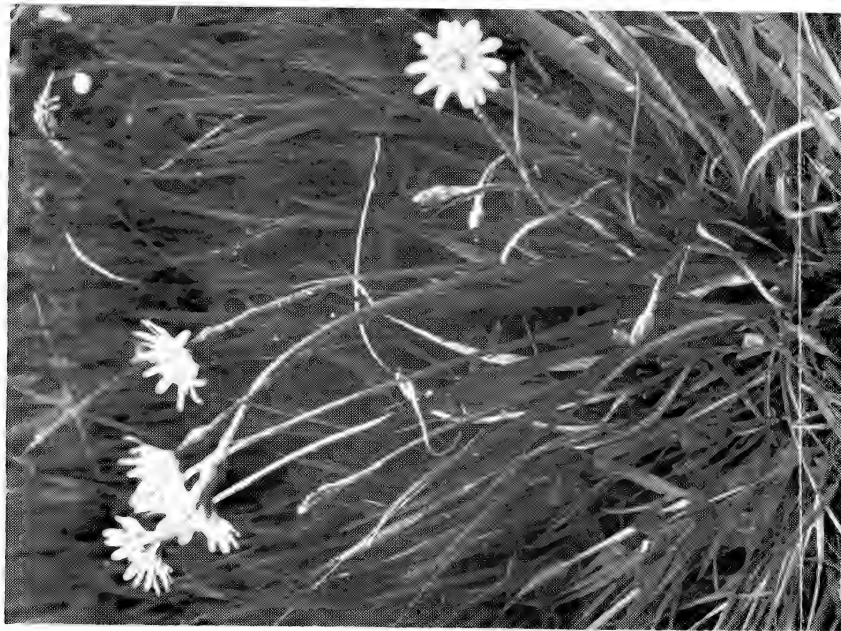
On the continent the species occurs from the northern Mediterranean to south Scandinavia, and from Portugal eastwards to central Russia and the Caucasus. It is therefore quite widespread and apparently common in Europe, and one might have expected it also to be quite frequent in the southern part of England.

In Warwickshire *Scorzonera humilis* was found with all the appearance of being perfectly native in a damp, old meadow on a sandy clay soil. Other plants found in this field include *Alopecurus pratensis*, *Anthoxanthum odoratum*, *Holcus lanatus*, *Hypochoeris radicata*, *Lolium perenne*, *Lychnis flos-cuculi*, *Plantago lanceolata*, *Polygala vulgaris*, *Ranunculus acris*, *R. repens*, *Rumex acetosa*, *Trifolium pratense* and *Veronica chamaedrys*.

The general aspect of the plant is common to many rosette Compositae, with long pointed leaves resembling at first glance those of *Plantago lanceolata*. The pale yellow flowers are similar in colour to those of *Hieracium pilosella*, though of course rather larger.

In reviewing the distribution so far recorded of *Scorzonera humilis* in Britain and comparing it with that for continental Europe one cannot avoid the conclusion that the species might indeed be more widely distributed here than has previously been realised. In the Warwickshire locality careful search revealed the presence of only five plants in the one field, and none in adjacent fields. However, many collectors undoubtedly overlook the yellow-flowered Liguliflorae, and it is quite possible that this species may be found, on more intensive study, to be more common than was thought previously. The locality in which it was found is not apparently specialised and must be mirrored in thousands of places in the British Isles. Furthermore, since a distance of some 130 miles separates the Dorset and Warwickshire stations it would be of great interest to see whether a continuous, if sparse, distribution existed between them.

*Rep. Bot. Soc. & E.C., 1915, 202; *Ibid.*, 1927, 309.



SCORZONERA HUMILIS IN WARWICKSHIRE.

Photos: J. F. Woolman.

The find was made whilst one of us (J.B.P.) was recording for the Flora of Warwickshire revision, sponsored by the University of Birmingham and the Birmingham Natural History and Philosophical Society. In this work a complete list of species, together with habitats and frequencies, is made for each of the 1 km. National Grid squares in the county, so that many regions, especially meadows and botanically "uninteresting" areas are now being surveyed, virtually for the first time.

Whilst the discovery of this rarity would normally have been largely a matter of chance, it was made far more likely in this instance because of the intensive methods in use in the Flora of Warwickshire revision. It is greatly to be hoped that botanists in other parts of Britain will be able to make an intensive search for this interesting species in habitats of the type indicated so that its distribution may be worked out in some detail for this country.

MENTHA PRATENSIS Sole

By J. D. GROSE

The original description of *Mentha pratensis* by Sole (1798) concludes with the statement: 'I found this plant in the year 1789, in wet places in the New Forest, Hants, particularly in a common (Alderbury Common) near the Roebuck, between Salisbury and Romsey. It has not varied in the least by cultivation'. Alderbury Common is in South Wilts, v.c. 8, but the true site of the Roebuck has been in doubt for many years and the record for Sole's mint has been claimed for both Hants and Wilts. Townsend (1904) accepts the first part of the sentence as applying to Hants, and Preston (1888) quotes the second half for Wilts without qualification. Later writers, e.g. Druce (1928) and Fraser (1927) mostly credit a single locality to the plant, and that to Wilts.

There is now no 'Roebuck Inn' at Alderbury and extensive enquiries failed to reveal any evidence that there ever was, or that either of the existing inns ever bore the name. In a letter to Sir James Smith, A. B. Lambert stated that he 'ascertained that *Mentha pratensis* (Sole) was thrown out of the Roebuck Inn garden on Alderbury Common, and was merely a single plant: this Mr. Sole dug up, and the original specimen is at the Linnean Society'. The substance of this letter is contained also in a pencilled footnote by T. B. Flower in his copy of Sole's book (now in the writer's possession) but the words 'Alderbury Common' are omitted. A clue to the locality was provided when J. Britten (1905) discovered an alteration in A. B. Lambert's copy of *Menthae Britannicae* where 'Alderbury Common' had been deleted and 'Shervile Common' substituted. The following note was added: 'This common I examined in the year 1798 & was shown by the person who keeps the Roebuck the spot where Mr. Sole found the plant which was nothing more than a plant of *Mentha rubra* thrown out of the Roebuck garden'.—A.B.L.

In the light of this information the search was extended to Sherfield English but here, also, there is no Roebuck. Eventually Dr. B. Whitehead, of Downton, who has been helping with the enquiry, found that an incline about a mile east of the village was known locally as 'Buck Hill' and that the small general stores there was the original inn. The proprietress informs me that the name 'Roebuck' is still used by the Customs and Excise authorities for the tobacco licence. The locality is in South Hants, v.c. 11.

Sole's *Mentha pratensis* has never been refound either in Hampshire or elsewhere and must, I think, be regarded as extinct. It was described by Sole (1798) as a new species but was reduced by Sir James Smith to a lower grade. Sole, who was at issue with Smith on the ranking of this and other mints, wrote in his copy of *Menthae Britannicae*: 'Dr. Smith makes this new Mint a Variety of the following one (*M. rubra*),—and soon after in a future Observation he chooses it shall be a Variety of my *Sativa* pl. 21. Quere—Is not the Dr. full as ardent for Varieties, as he says I am for Species? See the Observations'. And a later note: 'The Dr. has in his last Flo. Angl. made it a *gracilis*'. J. Fraser (1927) places the plant under *M. × gentilis* and Mr R. Graham (*in litt.* 1953) agrees that it was probably a hybrid of the *M. arvensis-spicata* group being closely akin to *M. × gentilis* L. and *M. × gracilis* Sole, but adds that there is a morphological possibility that it arose as a hybrid of *M. arvensis* (♂) with *M. × piperita* (♀). The solution must await a new discovery.

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 PRESTON, T. A., 1888, *The Flowering Plants of Wilts.* Leicester.
 SOLE, W., 1798, *Menthae Britannicae*. Bath.
 TOWNSEND, F., 1904, *Flora of Hampshire*, ed. 2. London.

It should perhaps be remembered, with regard to Mr. Grose's paper, that some of Sole's names applied to mints different from those described under the original binomials. Thus, Sole's *M. sativa* is not that of Linnaeus (= *M. × verticillata* L.) but is in fact *M. × smithiana* R. Graham (= *M. rubra* Smith, non Miller). Further, Sole's *M. rubra* is *M. × gentilis* L. subhybr. *gentilis*, and his *M. gentilis* is *M. × gentilis* L. subhybr. *gracilis* Sole var. *cardiaca* (Baker) Briq. The *Mentha rubra* to which Lambert refers would presumably have been Sole's *M. rubra*, i.e. *M. × gentilis* L., and it might well have been that *M. pratensis* arose as a sport from this as a garden outcast. R. A. GRAHAM.

PLANT NOTES

197/9. **Cotoneaster horizontalis** Decne., 1877, *Fl. des Serres*, Sér. 2. 12, 168. 6, N. Som.; sparingly on limestone rocks, Crook Peak, J. P. M. Brennan (1953, *Proc. Bristol Nat. Soc.*, 28, 307). 14, E. Sussex; Black Rock, Brighton, 1950, D. McCLINTOCK: chalky railway bank north of Waldron and Horam Station, one bush, 1952-1953; steep bank by railway bridge, Ghyll Lane, Heathfield, one bush, 1953, K. E. BULL. 15. E. Kent; chalk down, Wrotham Hill, about a dozen bushes, c. 1945-1954, D. McCLINTOCK. 17, Surrey; railway bank, Caterham, one bush, 1954, D. McCLINTOCK. 21, Middx.; bank above chalkpit, Harefield, one small bush, 1945-1954, D. H. KENT. 23, Oxon; epiphytic on a pollard willow by the river bank near Iffley Lock, 1944, J. P. M. BRENNAN and Rev. N. E. G. CRUTTWELL (Ref. No. 7059).

Deciduous or half-evergreen shrub of squat habit. Branches horizontal, pubescent. Leaves \pm roundish, 12 mm. or less long, mucronate, glabrous and shining above, subglabrous below. Flowers pinkish, 1-2 together, subsessile; fruit globose or ovoid, about 5 mm. across, bright red, containing 3 nutlets. Native of China. Long grown in British gardens from whence it is doubtless bird-sown to wild habitats.—D. H. KENT.

467/2. **ANAGALLIS ARVENSIS** L. Although the various colour forms of this species have attracted considerable attention in the past, there is one feature of their occurrence which appears to have been overlooked. This is the tendency for other colour forms to appear whenever any two grow together in one place.

As early as 1700, W. Stonestreet (ex Druce, 1926, *Fl. Bucks.*, 225) recorded both purple and white flowers among the scarlet type near Quainton, Buckinghamshire. E. Lees (1868, *Bot. Malvern Hills*, ed. 3, 48) mentions scarlet, blue and white forms growing together at Astley in Worcestershire. H. Hoffmann (1879, *Bot. Zeit.*, 37, 177) stated that he had only encountered the form with salmon-pink flowers when the scarlet and blue forms grew together, both in cultivation and in the wild. According to E. D. Marquand (1901, *Fl. Guernsey*, 153), blue and scarlet plants are both plentiful on the island of Jethou, Channel Isles, and among them grows a sprinkling of the form with pure white flowers. R. Scott (1953, *Country Life*, 114, 1223) records blue, pale pink and heliotrope plants along with the scarlet type in a beet field in Norfolk. N. F. McMillan (1953, *Proc. Liverpool Nat. Field Club*, 19) has found single specimens of the shell-pink and sky-blue forms respectively among the scarlet type at Bromborough, Cheshire; and M. E. Gillham (1953, *N.W. Nat. (N.S.)*, 1, 547) has reported a single blue specimen on Skokholm Island, Pembrokeshire, where both pink and scarlet forms are plentiful. Finally, V. C. Smith (verbal communication), after crossing

the blue and scarlet forms artificially, found that specimens with pale pink and bluish-white flowers appeared alongside the parents in the F_2 generation.

It has been shown by E. M. Marsden-Jones & F. E. Weiss (1938, *Proc. Linn. Soc.*, **150**, 146-154) that the five colour variants, scarlet, pink, white, purple and blue, form a series in which scarlet is simply dominant to pink, pink to white, and so on. Blue is simply recessive to all the others, except that when it is crossed with lilac there is a segregation in the F_1 . No mention, however, is made by these authors of the possibility of linkage, which the records cited above seem to suggest. Further genetical work on these colour variants is clearly needed.

Marquand (*l.c.*) remarks that in Guernsey 'the form with salmon-coloured flowers is frequent, especially near the sea; plants with pale pink or flesh-coloured flowers also occur, but less commonly'. Likewise, W. C. Barton (1916, *Wats. B.E.C. Rep.*, **2**, 544) records that among scarlet and pale-flowered plants growing at Barmouth, Merionethshire, a few specimens occurred with flowers intermediate in colour. The only other person to have reported two distinct pink variants appears to be H. W. Pugsley (1928, *Wats. B.E.C. Rep.*, **3**, 435), who distinguished a plant from Poole Harbour with pale pink corolla and bright crimson eye ('clearly bicoloured flowers') from the more frequent flesh-coloured form. Marsden-Jones & Weiss (*l.c.*) merely describe the corolla of their pink form as 'salmon or flesh', with a purple eye. This matter, too, deserves closer investigation.

It has been pointed out by F. Rilstone (1938, *J. Bot.*, **76**, 85) that the flesh-coloured form is almost exclusively a maritime plant in Cornwall, where it occurs mainly on sand dunes in a form with a neater habit and suberect stems. This dune form certainly has a very distinct facies, and as its characters appear to be constant it deserves a varietal name. However, while maritime populations (both of the suberect and straggling varieties) contain a large proportion, or even a predominance, of flesh-coloured plants in the Channel Isles, the Cornish Peninsula, the southern tip of Ireland and along the Welsh coast as far as Anglesey, the populations—at least of the suberect dune variety—outside this region, in Lancashire, Dorset and Norfolk, for example, are evidently (apart from rare isolated instances) uniformly scarlet. The coincidence of flesh-coloured flowers and suberect stems, postulated by Rilstone, is, therefore, not complete. The reason for the prevalence of the flesh-coloured form in the milder, westerly coastal areas is obscure.—D. E. ALLEN.

517(2)/1. **Salpichroa organifolia** (Lam.) Baillon, 1888, *Hist. pl.*, **9**, 288, fig. 363; *Physalis organifolia* Lam., 1793, *Tabl. encycl.*, **2**, 28; *Atropa organifolia* Desf., 1829, *Cat. hort. Paris*, ed. 3, 396; *Busbeckia radicans* Mart., 1829, *Cat. hort. Monac.*, 69; *Atropa rhomboidea* Gillies & Hook., 1829, *Hook. Bot. Misc.*, **1**, 135-6, tab. 37; *Salpichroa rhomboidea* Miers, 1845, *Hook. Lond. J. Bot.*, **4**, 329.

A sprawling perennial, with rather woody, pubescent stems. Leaves with short hairs, or almost glabrous, small (1.5-2.5 × 1.2 cm.), ovate-

rhomboid. Flowers small, > 1 cm., solitary, nodding; corolla urceolate, constricted at middle and at throat, with a ring of hairs above the insertion of the stamens within, white; calyx cleft almost to the base into five narrow, acute segments. Berries said to be white or yellowish and edible.

Baillon in making the combination gives no description and cites no authors' names but gives a figure of a section of the flower. This is accepted by Litardière (1948, *Candollea*, **11**, 215) as validating the name. The same combination was made later by Thellung (1912, *Mém. Soc. Nat. Sc. Cherbourg*, Series 4, **38**, 452).

This species has been found in Britain as follows:—S.; Guernsey; "found apparently wild", 1946, W. A. WARRY, (Hb. Kew); Shore at Grandes Rocques, 1950, J. E. LOUSLEY, (Hb. Lousley); Jersey; St. Ouen's, 1949, MISS TURNBULL, (Hb. Lousley): v.c. 9, Dorset; Abbotsbury, opposite gardens in field, 1937, MRS. DAVIES, (Hb. Kew): v.c. 10, Wight; Ventnor-St. Lawrence, "among brambles and nettles by a dry stone wall", 1952, J. H. WALTER, (Hb. Mus. Brit.): v.c. 11, S. Hants.; Hayling Island beach, 1949 & 1951, MRS. D. WOFFENDEN, (Hb. Mus. Brit.).

Salpichroa origanifolia is a native of South America (Brazil, Uruguay, Paraguay and Argentina), and is grown for its edible berries, and as an exceedingly rapid climber. In California it has become a weed, and it is also naturalised in Florida. In Europe it is established in Corsica, and is on the way to becoming naturalised in the south of France. It appears also to be established in Portugal, and in Holland, near Rotterdam. In New Zealand it "occasionally escapes in North Island" (Allan, 1940: *Handbook Naturalised Fl. N.Z.*, 299). In Britain it is said to be half-hardy but the records above suggest that it is likely to persist in competition with native plants in the Channel Islands and on the south coast.

In Paraguay, Argentina and France it is known as "cock's eggs". I am very much indebted to Mr. N. Y. Sandwith for assistance in compiling this note.—J. E. LOUSLEY.

691/2.×3. **Polygonatum × hybridum** Brügger, 1886, in *Jahresb. Naturforsch. Ges. Graubünd., Neue Folge*, **29**, 160 (**P. multiflorum × odoratum**); *P. × intermedium* Bor., 1857, *Fl. C. France*, éd. 3, **2**, 615, non Dum. (1827). 88, Mid Perth; Dunning burn adjacent to gardens, Dunning, 1953. Several plants of this garden hybrid mentioned in Clapham, Tutin & Warburg, *Flora of the British Isles*, 1220 (1952), were found growing amongst native vegetation and appeared to be well established. The flowers occurred in threes; the perianths, measuring up to 22 mm. were contracted in the middle, and the filaments were pubescent.—A. W. ROBSON.

+744/6. **Cyperus esculentus** L., 1753, *Sp. Pl.*, 45. 34, W. Glos.: waste ground, St. Philip's Marsh, Bristol. I. W. Evans, in C. I. and N. Y. Sandwith, Bristol Botany in 1948, *Proc. Bristol Nats. Soc.*, **27**, 389 (1949).

†744/7. *C. rotundus* L., 1753, *Sp. Pl.*, 45. 30, Beds.; Sundon Rubbish Dump, 1953, J. G. DONY and H. B. SOUSTER (J. G. Dony 2046, Herb. Mus. Brit., Herb. Kew, Herb. Luton Mus.).

Cyperus esculentus and *C. rotundus*, both sold commercially as tiger-nuts, are perennials. Superficially they resemble the British *C. fuscus* L., an annual; but they are taller, growing to 30 cm. Their spikelets are longer, in *C. esculentus* from 5 to 10 mm., and in *C. rotundus* from 15 to 30 mm. The glumes of *C. esculentus* are many-veined and straw-coloured with a narrow green keel; in *C. rotundus* they are three-veined and reddish-brown with a green keel.

Both species have a wide distribution in the Tropics, S. Asia and S. Europe.—J. G. DONY.

758. SPARTINA. Specimens collected by Mr. A. W. Westrup and others during the excursion to West Wittering, W. Sussex, included some which, by the key in Clapham, Tutin and Warburg's *Flora of the British Isles*, ran down to *Spartina maritima*, yet were clearly not that species. They formed a patch among otherwise normal *S. townsendii* but were distinct in appearance on account of their small spikelets. In this gathering, the spikelets were shorter than 14 mm., and the anthers 6 mm. long, but the spikelets were short-hairy and the rachis was extended as a flexuous bristle beyond the spikelets; whereas in *S. maritima* the spikelets are densely hairy with long hairs, and the rachis is scarcely prolonged beyond the spikelets. The hairiness of the spikelets and the length of the rachis in the specimens in question was in favour of the assumption that they belonged to *S. townsendii* which has probably arisen from hybridisation between *S. maritima* and *S. alterniflora*. In *S. alterniflora*, the spikelets are glabrous and the rachis is prolonged in a flexuous bristle up to 3 cm. beyond the spikelets.—A. MELDERIS.

770/2. ALOPECURUS ALPINUS Sm. The discovery of *Alopecurus alpinus* in Upper Teesdale adds another plant to the already extensive list of arctic-alpine species growing in that area. Also it adds another species to the list of English plants; all the other British records being from north of the Border.

The species was discovered in a collection of grasses made by the writer in Upper Teesdale in 1945 and identified recently by Mr. C. E. Hubbard. The plant was growing on sheep-cropped mounds of short, green turf in boggy ground near the Tees, at an altitude of about 1500 ft., on the Durham side of the river. It belongs to the awned variety of the species.—J. K. MORTON.

827/13(2). BROMUS CARINATUS Hook. & Arn. In September 1953 Mrs. B. Welch discovered a few tussocks of this alien grass growing on a rubbish-tip at Hanwell (v.c. 21). Dr. A. Melderis and I visited the area shortly afterwards and saw about eight tussocks growing over a small area of grassy waste land.

Bromus carinatus is abundant by the Thames in the vicinity of the Royal Botanic Gardens, Kew (v.c. 17), from whence it originally escaped. It was at Kew that the plant was shown to members of the Society at the start of the London Area excursion in September 1952. During the course of that excursion the rubbish-tip at Hanwell was visited, and it is possible that the seeds were accidentally introduced from Kew via the trouser turn-ups or shoes of a member, or members, of the Society.—D. H. KENT.

PLANT RECORDS

Compiled by E. C. WALLACE

Records are for the year 1953 when no date is given.

The following signs are used:—

- § before the *B.P.L.* number: to indicate that the paragraph contains information necessitating a correction to an annotated copy of the *Comital Flora*.
- † before the *B.P.L.* number: to indicate that the plant is not a native species in the British Isles.
- † before the record; to indicate a species which, though native in some parts of the British Isles, is not so in the locality recorded.
- * before the record: to indicate a new vice-county record, not published previously to this issue of the *Proceedings*.
- ‡ before the record: to indicate a record additional to an annotated copy of *Comital Flora*, but published elsewhere prior to the issue of the *Proceedings* in which it appears.
- [] enclosing a record: to indicate doubt as to the validity of the record, either of identification or locality.

It will be useful if, in future, National Grid Co-ordinates, made as accurate as is thought advisable, are added to all records.

1/1. *CLEMATIS VITALBA* L. 48, Mer.; near Porkington Terrace, Barmouth, 1951, P. M. BENOIT.

†2/6. *THALICTRUM AQUILEGIFOLIUM* L. 14, (Kent); (7) railway bank near Tunbridge Wells West Station, an escape, but established in some quantity, 1949-1953, K. E. BULL.

6/6. *RANUNCULUS LINGUA* L. 14, E. Sussex; (5) pond immediately east of railway, between Hellingly and Hailsham Stations, growing with *Comarum*, *Menyanthes*, etc., 1950-1953, K. E. BULL.

§6/7bis. *RANUNCULUS FLAMMULA* subsp. *SCOTICUS* (E. S. Marshall) Clapham. †95, Elgin; Buckie Loch, N. D. SIMPSON—but see J. Burgess, *Flora of Moray*, 1 (1935).

§6/22. *RANUNCULUS TRICHOPHYLLUS* Chaix. *95, Elgin; Gilston Loch, M. McCALLUM WEBSTER, det. A. MELDERIS.

6/24. *RANUNCULUS AQUATILIS* L. subsp. *AQUATILIS* (*R. heterophyllus* Weber). 37, Wores.; pond at Callow Hill, near Redditch, D. O. JONES and C. C. TOWNSEND.

§6/25. *RANUNCULUS AQUATILIS* subsp. *PELTATUS* (Schränk) Syme. *95, Elgin; The Leen, Garmouth, M. McCALLUM WEBSTER.

§6/28. *RANUNCULUS BAUDOTH* Godr. ‡63, S.W. York.; brickyard pond, Thorne, W. Bunting (1954, *The Nat.*, 1954, 26).

§8/1. *TROLLIUS EUROPAEUS* L. *†17, Surrey; on tipped soil at the edge of a road near Bisley, a single large plant, presumably from a garden, Miss MAYNARD, comm. B. M. C. MORGAN.

9/2. *HELLEBORUS FOETIDUS* L. 36, Heref.; Cherry Hill, Townhope, F. M. DAY.

†10/1. *ERANTHIS HYEMALIS* (L.) Salisb. 14, E. Sussex; (4) rather well naturalised in Iford Churchyard, below Lewes, 1951; (5) wood at back of King's Drive, Willingdon, a patch in wet soil, escape, 1950, K. E. BULL.

§14/1. *ACONITUM ANGLICUM* Stapf. ‡†100, Clyde Isles; Cumbrae, W. A. Scott (1953, *Glasgow Nat.*, 17, 70).

†21/11. *PAPAVER ORIENTALE* L. 14, E. Sussex; (4) railway banks west of Lewes Station, well established and in considerable quantity, 1951-1953, K. E. BULL.

§22/1. *MECONOPSIS CAMBRICA* L. †16, W. Kent; established as an escape, in and near Bull's Hollow, Rusthall, Tunbridge Wells, 1949-1953, K. E. BULL. 71, Man; naturalised for a great many years in several places about Sulby, R. HOWARTH: dump, Braddan Works, D. E. ALLEN. ‡†101, Kintyre; woodland near Limecraigs, Campbeltown; also sporadically elsewhere in the district, e.g. Tangy and Peninver, M. H. CUNNINGHAM—see also *Glasgow Nat.*, 17, 70 (1953).

23/1. *GLAUCIUM FLAVUM* Crantz. †14, E. Sussex; (4) disturbed ground by new houses, Kingston-by-Lewes, an inland station, 1951, K. E. BULL.

†23/2. *GLAUCIUM CORNICULATUM* (L.) Rudolph. 14, E. Sussex; (4) one large plant in overgrown allotments by Lewes Priory ruins, 1950, K. E. BULL.

32/9. *FUMARIA BASTARDI* Bor. 52, Anglesey; sea-front gardens. Holyhead, 1952, C. C. TOWNSEND, det. N. Y. SANDWITH.

†33/5. *MATTHIOLA TRICUSPIDATA* R.Br. 33, E. Glos.; (7b) Charlton Kings tip, near Cheltenham, 1952, C. C. TOWNSEND, conf. A. MELDERIS.

§35/1. *RORIPPA NASTURTIUM-AQUATICUM* (L.) Hayek. 9, Dorset, by a streamside between Tilly Whim and Dancing Ledge, Swanage: 33, E. Glos.; (6) roadside at Amberley: 37, Worcs.; Abbey meadows, Red-ditch, on Bunter sandstone, C. C. TOWNSEND. *108, W. Sutherland; Bettyhill, S. M. WALTERS.

§35/1(2). *RORIPPA MICROPHYLLA* (Boenn.) Hylander. *12, N. Hants.; stream in Alice Holt, near Buckshorn Oak, 1952, A. W. WESTRUP.

35/1(2)×1. *RORIPPA* × *STERILIS* Airy-Shaw. 37, Worcs.; pool near Hanbury, C. C. TOWNSEND.

36/5. *BARBAREA INTERMEDIA* Bor. 14, E. Sussex; (5) roadside, Vines Cross Road, Horam, a number of plants after road-widening, 1950. Did not persist here: 14, (Kent); (7) a single plant, railway bank near Tunbridge Wells West Station, 1950, K. E. BULL. 20, Herts.; arable field by Merlyn's Wood, near Watford, LONDON NATURAL HISTORY SOCIETY EXCURSION, det. E. B. BANGERTER. 48, Mer.; Talybont, P. M. BENOIT, comm. NAT. MUS. WALES.

†37/12. *ARABIS CAUCASICA* Willd. 37, Worcs.; well established in quarries at the Wyche cutting, Malvern, 1952, C. C. TOWNSEND.

§39/2. *CARDAMINE AMARA* L. *47, Montg.; canal-side, Welshpool, J. D. K. LLOYD, comm. NAT. MUS. WALES.

39/7. *DENTARIA BULBIFERA* L. 16, W. Kent; a very small patch on Tunbridge Wells Common, first noticed in 1938; still there in 1953 though not increasing, K. E. BULL.

†49/5. *SISYMBRIUM IRIO* L. 21, Middx.; rubbish-tip, Greenford, in fair quantity, B. WELCH: bombed site near Great Tower Street, City, E.C., A. W. JONES.

†51/2. *CONRINGIA AUSTRIACA* (Jacq.) Sweet. 69, Westm.; roadside between Appleby and Dufton, M. Cross, det. at Kew.

§†52/1b. *CAMELINA SATIVA* subsp. *PILOSA* (DC.) Zinger. *95, Elgin; casual at Moy House, A. MELDERIS.

§53/1. *SUBULARIA AQUATICA* L. †98, Argyll; near Inverary, K. N. G. MacLeay (1953, *Glasgow Nat.*, 17, 71).

§60/1. *CORONOPUS DIDYMUS* Sm. *69b, N. Lancs.; roadside between Greenodd and Haverthwaite, 1952, A. W. WESTRUP.

§61/3. *CARDARIA DRABA* (L.) Desv. †95, Elgin; Spey shingle and roadside near Garmouth, M. McCALLUM WEBSTER—but see J. Burgess, *Flora of Moray*, 3 (1935).

†65/2. *IBERIS UMBELLATA* L. 3, S. Devon; waste patch, Rock-close, Broadsands, Churston, 1949-1953, K. E. BULL.

†76/3. *RAPISTRUM RUGOSUM* (L.) All. 14, E. Sussex; (5) waste ground, Eastbourne, 1950, K. E. BULL, det. J. E. LOUSLEY. 22, Berks.; allotments near Maidenhead Station, 1952, A. W. WESTRUP, det. R. D. MEIKLE (as var. *scabrum* (Host) Rouy & Fouc.).

80/1c. *RAPHANUS RAPHANISTRUM* var. *AUREUS* Wilmott. 108, W. Sutherland; arable field, Melvich, S. M. WALTERS.

80/2. *RAPHANUS MARITIMUS* Sm. 14, E. Sussex; (6) shingle-bank east of Rye Harbour, one plant only noted, 1952, K. E. BULL.

88/3c. *VIOLA REICHENBACHIANA* var. *LEUCANTHA* (Célak.) Wilmott. 36, Heref.; The Golden Valley, Ewgas Harold, M. PORTER, det. at Kew, comm. F. M. DAY.

88/6. *VIOLA CANINA* L. 101, Kintyre; sandy links ground near Lochsanish, W. Kintyre, M. H. CUNNINGHAM, det. D. H. VALENTINE.

88/8h. *VIOLA ODORATA* var. *SUBCARNEA* (Jord.) Parl. 14, E. Sussex; (5) shrubberies and lawns at Folkington Rectory, 1950; near the entrance to Selmeston Churchyard, 1953, K. E. BULL.

†88/13. *VIOLA CORNUTA* L. 95, Elgin; by banks of Spey at Grantown; hedgerows at Dallas; bank at Dunphail, M. McCALLUM WEBSTER, det. A. MELDERIS.

§88/34. *VIOLA TRICOLOR* subsp. *CURTISII* (E. Forst.) Syme. ‡101, Kintyre; sandy sea pasture by Tayinloan, W. Kintyre, M. H. CUNNINGHAM, det. R. D. MEKLE—but see J. R. Lee, *Flora of the Clyde Area*, 43 (1933).

[§89/6. *POLYGALA AMARA* L. *S, Jersey?, 1837 or 1838, C. C. BABINGTON (*Herb. Edinb. Bot. Gard.*), det. and comm. D. R. GLENDINNING.]

§90/1. *FRANKENIA LAEVIS* L. ‡†4, N. Devon; Saunton Cliffs, Braunton, established for two or three years, Mrs. Cadell (1953, *Rep. & Trans. Devon. Assoc.*, 85, 180).

92/2. *DIANTHUS DELTOIDES* L. 52 Anglesey; sandy bank of lane to Newborough Warren, about a dozen plants, 1951, A. W. WESTRUP.

96/8. *SILENE ACAULIS* (L.) Jacq. 112, Zetland; on north facing cliffs, Noss of Rerwick, and Wick of Shuni, E. W. DAVIES and P. A. PADMORE.

§†96/11. *SILENE ITALICA* (L.) Pers. *35, Mon.; Newport Docks, J. MACQUEEN, det. A. E. WADE, comm. NAT. MUS. WALES.

†96/16. *SILENE DICHOTOMA* Ehrh. 21, Middx.; on the island at Penton Hook Lock, near Staines, B. M. C. MORGAN.

†96/20. *SILENE ARMERIA* L. 33, E. Glos.; (2b) waste ground, Northway, near Ashchurch, 1952, R. GLYNNE, det. A. MELDERIS, comm. C. C. TOWNSEND.

†98/10. *AGROSTEMMA CORONARIA* L. 14, E. Sussex; (5) shingly ground near Tower House, Pevensey, plentiful, 1951; 15, E. Kent; waste ground among furze, Littlestone-on-Sea, plentiful; waste ground, New Romney Warren, one plant, K. E. BULL.

§100/7. *CERASTIUM PUMILUM* Curt. *11, S. Hants.; by Paulsgrove Chalkpit, Portsdown, Portsmouth, 1951, A. W. WESTRUP, det. R. D. MEIKLE.

101/3b. *STELLARIA APETALA* Ucria. 31, Hunts.; wall top, Waternewton village, 1952 (1953, *Ann. Rep. Hunts. Fauna & Flora Soc.*, 5, 16). 36, Heref.; wall, Lyde Farm, near Hereford, L. E. WHITEHEAD, det. and comm. F. M. DAY.

101/5c. *STELLARIA HOLOSTEA* var. *LOUSLEYI* (Druce) Brenan & Lousley. 4, N. Devon; Burley Wood, South west of Bridestow, C. I. and N. Y. SANDWITH.

102/6. *ARENARIA LEPTOCLADOS* (Reichb.) Guss. 71, Man; walls and banks, Castletown; bank by sea, Scarlett; Derbyhaven; wall-top by Hango Hill, with *A. serpyllifolia*, D. E. ALLEN.

†102/14. *ARENARIA BALEARICA* L. 1, W. Cornwall; wall at Portreath, 1945, C. C. TOWNSEND, conf. A. MELDERIS.

§103/7. *SAGINA CILIATA* Fr. 71, Man; walls about Castletown; Malew; Derbyhaven, D. E. ALLEN. ‡76, Renfrew; Mearns, R. Mackechnie (1953, *Glasgow Nat.*, 17, 71).

†108/1. *CLAYTONIA ALSINOIDES* Sims. 3, S. Devon; damp sandy soil by the Dart, Staverton, 1949: 16, W. Kent; plentiful as a weed, Rehoboth Chapel, Chapel Place, Tunbridge Wells; weed in gardens, Lonsdale Gardens, Tunbridge Wells, 1948-1953, K. E. BULL. 62, N.E. York.; well established at the top end of Bransdale, ten miles north of Helmsley, A. Feversham (1953, *N.W. Nat. (N.S.)*, 1, 97). 101, Kintyre; deep wayside ditch north of Tarbert, not near dwellings, M. H. CUNNINGHAM. 111, Orkney; shady ditches along the Howtown-Orphir road, E. W. DAVIES and P. A. PADMORE.

†108/2. *CLAYTONIA PERFOLIATA* Donn ex Willd. 19, N. Essex; abundant in a lane, Parney Heath, near Dedham, M. E. KENNEDY, comm. D. H. KENT.

109/2d. *MONTIA FONTANA* subsp. *VARIABILIS* S. M. Walters. 69b, N. Lancs.; pond by old railway, Rampside, Furness, 1952, A. W. WESTRUP, det. S. M. WALTERS. 88, Mid Perth; Ben Lawers, 1950, D. O. JONES, det. S. M. WALTERS, comm. C. C. TOWNSEND.

†112/4. *HYPERICUM ELATUM* Ait. 71, Man; Foxdale, J. T. WILLIAMS, det. and comm. D. E. ALLEN.

§112/12. *HYPERICUM MACULATUM* Crantz. *107, E. Sutherland; hedgebank near Lairg, M. S. CAMPBELL, J. E. RAVEN and S. M. WALTERS, form with eglandular sepals, det. S. M. WALTERS.

123/1. *TILIA PLATYPHYLLOS* Scop. †71, Man; self-sown and naturalised in Ballure Glen, D. E. ALLEN.

125/1. *LINUM BIENNE* Mill. 21, Middx.; field near Hounslow Heath, B. WELCH.

127/4. *GERANIUM PRATENSE* L. †3, S. Devon; by Staverton Churchyard, 1949; rough waste ground, Horseshoe Bend, Goodrington, well established: †16, W. Kent; in ditch and long grass by War Memorial, Brenchley, well established, K. E. BULL.

§127/8. *GERANIUM COLUMBINUM* L. *95, Elgin; shingle at mouth of river Spey, Garmouth, M. McCALLUM WEBSTER.

§†132/2. *OXALIS CORNICULATA* L. *101, Kintyre; Bardaravine Woods, W. Kintyre, south of Tarbert, H. T. MAYO, det. D. P. YOUNG, comm. M. H. CUNNINGHAM.

§133/1. *IMPATIENS NOLI-TANGERE* L. ‡98, Argyll; Kilmory, W. A. Scott (1953, *Glasgow Nat.*, 17, 73).

§†133/3. *IMPATIENS PARVIFLORA* DC. ‡77, Lanark; garden weed, Cleghorn, near Lanark, W. A. Scott (1953, *Glasgow Nat.*, 17, 73).

§†133/4. *IMPATIENS GLANDULIFERA* Royle. 59, S. Lancs.; ditch, Parbold, including several specimens with deep-red flowers, and also a number of albinos with white flowers and pale green foliage, D. E. ALLEN. *71, Man; between Braaid and Foxdale, J. T. WILLIAMS, comm. D. E. ALLEN.

†145/4. *LUPINUS ANGUSTIFOLIUS* L. 49, Caern.; Llandudno Warren in some quantity with *L. arboreus* Sims, probably originally planted, 1952, C. C. TOWNSEND.

§152/1. *TRIGONELLA ORNITHOPODIOIDES* (L.) DC. 17, Surrey; golf-course, Wimbledon Common, A. W. JONES. *48, Mer.; near Tonfanau. P. M. BENOIT, comm. NAT. MUS. WALES. ‡†H.3, W. Cork; grassy bank near railway line on Baltimore Pier, Cape Clear, J. E. O'Donovan (1953, *Irish Nat. J.*, 11, 108-109).

†153/3. *MEDICAGO SATIVA* L. 48, Mer.; railway siding, Barmouth Junction, P. M. BENOIT, comm. NAT. MUS. WALES.

†154/4. *MELILOTUS INDICA* (L.) All. S., Guernsey; L'Ancrese Common, in plenty, L. W. FROST.

155/13. *TRIFOLIUM FRAGIFERUM* L. 14, E. Sussex; (5) Vines Cross Lane, Horam, one small patch, 1949-1953; in the pit at the brickworks, Marle Green Road, Horam, 1951; Hales Hill, near Vines Cross, Horam, one or two roadside patches, 1950, K. E. BULL.

156/1. *ANTHYLLIS VULNERARIA* L. 14, E. Sussex; (5) railway banks, north of Waldron and Horam Station, far from the chalk, 1949-1953, K. E. BULL.

‡160/1. *TETRAGONOLOBUS MARITIMUS* (L.) Roth. *23, Oxon.; large patch on a chalk slope near Ipsden, V. S. SUMMERHAYES and N. Y. SANDWITH.

‡160/7. *LOTUS HISPIDUS* Desf. ex DC. ‡45, Pemb.; cliff top turf near Hook Vale, above Westdale Bay, and above Mill Bay, near St. Ann's Head, C. D. PIGOTT; fields above Watwick Bay, F. W. ADAMS.—See also *Proc. B.S.B.I.*, 1, 83 (1954)—Ed. ‡H.3, W. Cork; Cape Clear, a large colony, J. E. O'Donovan (1953, *Irish Nat. J.*, 11, 108-109).

†163/1. *GALEGA OFFICINALIS* L. 9, Dorset; naturalised on cliffs at Swanage, C. C. TOWNSEND.

†170/1. *CORONILLA VARIA* L. 3, S. Devon; rampant on disused tennis-court, Hydro Hotel, Daddy Hole Plain, Torquay, K. E. BULL.

†176/33(3). *VICIA ERIOCARPA* (Hausskn.) Halácsy. 17, Surrey; (5) rubbish-tip, Earlswood, M. MCCALLUM WEBSTER and B. M. C. MORGAN, det. A. MELDERIS.

178/3. *LATHYRUS TUBEROSUS* L. 14, E. Sussex; scrambling over brambles on rough ground, Newhaven Heights, K. E. BULL.

178/9. *LATHYRUS APHACA* L. 17, Surrey; (5) rubbish-tip, Earlswood, B. M. C. MORGAN.

185/38. *RUBUS LACINIATUS* Willd. 71, Man; between Groudle and Old Lonan Church, J. T. WILLIAMS, det. and comm. D. E. ALLEN.

185/84d. *RUBUS RADULOIDES* (Rogers) Druce. 38, Warw.; two bushes by roadside near Maffleborough Green, near Redditch, 1952, C. C. TOWNSEND, conf. W. C. R. WATSON; roadside by bridge over stream at Hill Wootton, C. E. A. ANDREWS and C. C. TOWNSEND, conf. W. C. R. WATSON.

185/104. *RUBUS MOYLEI* Barton & Riddelsd. 18, S. Essex; Blake's Wood, near Danbury, B. T. WARD, det. W. C. R. WATSON.

185/104(2). *RUBUS RADULICAILIS* Sudre. 37, Worcs.; Muskett's Way, Redditch, C. C. TOWNSEND, det. W. C. R. WATSON.

185/124. *RUBUS MURRAYI* Sudre. 37, Wores.; Pitcher Oak Wood, Redditch, C. C. TOWNSEND, det. W. C. R. WATSON.

185/137. *RUBUS ANGUSTIFRONS* Sudre. 18, S. Essex; Hart's Wood, near Brentwood, B. T. WARD, det. W. C. R. WATSON.

185/149(2). *RUBUS MYRIACANTHUS* Focke. 33, E. Glos.; (7b) near road at top of Charlton Hill, Cheltenham, 1952, C. C. TOWNSEND, det. W. C. R. WATSON.

†185/15b. *RUBUS SPECTABILIS* Pursh. 71, Man; naturalised in marshy ground, Port Soderick, J. T. WILLIAMS, det. E. M. ROSSER, comm. D. E. ALLEN.

†188/1. *FRAGARIA MOSCHATA* Duchesne. 71, Man; naturalised on hedgebank, Mount Murray; hedgebank by Braddan Works, D. E. ALLEN. 88, Mid Perth; on south bank of Loch Tay, 1½ miles from Kenmore, M. MCCALLUM WEBSTER, det. A. MELDERIS.

§190/4b. *ALCHEMILLA FILICAULIS* Bus. *42, Brec.; Capel-y-ffin, 1941, S. G. CHARLES, det. S. M. WALTERS, comm. NAT. MUS. WALES.

§190(2)/2. *APHANES MICROCARPA* (Boiss. & Reut.) Rothm. *5, S. Som.; Minehead Warren, C. I. and N. Y. SANDWITH. 13, W. Sussex; on several tracks in woodland on Graffham Common, E. C. WALLACE. 38, Warw.; Oversley Wood, L. H. WILLIAMS and C. C. TOWNSEND, conf. S. M. WALTERS. *48, Mer.; garden weed at Felin Sylfaen, near Barmouth, P. M. BENOIT, det. A. E. WADE. *95, Elgin; near Moy House, Forres, N. D. SIMPSON.

§195/11. *SORBUS RUPICOLA* (Syme) Hedl. *H15; S.E. Galway; west shore of Lough Dearg, a little below Portumna Golf Course, J. N. MILLS, det. E. F. WARBURG.

†196/10. *PYRACANTHA COCCINEA* M. J. Roem. 14, E. Sussex; (5) two large bushes on a chalky railway bank north of Waldron and Horam Station, probably bird-sown, 1949-1953; one bush on railway bank north of Hailsham Station, 1950-1953, K. E. BULL. *21, Middx.; disused chalkpit, Harefield, one large plant, T. G. and M. COLLETT, det. A. MELDERIS, comm. D. H. KENT.

†197/2. *COTONEASTER MICROPHYLLUS* Wall. ex Lindl. 3, S. Devon; a single bush on slaggy waste ground by Goodrington Sands Station: 14, E. Sussex; (5) chalky railway bank north of Waldron and Horam Station, 1949-1953; chalky field above Ratton Woods, several bushes, 1950, K. E. BULL. 17, Surrey; North Downs above Betchworth lime works, E. M. C. ISHERWOOD and B. M. C. MORGAN.

§†197/3. *COTONEASTER SIMONSI* Baker. *95, Elgin; Spey shingle, J. SOUSTER.

§209/1. *CRASSULA TILLAEA* Lester-Garland (*Tillaea muscosa* L.). *17, Surrey; a troublesome weed for 10 or more years in Waterer's Nursery, Bagshot, 1932, B. SCHAFER (*Herb. Mus. Brit.*). This specimen appears to be the first evidence for the plant in Surrey, J. E. LOUSLEY: sandy ground near Virginia Water, 1952, S. HOOPER.

§211/1. *SEDUM TELEPHIUM* L. *101, Kintyre; sides of ditch and by grassy heathside, borders of Aros Moss, S. Kintyre, 1952, M. H. CUNNINGHAM.

§211/4. *SEDUM FORSTERIANUM* Sm. *45, Pemb.; wall, St Davids, 1952, J. A. WEBB, comm. NAT. MUS. WALES.

§213/1. *DROSERA ANGLICA* Huds. *47, Montg.; Plynlimon, 1948, J. D. K. LLOYD, comm. NAT. MUS. WALES.

§217/2. *CALLITRICHE OBTUSANGULA* Le Gall ex Hegelm. *48, Mer.; ditch near the Post Office, Arthog, P. M. BENOIT, comm. NAT. MUS. WALES.

217/5. *CALLITRICHE INTERMEDIA* Hoffm. 98, Argyll, and 101, Kintyre; edges of Crinan Canal at Dunarray Locks, and elsewhere in the canal in 101, Kintyre, K. N. G. MACLEAY and O. BUCKLE.

§219/1. *LYTHRUM SALICARIA* L. *95, Elgin; marsh by road between Dyke and Kintessack, M. McCALLUM WEBSTER.

220. *EPILOBIUM*. All records, except those for *E. pedunculare*, have been determined or confirmed by G. M. ASH.

220/3×4. *EPILOBIUM HIRSUTUM* × *PARVIFLORUM*. 14, E. Sussex; (5) waste ground by Princes Park, Crumbles, Eastbourne, 1950, K. E. BULL. 24, Bucks.; rubbish-tip, Burnham Beeches, A. F. WOOD.

220/5×4. *EPILOBIUM ADNATUM* × *PARVIFLORUM*. 24, Bucks.; garden shrubbery, Bourne End, A. F. WOOD.

220/7. *EPILOBIUM OBSCURUM* Schreb. 101, Kintyre; Tarbert, way-side ditch, N. Kintyre; Carskiery, S. Kintyre; roadside, Ugadale, E. Kintyre, and many other places, M. H. CUNNINGHAM.

220/7×4. *EPILOBIUM OBSCURUM* × *PARVIFLORUM*. 24, Bucks.; Burnham Beeches, A. F. WOOD.

§+220/7(2). *EPILOBIUM ADENOCALON* Hausskn. 38, Warw.; Rough Hill Wood, Studley, C. C. TOWNSEND. *48, Mer.; Dolgelly, P. M. BENOIT, comm. NAT. MUS. WALES. ‡61, S.E. York.; bombed site, Hull, F. E. CRACKLES (1954, *The Nat.*, 1954, 28).

220/7(2)×3. *EPILOBIUM ADENOCALON* × *HIRSUTUM*. 24, Bucks.; rubbish-tip, Burnham Beeches, A. F. WOOD.

220/7(2)×4. *EPILOBIUM ADENOCAULON* × *PARVIFLORUM*. 24, Bucks.; rubbish-tip, Burnham Beeches, A. F. WOOD.

220/7(2)×7. *EPILOBIUM ADENOCAULON* × *OBSCURUM*. 24, Bucks.; Burnham Beeches, A. F. WOOD.

220/7(2)×8. *EPILOBIUM ADENOCAULON* × *ROSEUM*. 24, Bucks.; Burnham Beeches, A. F. WOOD.

220/7(2)×10. *EPILOBIUM ADENOCAULON* × *MONTANUM*. 14, E. Sussex; (5) Furnace Wood, near Sharps Corner, Horam, 1951, K. E. BULL. 24, Bucks.; Burnham Beeches, A. F. WOOD.

§220/8. *EPILOBIUM ROSEUM* Schreb. *95, Elgin; garden weed, Westfield, Roseisle, a very large leaved form, M. McCALLUM WEBSTER.

220/9. *EPILOBIUM LANCEOLATUM* Seb. & Mauri. 9, Dorset; a few plants on walls near Sandsfoot Castle, Weymouth, C. C. TOWNSEND.

220/10×4. *EPILOBIUM MONTANUM* × *PARVIFLORUM*. 37, Wores.; Hanbury, near Droitwich, C. C. TOWNSEND.

220/10×7. *EPILOBIUM MONTANUM* × *OBSCURUM*. 24, Bucks.; Burnham Beeches, A. F. WOOD.

220/10×8. *EPILOBIUM MONTANUM* × *ROSEUM*. 24, Bucks.; Burnham Beeches, A. F. WOOD.

220/14×4. *EPILOBIUM PALUSTRE* × *PARVIFLORUM*. 101, Kintyre; marshy ground on hillside near Ballegreggan, Campbeltown, M. H. CUNNINGHAM.

†220/17. *EPILOBIUM PEDUNCULARE* A. Cunn. 3, S. Devon; garden weed, Exminster, L. A. Harvey (1953, *Rep. & Trans. Devon Assoc.*, **85**, 180). 14, E. Sussex; (7) damp wall, Ship Lane, East Grinstead, 1952-1953, K. E. BULL.

†223/1. *OENOTHERA BIENNIS* L. 47, Montg.; railway bank, Dovey Junction Station, P. M. BENOIT, comm. NAT. MUS. WALES.

†223/10. *OENOTHERA ROSEA* Ait. 90, Forfar; garden weed, Lunan, U. K. DUNCAN, det. J. P. M. BRENNAN.

223/15. *OENOTHERA PARVIFLORA* L. 6, N. Som.; sandhills. Berrow, 1951, C. I. & N. Y. Sandwith (1952, *Proc. Bristol Nat. Soc.*, **28**, 308).

†234/1. *CARPOBROTUS EDULIS* (L.) N.E.Br. 14, E. Sussex; (4) steep grassy bank at Splash Point, Seaford, established as an escape, but not yet noted in flower, 1949-1953, K. E. BULL.

†239/3. *ERYNGIUM PLANUM* L. 3, S. Devon; Dawlish Warren, one plant, B. M. C. MORGAN, det. A. MELDERIS.

243/1. *CONIUM MACULATUM* L. 108, W. Sutherland; roadside, Melvich, M. S. CAMPBELL, J. E. RAVEN and S. M. WALTERS.

244/1. *SMYRNIUM OLUSATRUM* L. 14, E. Sussex; (5) colony by roadside between Rosers Cross and Cross-in-Hand, 1951-1953, K. E. BULL.

§247/1. *APIUM GRAVEOLENS* L. *47, Montg.; Lymore Park, Montgomery, 1952, J. D. K. LLOYD, comm. NAT. MUS. WALES.

§257/1. *MYRRHIS ODORATA* (L.) Scop. *111, Orkney; roadsides along the Germiston Road between Orphir and Stenness, E. W. DAVIES and P. A. PADMORE.

§265/7. *OENANTHE FISTULOSA* L. *47, Montg.; Stalloe Pool, Montgomery, J. D. K. LLOYD, comm. NAT. MUS. WALES.

§276/3. *PASTINACA SATIVA* L. ‡†77, Lanark; Carmyle, I. C. Crombie; ‡†101, Kintyre; Campbeltown, M. H. Carrothers (1953, *Glasgow Nat.*, 17, 75).

†277/1. *HERACLEUM MANTEGAZZIANUM* Somm. & Levier. 37, Worcs.; railway bank, Bromsgrove Lickey, 1952, C. C. TOWNSEND.

287/2b. *SAMBUCUS NIGRA* var. *LACINIATA* L. 14, E. Sussex; one large tree by stream near Theobalds Green Farm, south of Heathfield, 1950; several bushes in hedge, roadside near entrance to Nevill Golf Club, 1949-1950, K. E. BULL.

§290/1. *LINNAEA BOREALIS* L. *78, Peebles; Rachan, near Broughton, M. McDONALD, comm. D. PATTON.

†292/1. *LEYCESTERIA FORMOSA* Wall. 3, S. Devon; near Churston Ferrers War Memorial, a few bushes on rough ground, K. E. BULL.

296/5. *GALIUM PUMILUM* Murr. 98, Argyll; Craigentairbh Wood, near Ford, K. N. G. MACLEAY.

§296/10. *GALIUM TRICORNE* Stokes. ‡†75, Ayr; banks of Ayr, F. David (1953, *Glasgow Nat.*, 17, 75).

§296/12. *GALIUM VAILLANTII* DC. ‡†75, Ayr; banks of Ayr, F. David (1953, *Glasgow Nat.*, 17, 75).

†298/5. *ASPERULA ARVENSIS* L. 24, Bucks.; garden weed, Bourne End, A. F. WOOD, conf. J. G. DONY.

§304/2. *VALERIANELLA ERIOCARPA* Desv. *†95, Elgin; garden weed, Greshop House, Forbes, M. McCALLUM WEBSTER, det. A. MELDERIS.

304/5. *VALERIANELLA RIMOSA* Bast. 38, Warw.; with *V. dentata* and *V. dentata* var. *mixta* in a mixed crop at Newbold-on-Stour, C. E. A. ANDREWS and C. C. TOWNSEND.

†308/2b. *SCABIOSA ATROPURPUREA* L. 14, E. Sussex; (5) bare chalky bank close to Eastbourne Station, well-naturalised and in quantity, with *Erigeron acris*, 1950-1953, K. E. BULL.

†312/5. *SOLIDAGO GIGANTEA* var. *LEIOPHYLLA* Fern. 16, W. Kent; slaggy ground by Tonbridge Gasworks, one clump, 1950, K. E. BULL, det. at KEW. 31, Hunts.; Hicks Pit, Woodston, H. F. TEBBS, det. A. MELDERIS.

§†320/3. *ERIGERON CANADENSIS* L. 4, N. Devon; Instow, Mrs. D. Hilton, the first record on the N. Devon mainland since 1871 (1953, *Rep. & Trans. Devon Assoc.*, **85**, 181). Remove record from brackets in *C.F.* *59, S. Lancs.; a fast increasing weed of gardens, pavements and waste ground, Birkdale, Southport, 1952-1953; unknown on bombed sites in north-west England, so possibly introduced directly from the south with garden plants or, more likely, with bricks, with which it is associated in nearly every locality in the Midlands in which it has appeared since the war, D. E. ALLEN.

†327/1. *ANAPHALIS MARGARITACEA* (L.) Benth. 3, S. Devon; a patch on slaggy waste ground by Goodrington Sands Station, 1949-1953, K. E. BULL. 96, Easternness; rough ground by river Nairn, Clova, M. McCALLUM WEBSTER, det. A. MELDERIS.

§333/1. *INULA HELENIUM* L. ‡101, Kintyre; Sunadale, F. David (1953, *Glasgow Nat.*, **17**, 75).

†353/6. *BIDENS FRONDOSA* L. 37, Worcs.; one plant by the south bank of the canal, Tardebigge, near Bromsgrove, D. O. JONES and C. C. TOWNSEND.

†354/1. *GALINSOGA PARVIFLORA* Cav. 14, (Kent); (7) weed among marrow-plants, Hillside Nurseries, Tunbridge Wells, 1949, K. E. BULL. 24, Bucks; Chalfont St. Peter, V. M. SAGE, comm. F. R. BROWNING. 59, S. Lancs.; abundant weed in allotments, Sefton Park, Liverpool, J. R. CADMAN, det. and comm. D. E. ALLEN.

†354/2. *GALINSOGA CILIATA* (Raf.) Blake. 9, Dorset; several plants as weeds outside the Bankes Arms Hotel, Corfe, C. C. TOWNSEND. 19, N. Essex; roadside, Dovercourt, M. K. COLEMAN, det. and comm. B. T. WARD.

§†368/1. *ANTHEMIS TINCTORIA* L. *95, Elgin; one plant on shingle mouth of river Spey, Garmouth, M. McCALLUM WEBSTER.

†370/18. *CHRYSANTHEMUM BALSAMITA* L. 59, S. Lancs.; naturalised on sandy waste ground, Victoria Park, Southport, D. E. ALLEN.

§378/1. *ARTEMISIA ABSINTHIUM* L. ‡75, Ayr; Largs, Dr. Cairne (1953, *Glasgow Nat.*, 17, 76).

†378/21. *ARTEMISIA VERLATORUM* Lamotte. 15, E. Kent; hedgebank, Old Wives Lees, near Chilham, D. H. KENT.

†383/7. *SENECIO SQUALIDUS* L. 14, E. Sussex; (6) on slag by railway line just south of Mayfield Station, one plant, 1952, many plants, 1953; (7) one plant, Tunbridge Wells West Station, 1952, not seen in 1953, K. E. BULL.

§383/8. *SENECIO VISCOSUS* L. *†95, Elgin; railway siding, Grantown-on-Spey, M. McCALLUM WEBSTER, det. A. MELDERIS.

393/1. *ARCTIUM LAPPA* L. 71, Man; waste ground, Braddan Works; all previous Manx records doubtful, D. E. ALLEN.

396/3. *CIRSIIUM HETEROPHYLLUM* (L.) Hill. 48, Mer.; railway line, Arenig, E. H. CHATER, comm. NAT. MUS. WALES.

§†416/10. *CREPIS VESICARIA* subsp. *TARAXACIFOLIA* (Thuill.) Thell. *95, Elgin; Findhorn shingle near Greshop, A. MELDERIS.

†419/256. *HIERACIUM AURANTIACUM* L. 33, E. Glos.; (7b) by the roadside, Leckhampton Hill, Cheltenham, 1950, C. C. TOWNSEND, det. P. D. SELL and C. WEST.

†419/257. *HIERACIUM BRUNNEO-CROCEUM* Pugsl. 34, W. Glos.; (4) Symonds Yat, 1947, C. C. TOWNSEND, det. P. D. SELL and C. WEST.

§425/4. *MYCELIS MURALIS* (L.) Reichb. ‡76, Renfrew; Rouken Glen: ‡77, Lanark; Kilmacollm (1953, *Glasgow Nat.*, 17, 76).

†425/7. *CICERBITA PLUMIERI* (Gren. & Godr.) Wallr. 76, Renfrew; near Paisley: 77, Lanark; Tollcross: 99, Dunbarton; Milngavie (1953, *Glasgow Nat.*, 17, 76).

†425/8. *CICERBITA MACROPHYLLA* (Willd.) Wallr. 16, W. Kent; Ruxley gravel pit, near Sidcup, F. J. HOLROYDE, det. and comm. J. E. LOUSLEY. 71, Man; Tromode Road, Douglas, patch known since 1951, A. BUCKE, det. E. B. BANGERTER, comm. D. E. ALLEN.

†428/1. *TRAGOPOGON PORRIFOLIUS* L. 14, E. Sussex; (4) grassy bank by Glynde Church, abundant, and as a weed in nearby gardens, 1948-1953; (5) rough ground near Polegate Station, 1952; (6) Camber Golf Course, several plants, 1952, K. E. BULL.

§432/1. *JASIONE MONTANA* L. ‡68, Cheviotland; Longframlington, J. W. Heslop-Harrison (1953, *Vasc. (Subst.)*, **38**, 24).

§433/1. *WAHLENBERGIA HEDERACEA* (L.) Reichb. ‡7, N. Wilts.; boggy ground near the White Lodge, Spye Park, J. D. Grose (1954, *Wilts. Arch. & N.H. Mag.*, **55**, 260).

§†435/4. *CAMPANULA RAPUNCULOIDES* L. ‡3, S. Devon; cornfield about half a mile south of Blackingstone Rock, Bridford, in quantity, O. Greig (1953, *Rep. & Trans. Devon. Assoc.*, **85**, 181).

§436/1. *LEGOUSIA HYBRIDA* (L.) Delarb. ‡4, N. Devon; Fremington, Mrs. Cadell (1953, *Rep. & Trans. Devon. Assoc.*, **85**, 181).

439/1b. *VACCINIUM MICROCARPUM* (Rupr.) Hook. f. 95, Elgin; lochan on Dava Moor, M. McCallum Webster.

†443/1. *GAULTHERIA SHALLON* Pursh. 16, W. Kent; well naturalised, with *Rhododendron ponticum*, in woods opposite Pembury Hospital, 1949-1953, K. E. Bull.

§456/1. *MONOTROPA HYPOPITYS* L. agg. *95, Elgin; Cothall Quarry. B.S.B.I. EXCURSION.

§458/4. *ARMERIA MARITIMA* (Mill.) Willd. *47, Montg.; salt-marsh by Dovey Junction Station, P. M. Benoit, comm. NAT. MUS. WALES.

§†462/1. *CYCLAMEN HEDERIFOLIUM* Ait. ‡77, Lanark; well established at Cleghorn, and at Braxfield, near Lanark, W. A. Scott (1953, *Glasgow Nat.*, **17**, 77).

466/1. *GLAUX MARITIMA* L. 47, Montg.; salt-marshes by Dovey Junction Station, P. M. Benoit.

467/1. *ANAGALLIS TENELLA* (L.) L. 13, W. Sussex; Poison Copse, near Linchmere, E. C. Wallace.

†474/2. *BUDDLEJA DAVIDI* Franch. S., Sark; hedgside in centre of island, King's College (Durham) N.H.S., comm. E. B. Bangerter.

§478/6b. *CENTAURIUM SCILLOIDES* var. *PORTENSE* (Brot.) Butcher. *1, W. Cornwall; near St. Levan, E. G. Cordiner, comm. NAT. MUS. WALES.

§482/1. *NYMPHOIDES PELTATA* (S. G. Gmel.) Kuntze. *†11, S. Hants.; duckpond, Clanfield, probably introduced c. 1940; now (1951) covers pond, A. W. Westrup.

†494/1. *ASPERUGO PROCUMBENS* L. 17, Surrey; (5) rubbish-tip, Earlswood, E. M. C. Isherwood and B. M. C. Morgan.

†497/3. *SYMPHYTUM ORIENTALE* L. 9, Dorset; Blandford Forum; roadside at outskirts of town, towards Wimborne, well established, 1952, A. W. WESTRUP, det. R. D. MEIKLE.

†497/4. *SYMPHYTUM PEREGRINUM* Ledeb. 95, Elgin; Spey shingle, N. D. SIMPSON. H.16, W. Galway; roadside at Faul, near Clifden, Connemara, J. WHITTAKER, det. and comm. E. B. BANGERTER.

†497/9. *SYMPHYTUM GRANDIFLORUM* DC. 37, Worcs.; Worcester-Hereford Road near Newtown, a large patch on the roadside verge, Mrs. DYSON PERRINS, det. A. MELDERIS, comm. B. M. C. MORGAN.

†500/10. *BRUNNERA MACROPHYLLA* (M. Bieb.) I. M. Johnston (*Anchusa myosotidiflora* Lehm.). 33, E. Glos.; spreading on a roadside near a cottage near Withington, 1952, C. C. TOWNSEND, det. A. MELDERIS.

§†503/1. *PULMONARIA OFFICINALIS* L. †77, Lanark; naturalised at Cleghorn, W. A. Scott: 86, Stirling; Campsie (1953, *Glasgow Nat.*, **17**, 78).

§506/9. *MYOSOTIS HISPIDA* Schlecht. †101, Kintyre; frequent in Cantyre, M. H. CUNNINGHAM (1953, *Glasgow Nat.*, **17**, 78).

506/10. *MYOSOTIS DISCOLOR* var. *DUBIA* (Arrond.) Rouy. 101, Kintyre; damp wayside ground near Ronadhan, N.W. Kintyre, M. H. CUNNINGHAM, det. A. E. WADE.

509/1. *ECHIMUM VULGARE* L. 49, Caern.; Deganwy Castle rock, very dwarf and stunted, 1952, C. C. TOWNSEND.

†511/2. *CALYSTEGIA SYLVESTRIS* (Willd.) Roem. & Schult. S., Sark; hedgeside, Little Sark, KING'S COLLEGE (DURHAM) N.H.S., det. and comm. E. B. BANGERTER. 11, S. Hants.; sandbanks, near the ferry, Mudeford, C. C. TOWNSEND.

†527/1. *VERBASCUM PHLOMOIDES* L. 16, W. Kent; railway bank near Edenbridge Town Station, 1950-1952, K. E. BULL, det. J. E. LOUSLEY.

527/7b. *VERBASCUM LYCHNITIS* var. *ALBUM* (Mill.) Druce. †85, Fife; established on waste ground by Newburgh-Lindores road near Denmilne, A. W. ROBSON, det. J. E. LOUSLEY.

†527/12. *VERBASCUM SPECIOSUM* Schrad. 38, Warw.; abundantly naturalised by the disused railway station at Great Alne, C. E. A. ANDREWS and C. C. TOWNSEND, det. J. E. LOUSLEY.

§532/1. *LINARIA VULGARIS* Mill. *106, E. Ross; Fearnie Lodge, roadside near the entrance gates, M. S. CAMPBELL, J. E. RAVEN and S. M. WALTERS.

§532/3. *LINARIA REPENS* (L.) Mill. ‡+98, Argyll; Ardrishaig, W. A. Scott (1953, *Glasgow Nat.*, 17, 78).

§543/9. *VERONICA CATENATA* Pennell. 59, S. Lancs.; in several ditches, Birkdale dunes, growing intermingled with *V. anagallis-aquatica*, but no hybrids detected, D. E. ALLEN. 69b, N. Lancs.; gravel scrape near shore, N. Walney, Barrow-in-Furness, a form with alternate racemes, 1952, A. W. WESTRUP, det. R. D. MEIKLE. *71, Man; dyke running into Dumb River near Ballakeigan, Castletown, a few plants only, D. E. ALLEN.

†543/31. *VERONICA PEREGRINA* L. 90, Forfar; garden weed, Glamis, U. K. DUNCAN, conf. J. P. M. BRENAN.

†543/41. *VERONICA FILIFORMIS* Sm. 3, S. Devon; abundant on grass verge and roadside by Paignton Goods Station; Ashburton Churchyard: roadside, outskirts of Galmpton; near a cottage, not far from Berry Head Hotel, Brixham: 16, W. Kent; grassy bank, Bishops Down, Tunbridge Wells, 1950-1953; abundant in turf, St. Paul's Churchyard, Rusthall, 1950-1953; Bull's Hollow, Rusthall, 1951, K. E. BULL. 17, Surrey; roadside, Marden Park, Woldingham, P. GREENFIELD, conf. E. B. BANGERTER. 34, W. Glos.; (6) Brimscombe: *38, Warw.; Rough Hill Wood, near Studley, C. C. TOWNSEND. 67-68, Northumb.; near Haltwhistle; Riding Mill; Wylam; Rothbury, J. W. Heslop-Harrison (1953, *Vasc. (Subst.)*, 38, 24).

§545/2. *EUPHRASIA BOREALIS* Towns. *5, S. Som.; Simonsbath, 1918, E. S. MARSHALL (*Herb. Kew*), det. P. F. YEO.

545/5d. *EUPHRASIA NEMOROSA* var. *COLLINA* Pugs. 90, Forfar; sand dunes, Sands of Barry, U. K. DUNCAN, det. E. F. WARBURG.

§545/10. *EUPHRASIA OCCIDENTALIS* Wettst. *13, W. Sussex; Park Farm, Lurgashall, mixed with *E. nemorosa*, 1923 and 1929, R. J. BURDON (*Herb. Kew*), det. P. F. YEO. An inland locality. "Sheet 1" (*Herb. Kew*), B.E.C. Distribution 1923, labelled "*nemorosa*" by Pugsley, is the mixture. "Sheet 2" (*Herb. Kew*), 1929, is all *E. occidentalis*, but the label is not in Burdon's hand and the different date is perhaps an error, P. F. YEO. *95, Elgin; Spey shingle, M. McCALLUM WEBSTER, det. E. F. WARBURG.

§545/10d. *EUPHRASIA OCCIDENTALIS* var. *CALVESCENS* Pugs. 9, Dorset; Hambledon Hill, in turf on chalk hill, 1948, E. NEMES (*Herb. Kew*), det. P. F. YEO. *90, Forfar; sand-dunes, Sands of Barry, U. K. DUNCAN, det. E. F. WARBURG.

§545/13. *EUPHRASIA FOULAENSIS* Towns. ex Wettst. *95, Elgin; short turf at edge of salt-marsh, Findhorn, U. K. DUNCAN, det. E. F. WARBURG.

§545/19. *EUPHRASIA ROSTKOVIANA* Hayne. *68, Cheviotland; Hart-hope Burn, south west of Wooler, 1941, A. H. EVANS (*Herb. N. D. Simpson*), det. P. F. YEO. *72, Dumfries; farm by Taras Burn, with *E. brevipila*, 1950, P. A. PADMORE, det. P. F. YEO. *98, Argyll; moor near Kilchrenan, 1920, L. V. LESTER-GARLAND (*Herb. Kew*), det. P. F. YEO.

§546/4. *PARENTUCELLIA VISCOSA* (L.) Caruel. *†24, Bucks.; open space near the Moat, Burnham Beeches, A. F. WOOD, conf. J. G. DONY.

548/1. *RHINANTHUS SEROTINUS* (Schönh.) Schinz & Thell. 54, N. Lincs. and 63, S.W. York.; near Lindholme, in both Yorks and Lincs., W. Bunting (1954, *The Nat.*, 1954, 27).

§548/6. *RHINANTHUS SPADICEUS* Wilmott. *95, Elgin; sand-dunes, Culbin Sands, U. K. DUNCAN, conf. E. F. WARBURG.

§550/6. *OROBANCHE RETICULATA* Wallr. ‡61, S.E. York.; North Grimston, on *Cirsium eriophorum* (chiefly) and *C. vulgare*, W. A. Sledge (1954, *The Nat.*, 1954, 27).

§550/10. *OROBANCHE MINOR* Sm. ‡59, S. Lancs.; one small patch, on *Trifolium pratense*, in dune slack by railway, Birkdale, Southport, D. E. ALLEN. But see C. T. Green, *Flora of Liverpool Area*, 72 (1933).

†554/1. *ACANTHUS MOLLIS* L. 3, S. Devon, waste ground, Horse-shoe-bend, Goodrington, established as an escape; cliffs near Torcross Hotel, Slapton, escape, 1949-1953, K. E. BULL.

§558/1. *MENTHA ROTUNDIFOLIA* L. ‡101, Kintyre; Peninver, M. H. Cunningham (1953, *Glasgow Nat.*, 17, 79).

§558/3i. *MENTHA LONGIFOLIA* var. *HORRIDULA* Briq. 38, Warw.; marsh on Lower Lias clay, Newbold Quarry, near Rugby, 1950, D. E. ALLEN, det. R. A. GRAHAM. *†71, Man; Ramsey, J. T. WILLIAMS, det. R. A. GRAHAM, comm. D. E. ALLEN.

§558/10. *MENTHA* × *GENTILIS* L. 3, S. Devon; damp roadside at Michelcombe, near Holne, Ashburton, K. E. BULL, det. R. A. GRAHAM. ‡76, Renfrew; Giffnock, R. Mackechnie (1953, *Glasgow Nat.*, 17, 79).

558/12. *MENTHA* × *SMITHIANA* R. A. Graham. 3, S. Devon; waste ground, Horse-shoe bend, Goodrington, K. E. BULL, det. R. A. GRAHAM. 9, Dorset; ditch near Fiddleford Mill, Sturminster Newton, 1952, A. W. WESTRUP. 38, Warw.; by the Ridge Way, Astwood Bank, C. C. TOWNSEND, conf. R. A. GRAHAM.

562/1. *ACINOS ARVENSIS* (Lam.) Dandy. 21, Middx.; railway bank between Denham and Uxbridge, a small patch, T. G. and M. COLLETT and D. H. KENT.

577/4. *STACHYS* × *AMBIGUA* Sm. 14. E. Sussex; (5) edge of wood close to Hampden Park Station, 1950. K. E. BULL. 69b, N. Lancs.; hedge by shore, foot of Humphrey Head, near Grange-over-Sands, with both parents, 1952, A. W. WESTRUP.

§581/6. *LAMIUM AMPLEXICAULE* L. *47. Montg.; Aberhaesp. 1947. J. D. K. LLOYD, comm. NAT. MUS. WALES.

583/1. *BALLOTA NIGRA* L. +95. Elgin; roadside between Fochabers and Speybay, M. McCALLUM WEBSTER.

588/8h. *PLANTAGO LANCEOLATA* var. *ANTHOVIRIDIS* W. Wats. 34. W. Glos.; (4) Wigpool Common, Mitcheldean, C. C. TOWNSEND, conf. J. E. LOUSLEY.

§588/9. *PLANTAGO MEDIA* L. ‡95. Elgin; lawn at Moy House, Forbes, B.S.B.I. EXCURSION—but see J. Burges. *Flora of Moray*, 25 (1934).

589/1. *LITTORELLA UNIFLORA* (L.) Aschers. 15. E. Kent; open pits, Dungeness, first record for nearly 80 years. F. Rose and R. A. Boniface (1953, *S.E. Nat.*, 58, xx).

600/6. *CHENOPODIUM MURALE* L. 9. Dorset; Mill House, Wareham, C. C. TOWNSEND.

§+600/12. *CHENOPODIUM FICIFOLIUM* Sm. *95. Elgin; arable land, Darnaway, and garden at Moy House, Forbes, U. K. DUNCAN.

§611/1. *SALICORNIA PERENNIS* Mill. *48. Mer.; salt-marshes near Barmouth, 1951. P. M. BENOIT.

§611/8. *SALICORNIA APPRESSA* Dum. *48. Mer.; near Tonfaneau, P. M. BENOIT, comm. NAT. MUS. WALES.

+615/28. *POLYGONUM AMPLEXICAULE* D. Don. 17. Surrey; chalk slope, Warlingham, P. GREENFIELD.

§618/13. *RUMEX MARITIMUS* L. *47. Montg.; Stalloe Pool, Montgomery, 1950, J. D. K. LLOYD, comm. NAT. MUS. WALES.

618/16(2). *RUMEX TENTIFOLIUS* (Wallr.) Löve. 95. Moray; by river Findhorn, near Forbes, U. K. DUNCAN, conf. J. E. LOUSLEY.

621/1. *ASARUM EUROPAEUM* L. +36. Heref.; garden weed, Eastnor, F. M. DAY.

§+628/2. *EUPHORBIA DULCIS* L. ‡77. Lanark; Cleghorn, near Lanark, W. A. Scott (1953, *Glasgow Nat.*, 17, 73).

628/11. *EUPHORBIA CYPARISSIAS* L. †3, S. Devon; well established in furze, Fishcombe Cove, Brixham, 1949, K. E. BULL.

§628/16. *EUPHORBIA LATHYRUS* L. *47, Montg.; Hendomen, Montgomery, 1952, J. D. K. LLOYD, comm. NAT. MUS. WALES.

§632/2. *MERCURIALIS ANNUA* L. *46, Card.; garden weed, Aberystwyth, E. H. CHATER, comm. NAT. MUS. WALES.

633/5. *ULMUS PROCERA* Salisb. †71, Man; planted here and there, near Castletown Mill, Glen Vine, Ballure Glen, etc., D. E. ALLEN.

650/4×6. *SALIX* × *HIPPOPHAEOLIA* Thuill. 59, S. Lancs.; hedge near sea, Marshside, Southport, probably planted, 1952, D. E. ALLEN, det. R. D. MEIKLE.

650/5×6. *SALIX PURPUREA* × *VIMINALIS*. 101, Kintyre; Carskies meadow marsh, S. Kintyre, M. H. CUNNINGHAM, det. R. D. MEIKLE.

650/6(2). *SALIX CALODENDRON* Wimm. 90, Forfar; base of sea-cliffs, Auchmithie, U. K. DUNCAN, det. R. D. MEIKLE.

650/8×6. *SALIX CAPREA* × *VIMINALIS*. 101, Kintyre; banks of Breckere Burn near Gortavie Southend, S. Kintyre, M. H. CUNNINGHAM, det. R. D. MEIKLE.

§650/19. *SALIX RETICULATA* L. *98, Argyll; north-facing crags of Meall nan Gabhar, Dalmally, R. MACKECHNIE and B. W. RIBBONS.

652/2. *EMPETRUM HERMAPHRODITUM* (Lange) Hagerup. 70, Cumb.; hillside above Angle Tarn, Bow Fell, D. A. RATCLIFFE.

§†656/1. *ELODEA CANADENSIS* Michx. †75, Ayr; Dalry, A. Shanks (1953, *Glasgow Nat.*, 17, 79).

664/2. *SPIRANTHES SPIRALIS* (L.) Chevall. 71, Man; rediscovered in small quantity on slope of Keeill Vaill, Balladoole, the only known locality, where it had not been seen again since its discovery in 1918, L. V. BAKER and Mrs. E. M. MEGAW, comm. D. E. ALLEN.

§666/1. *EPIPOGIUM APHYLLUM* Sw. 23, Oxon.; refound in one of the localities in this county by its original discoverer, Mrs. V. N. PAUL. †24, Bucks.; see *Watsonia*, 3, 33 (1953).

§668/3(3)b. *EPIPACTIS PHYLLANTHES* var. *VECTENSIS* (T. & T. A. Steph.) D. P. Young. 8, S. Wilts.; in a beech wood, Erlestoke, W. O. COBBETT, det. and comm. J. D. GROSE and D. P. YOUNG. †H.20, Wicklow; coastal dunes south of Wicklow. New to Ireland. First seen in 1949 by C. SIPKES, who photographed the immature plants but kept no specimens; he determined it tentatively as *E. dunensis*. Refound in 1953 by D. A. WEBB following Sipkes's directions, det. and comm. D. P. YOUNG.—See also *Irish Nat. J.*, 11, 90-93 (1953) and 113-115 (1954).—Ed.

§669/7. *ORCHIS INCARNATA* L. *95, Elgin; Buckie Loch, B.S.B.I. EXCURSION.

§669/9. *ORCHIS PURPURELLA* T. & T. A. Steph. *95, Elgin; The Leen, Garmouth, A. MELDERIS. 101, Kintyre; plentiful, Aros Moss, Kintyre, 1952-1953, M. H. CUNNINGHAM, det. V. S. SUMMERHAYES.

669/10. *ORCHIS MACULATA* L. 44, Carm.; Laugharne Burrows, J. F. THOMAS, comm. NAT. MUS. WALES. 101, Kintyre; common on hilly and peaty ground throughout Kintyre, M. H. CUNNINGHAM, det. V. S. SUMMERHAYES.

§669/11. *ORCHIS FUCHSII* Druce. *95, Elgin; The Leen, Garmouth, N. D. SIMPSON. 101, Kintyre; plentiful on coastal stretches particularly on west coast of Kintyre, M. H. CUNNINGHAM, det. V. S. SUMMERHAYES.

672/3e. *OPHRYS APIFERA* var. *TROLLII* (Hegetschw.) Reichb. 59, S. Lancs.; Birkdale dunes, 1952, a single specimen with the labellum inside out and colouring and notching somewhat different from the type, D. E. ALLEN, det. V. S. SUMMERHAYES as "one of many freaks which seem to be all variants of var. *trollii*".

§†685/1. *GALANTHUS NIVALIS* L. *42, Brec.; Penarth Wood, Glanusk, V. WILLIAMS, comm. NAT. MUS. WALES. 73, Kirke.; south of Dalbeattie, Miss BIGGAR, comm. B. M. C. MORGAN.

702/4. *ALLIUM VINEALE* L. 71, Man; roadside between Peel and Glenfaba, L. V. CRELLIN, comm. D. E. ALLEN.

702/4c. *ALLIUM VINEALE* var. *COMPACTUM* (Thuill.) Bor. 71, Man; Ballemannagh, Sulby, R. HOWARTH, det. and comm. D. E. ALLEN.

§†702/8. *ALLIUM CARINATUM* L. ‡100, Clyde Isles; Rothesay, I. C. Crombie (1953, *Glasgow Nat.*, **17**, 80).

§†707/2. *ORNITHOGALUM UMBELLATUM* L. 14, E. Sussex; (5) grass bank near Jevington Church; grassy bank near Hanging Birch, Horam, well-established as an escape, 1951-1953; (6) roadside, Benhall Mill Lane, 1950-1953, K. E. BULL. 71, Man; naturalised at Howstrake, Onchan, 1947, J. T. WILLIAMS, det. and comm. D. E. ALLEN. ‡101, Kintyre; near Carskey, M. H. Cunningham (1953, *Glasgow Nat.*, **17**, 80).

709/1. *FRITILLARIA MELEAGRIS* L. 20, Herts. and 21, Middx.; in quantity in a meadow near Barnet, in both vice-counties, I. LANSBURY, comm. D. H. KENT.

§711/1. *GAGEA LUTEA* (L.) Ker-Gawler. ‡75, Ayr; Largs, J. Boyd (1953, *Glasgow Nat.*, **17**, 80).

§715/1. *TOFIELDIA PALUSTRIS* (Michx.) Pers. *100, Clyde Isles; Arran, Glen Sannox, 1883, J. WYLIE (*Herb. Glasgow Univ.*), comm. D. PATTON.

§718/8. *JUNCUS SUBNODULOSUS* Schrank. *48, Mer.; bog near Arthog, P. M. BENOIT, comm. NAT. MUS. WALES.

718/12. *JUNCUS BULBOSUS* L. 48, Mer.; Arthog Bog, P. M. BENOIT.

§718/12b. *JUNCUS KOCHII* F. W. Schultz. *48, Mer.; Arthog Bog, 1951, P. M. BENOIT. 58, Ches.; abundant in a dried-up pond, Thurston Common, 1952, D. E. ALLEN.

§718/14. *JUNCUS COMPRESSUS* Jacq. *13, W. Sussex; by pond on Sidlesham Common, R. A. BONIFACE and E. C. WALLACE. 71, Man; Talbot's specimen in Herb. Manx Museum is *J. acutiflorus* Ehrh. ex Hoffm.; R. P. Murray almost certainly derived his record from this source, and all the other authors cited by Paton in his list (*N.W. Nat. Suppl.* (1933)) used the name in an aggregate sense and clearly intended *J. gerardi* Lois. Delete 71 from *C.F.*, D. E. ALLEN.

§718/16. *JUNCUS TENUIS* Willd. 101, Kintyre; wayside near W. Loch Tarbert, N. Kintyre, M. H. CUNNINGHAM. ‡H.35, W. Donegal; near Letterkenny, 1952, J. McK. Moon (1953, *Irish Nat. J.*, 11, 77).

§719/8. *LUZULA SPICATA* (L.) DC. *100, Clyde Isles; Lochranza, 1883, J. WYLIE (*Herb. Glasgow Univ.*), comm. D. PATTON.

721/1. *TYPHA LATIFOLIA* L. 101, Kintyre; marshy ground by sea, W. Loch Tarbert, N. Kintyre, one very large clump, M. H. CUNNINGHAM.

722/3. *SPARGANIUM SIMPLEX* Huds. ex With. 47, Montg., Lymore Pool, Montgomery, 1952, J. D. K. LLOYD, comm. NAT. MUS. WALES.

§737/20. *POTAMOGETON OBTUSIFOLIUS* Mert. & Koch. *95, Elgin; burn by Chapelton Farm, Forres; pond at Blairs Farm, Forres, M. McCALLUM WEBSTER, det. J. E. DANDY and G. TAYLOR.

737/23. *POTAMOGETON PUSILLUS* L. 95, Elgin; Gilmerston Loch, M. McCALLUM WEBSTER, det. J. E. DANDY and G. TAYLOR.

§738/1. *RUPPIA SPIRALIS* L. ex Dum. *100, Clyde Isles; South Bute, 1908, T. WISE (*Herb. Glasgow Univ.*), comm. D. PATTON.

§738/2. *RUPPIA MARITIMA* L. *100, Clyde Isles; Ardmore, 1892, R. and T. WILKIE (*Herb. Glasgow Univ.*), comm. D. PATTON.

740/1. *ZOSTERA MARINA* L. 71, Man; Ballaugh shore, A. C. HOYLE; Port Erin, off jetty, J. R. BRUCE; lifeboat slip, Peel, G. CLEMENTSON, comm. D. E. ALLEN.

§740/2. *ZOSTERA NANA* Roth. *95, Elgin; Findhorn Estuary, R. D. GRAHAM.

†742/1. *APONOGETON DISTACHYOS* L. f. 96, Easternness; Guisachan Tomich, Strathglass, E. R. PALMER, det. and comm. E. F. WARBURG.

745/3. *ELEOCHARIS MULTICAULIS* (Sm.) Sm. 52 Anglesey; by the old reservoir, Holyhead Mountain, 1952, C. C. TOWNSEND.

753/3. *CAREX ACUTIFORMIS* Ehrh. 98, Argyll; shallow swamp at south end of Ederline Loch, K. N. G. MACLEAY and O. BUCKLE.

753/8. *CAREX LASIOCARPA* Ehrh. 95, Elgin; lochan on Dava Moor, M. McCALLUM WEBSTER, det. A. MELDERIS.

753/21. *CAREX LEPIDOCARPA* Tausch. 14, E. Sussex; (5) Sapperton Wood, Horam, 1952, K. E. BULL, det. E. NELMES.

753/22(2). *CAREX SCANDINAVICA* E. W. Davies. 95, Elgin; "winter lochs", Culbin State Forest: 108, W. Sutherland; shelving rocks by sea at Clachtoll, M. McCALLUM WEBSTER, det. E. W. DAVIES.

§753/38. *CAREX LIMOSA* L. *95, Elgin; lochan on Dava Moor, M. McCALLUM WEBSTER, det. A. MELDERIS.

753/46. *CAREX ACUTA* L. 14, E. Sussex; (5) swampy ground near Buxted Railway Station, 1951, K. E. BULL, det. E. NELMES.

§753/54. *CAREX LACHENALII* Schkuhr. *98, Argyll; damp rock ledges, 2750 to 3000 ft., on Bidean nam Bian, Glencoe, A. M. STIRLING, det. E. NELMES.

753/61. *CAREX PAIRAEI* F. W. Schultz. 49, Caern.; Deganwy Castle Rock, 1952: 52, Anglesey; roadside near to track approaching Dinam Farm, near Valley, 1952, C. C. TOWNSEND, conf. E. NELMES.

753/62. *CAREX DIVULSA* Stokes. 49, Caern.; dry bank, Penrhyn Bay, L. W. FROST.

§753/65. *CAREX DIANDRA* Schrank. ‡66, Durham; on boggy ground near Sprucely Farm, and on cliff tops north of Crindon Dene, J. W. Heslop-Harrison (1953, *Vasc. (Subst.)*, 38, 23). 98, Argyll; shallow marsh, south end of Ederline Loch, K. N. G. MACLEAY and O. BUCKLE.

§753/66. *CAREX DISTICHA* Huds. 71, Man; wet field by Dumb River, near Ballakeigan, D. E. ALLEN, conf. S. M. WALTERS. *95, Elgin; banks of river Spey, Grantown-on-Spey, M. McCALLUM WEBSTER, det. A. MELDERIS.

§753/75. *CAREX DIOICA* L. 71, Man; Talbot's record for this species was accepted by C. I. Paton (*N.W.Nat. Suppl.* (1933)), but the specimens in his herbarium labelled as this are *C. pulicaris*. Delete 71 from *C.F.*, D. E. ALLEN.

†754/26. *PANICUM CAPILLARE* var. *occidentale* Rydb. 14, E. Sussex; (5) weedy allotment near Waldron and Horam Station, 1952, K. E. BULL, det. C. E. HUBBARD.

§†758/3. *SPARTINA TOWNSENDII* H. & J. Groves. *48, Mer.; salt-marshes near Barmouth, 1951, P. M. BENOIT, det. A. E. WADE. *69b, N. Lancs.; Rampside, Furness; shore by Piel Island Road, 1952, A. W. WESTRUP.

§770/2. *ALOPECURUS ALPINUS* Sm. *66, Durham; see **Plant Notes**.

§770/3. *ALOPECURUS MYOSUROIDES* Huds. *95, Elgin; cornfield, Moy House, Forres, M. McCALLUM WEBSTER.

777/1g. *PHLEUM NODOSUM* L. *48, Mer.; Barmouth sand dunes, P. M. BENOIT, comm. NAT. MUS. WALES.

783/1. *CALAMAGROSTIS EPIGEJOS* (L.) Roth. 20, Herts.; Ball's Wood, R. M. PAYNE.

§783/4. *CALAMAGROSTIS STRICTA* (Timm) Koel. ‡63, S.W. York.; with *C. canescens* near the canals above Moorends, Thorne, F. W. Adams (1954, *The Nat.*, 1954, 27).

791/1f. *DESCHAMPSIA CESPITOSA* var. *parviflora* (Thuill.) Dum. 14, E. Sussex; (5) Furnace Wood, near Sharp's Corner, Horam, 1952, K. E. BULL, det. C. E. HUBBARD. 33, E. Glos.; (7a) much along the lower wood path leading to Whittington, Puckham Woods, near Cheltenham, 1950: 38, Warw.; abundant in Rough Hill Wood, near Studley, C. C. TOWNSEND, det. C. E. HUBBARD.

809/1. *KOELERIA GRACILIS* Pers. 48, Mer.; Brit. Fir, 1950, Mrs. M. RICHARDS, det. C. E. HUBBARD.

§†824/1. *POA CHAIXII* Vill. ‡77, Lanark; Core-house, Castlemilk (1953, *Glasgow Nat.*, 17, 81).

§825/5. *PUCCINELLIA MARITIMA* (Huds.) Parl. *47, Montg.; salt-marshes by Dovey Junction Station, P. M. BENOIT.

826/3×2. *FESTUCA ARUNDINACEA* × *GIGANTEA*. 87, W. Perth; water-meadows by river Teith at Callander, with both parents, U. K. DUNCAN, conf. A. MELDERIS. 95, Elgin; Greshop Wood, near Forres, U. K. DUNCAN and B. M. C. MORGAN, det. A. MELDERIS.

†827/13(2). *BROMUS CARINATUS* Hook. & Arn. 85, Fife; waste ground, Leven, M. McCALLUM WEBSTER, det. A. MELDERIS.

§827/18. *BROMUS RACEMOSUS* L. ‡101, Kintyre; Cour. F. David (1953, *Glasgow Nat.*, **17**, 81).

827/19. *BROMUS MOLLIS* L. 85, Fife; waste ground, Elie, M. McCALLUM WEBSTER, det. A. MELDERIS.

§827/19(2). *BROMUS LEPIDUS* Holmb. *59, S. Lancs.; weed on sandy lawn, Victoria Park, Southport, D. E. ALLEN, conf. T. G. TUTIN. ‡95, Elgin; Forbes, A. Melderis (1954, *Proc. B.S.B.I.*, **1**, 98).

827/19(3). *BROMUS THOMINII* Hard. 108, W. Sutherland; meadow near the sea, Melness, M. McCALLUM WEBSTER, det. A. MELDERIS.

§828/2. *BRACHYPODIUM PINNATUM* (L.) Beauv. ‡66, Durham; Fishburn, J. W. Heslop-Harrison (1953, *Vase (Subst.)*, **33**, 23).

830/1×2. *AGROPYRON JUNCIFORME* × *PUNGENS*. 9, Dorset; Chesil Beach, near Weymouth, D. O. JONES, det. C. E. HUBBARD.

§830/2. *AGROPYRON PUNGENS* (Pers.) Roem. & Schult. *100, Clyde Isles; Corrie, Arran, 1883, J. WYLIE (*Herb. Glasgow Univ.*), comm. D. PATTON.

§844/4. *EQUISETUM PRATENSE* Ehrh. *75, Ayr; shady wooded islet in river Ayr above Mid-Heilan, H. MILNE-REDHEAD.

§848/1. *ADIANTUM CAPILLUS-VENERIS* L. *†36, Heref.; (4) railway bridge, Ledbury, known for at least 20 years, J. M. KENDRICK, comm. L. E. WHITEHEAD.

854/1. *POLYSTICHUM SETIFERUM* (Forsk.) Weynar. 20, Herts.; Bayford Wood, R. M. PAYNE.

856/1c. *DRYOPTERIS BORRERI* Newm. 14, E. Sussex; (5) near Wenham's Farm, Hawkhurst Wood; Sicklehatch Lane, Maynards Green, near Horam, 1951-1953, K. E. BULL, det. J. P. PUGH. 20, Herts.; Ball's Wood and Wormley Wood, R. M. PAYNE. 34, W. Glos.; (5) Horton Bushes, G. W. Garlick (1952, *Proc. Bristol Nat. Soc.*, **28**, 312).

856/9. *THELYPTERIS PHEGopteris* (L.) Slosson. 6, N. Som.; Leigh Woods, G. W. Garlick (1952, *Proc. Bristol Nat. Soc.*, **28**, 312). 112, Zetland; in shelter of overhanging rocks on the Grud Burn, Ronas Hill, alt. c. 800', E. W. DAVIES and P. A. PADMORE.

§856/11. *THELYPTERIS ROBERTIANA* (Hoffm.) Slosson. *108, W. Sutherland; limestone cliff south of Inchnadamph, M. JAKES, det. A. MELDERIS, comm. M. McCALLUM WEBSTER.

§859/1. *CETERACH OFFICINARUM* Lam. & DC. ‡100, Clyde Isles; near Rothesay (1953, *Glasgow Nat.*, **17**, 82).

864/1. *OSMUNDA REGALIS* L. 3, S. Devon; cliffs by railway between Dawlish and Dawlish Warren Stations, 1949-1953, K. E. BULL.

‡868/1. *AZOLLA FILICULOIDES* Lam. S., Guernsey; pool at Petit Bot, L. W. FROST. ‡4, N. Devon; plentiful in the dyke at Vellator, Braunton, Mrs. Cadell (1953, *Rep. & Trans. Devon Assoc.*, **85**, 182).

869/2. *ISOETES ECHINOSPORA* Durieu. 3, S. Devon; dam ends of the highest and lowest of the three reservoirs at Christow and Hennock, O. Greig, det. at Kew (1953, *Rep. & Trans. Devon Assoc.*, **85**, 182).

CHAROPHYTA, all det. by G. O. ALLEN.

§872/9. *NITELLA CONFERVACEA* A. Braun. ‡95, Elgin; in grab sample of mud in 12' of water, Lochindorb, A. V. Holden, comm. A. J. Brook (1953, *Scot. Nat.*, **65**, 190).

§873/2. *TOLYPELLA PROLIFERA* Leonh. *56, Notts.; disused canal, Wollaton, R. C. L. HOWITT.

§874/1. *NITELLOPSIS OBTUSA* (Desv.) Groves. ‡89, E. Perth; Loch of Marlee, A. V. Holden, comm. A. J. Brook (1953, *Scot. Nat.*, **65**, 190).

876/3c. *CHARA VULGARIS* var. *PAPILLATA* Wallr. 56, Notts.; canal, Corsall, R. C. L. HOWITT. 71, Man; Malew, D. E. ALLEN. 95, Elgin; Gilston Loch, M. McCALLUM WEBSTER.

§876/4. *CHARA RUDIS* (A. Braun) Leonh. ‡88, Mid Perth; Loch Choin, between Trinafour and Loch Garry, A. J. Brook (1953, *Scot. Nat.*, **65**, 190).

§876/5. *CHARA HISPIDA* L. *68, Cheviotland; pool on Ross links, 1951, F. D. GOODCLIFFE. ‡89, E. Perth; Loch Moraig, A. J. Brook (1953, *Scot. Nat.*, **65**, 90). 95, Elgin; Gilston Loch, M. McCALLUM WEBSTER.

§876/11. *CHARA ACULEOLATA* Kuetz. *31, Hunts.; in London Brick Company's pits at Fletton, near Peterborough, C. C. TOWNSEND.

§876/12. *CHARA ASPERA* Willd. *37, Wores.; Westwood Pool, near Droitwich, C. C. TOWNSEND.

§876/17. *CHARA DELICATULA* Ag. *63, S.W. York.; river Torne soak ditch, W. BUNTING. 112, Zetland; Brouster, Walls, a small form, A. H. G. ALSTON.

§876/17b. *CHARA DELICATULA* var. *BARBATA* (Gant.) Groves & Bullock-Webster. 6, N. Som.; Shapwick, A. J. DODD. *54, N. Lincs.; near Dirtness Pump Station, W. BUNTING.

§876/17c. *CHARA DELICATULA* var. *ANNULATA* (Wallm.) Groves & Bullock-Webster. ‡88, Mid Perth; Loch Kinardochy, and Lochan an Daim: ‡89, E. Perth; Loch Dunmore: ‡95, Elgin; Lochindorb, A. V. Holden, comm. A. J. Brook (1953, *Scot. Nat.*, **65**, 190).

ABSTRACTS FROM LITERATURE*

Compiled by D. H. KENT

Thanks are due to D. E. Allen, E. B. Bangerter, A. E. Wade and E. F. Warburg for their help.

SYSTEMATIC, ETC.

3. ANEMONE. Berton, A., 1952, L'involucre des Anemones, *Monde des Plantes*, **287-288**, 26. The involucre of *Anemone* should be regarded as an imbricated rosette of three distinct leaves, and not as a whorl of one leaf divided into three leaflets.—[E.B.B.]

3/1. PULSATILLA VULGARIS Mill. Pawlowska, S., 1951, Sasauki, *Chroń. Przy. Ojcz.*, **7 (3/4)**, 3-18. Studies on *Pulsatilla vulgaris* and its allies in Europe. The account is illustrated by photographs and distribution maps.—[D.H.K.]

5. MYOSURUS. Campbell, G. R., 1952, The Genus *Myosurus* L. (Ranunculaceae) in North America, *El Aliso*, **2**, 389-403. The author recognises four species of the genus in N. America, viz.:—*Myosurus minimus*, *M. aristatus*, *M. nitidus* and *M. cupulatus*. *M. minimus* with eight taxa of subspecific rank is the most widespread; occurring in N. & S. America, Europe, Australia and New Zealand. A key is given as an aid to the identification of the various species and varieties.—[D.H.K.]

5/1. MYOSURUS MINIMUS L. Boivin, B., 1953, *Notulae Taxonomicae* —1. *Myosurus minimus* Linné, *Bull. Soc. Roy. Bot. Belg.*, **85**, 331-332. The American var. nov. *interior* is distinguished from the European var. *minimus* by its sepals having longer spurs and narrower leaves (spur 2.2-5 mm.; leaves (0.2) 0.5-0.7 (1.2) mm.).—[E.B.B.]

6. RANUNCULUS. Marsden-Jones, E. M. & W. B. Turrill, 1952. Studies in *Ranunculus* 4. Additional experiments with *Ranunculus bulbosus* and *R. acris*, *J. Genetics*, **51**, 26-31. This paper is a continuation of two previous papers on the genetics of *Ranunculus bulbosus* and *R. acris*. Characters studied are flower colour and sex in both species, poor development of petals in the former and leaf-blotch in the latter species. Evidence is given that these have all a genetic basis, but the ratios are often disturbed by the occurrence of apomixis and, particularly in *R. acris*, semi-lethality and perhaps of lethality with certain gene combinations.—[Authors' summary.]

*Owing to pressure of space miscellaneous abstracts have been held over to the next part of the *Proceedings*.

6/4. *RANUNCULUS AURICOMUS* L. Baum, H., 1952, Die doppelspreitigen Petalen von *Ranunculus auricomus* und *neapolitanus*, *Österr. Bot. Zeitschr.*, **99**, 64-77.

6/33. *RANUNCULUS FICARIA* L. Perje, A.-M., 1952, Some causes of variation in *Ranunculus ficaria* L., *Arkiv für Bot.*, **2**, 251-264. The tetraploid race ($2n = 32$), which reproduces vegetatively from bulbils in the leaf axils, is the common race in Sweden. It is split up into a great many genetically distinct clones, differing especially in the number of floral organs. Abnormal pollen is often produced, and it also fruits badly, a condition which may be due to the effect of a growth-retarding substance on the seeds. The more northerly range of the tetraploid is perhaps a consequence of its greater ability to endure night frosts than the diploid.—[D.E.A.]

7/1. *CALTHA PALUSTRIS* L. Reese, G., 1952, Hochgradige Dysploide bei *Caltha palustris* L., *Planta*, **41**, 195-196. A cytological examination of a number of specimens of *Caltha palustris* revealed at least 19 different somatic chromosome numbers.—[D.H.K.]

7/1. *CALTHA PALUSTRIS* L. Stecki, K. & K. Bogdański, 1953, Teratologie kwiatu i przykwiatków u *Caltha palustris* L., *Acta Soc. Bot. Pol.*, **22**, 207-224. An account of abnormalities in the bracts of *Caltha palustris*.—[D.H.K.]

8/1. *TROLLIUS EUROPAEUS* L. Madalski, J., 1950, Petnik, *Chroń. Przyr. Ojcz.*, **6** (3/4), 12-17. An account of *Trollius europaeus* in Poland.—[D.H.K.]

9/1. *HELLEBORUS VIRIDIS* L. Jaspers, G., 1950, De Wraungwortel (*Helleborus viridis* L.), *De Levende Natuur*, **53**, 67.

21. *PAPAVER*. Tedd, H. G. & W. B. Turrill, 1951, A Study of Papaver Populations in Western Thrace, *Kew Bull.*, **1951**, 192-196. A random sampling of populations of plants of the *Papaver rhoeas* groups growing in western Thrace showed variations and character combinations similar to those found in English populations. The problems involved are discussed.—[D.H.K.]

25/1. *CHELIDONIUM MAJUS* L. Hara, H., 1949, An East-Asiatic representative of *Chelidonium majus* L., *J. Jap. Bot.*, **23**, 43-50. The race of *Chelidonium majus* which occurs in Manchuria, China, Korea and Japan is described as subsp. *asiaticum* Hara. It differs from the European type ($2n = 12$) not only in external morphology but also in having $2n = 10$. The variation, and probable history, of the species in Eurasia are discussed.—[D.E.A.]

25/1. *CHELIDONIUM MAJUS* L. Widder, F., 1953, Die "laciniaten" Abänderungen des *Chelidonium majus* Linné, *Phyton*, **5**, 153-162.

32. FUMARIA. Lefort, L., 1951, Quelques groupes infra-spécifiques Luxembourgeois de *Fumaria officinalis* L., *Proc. Soc. Nat. Luxemb. (N.S.)*, **44**, 180-181.

32. FUMARIA. Negodi, G., 1951, Cariologia del gen. *Fumaria* L. e poliploidi da colchicina, *Sci. Gen.*, **4**, 94-121. The following chromosome numbers are reported in the genus:— $n = 7$ (*Fumaria rostellata*), $n = 14$ (*F. officinalis*, *F. micrantha*, *F. parviflora*, *F. muralis*, *F. spicata*), $n = 28$ (*F. capreolata*, *F. flabellata*, *F. agraria*, *F. major*). Artificial polyploid forms are described and figured which the author produced by colchicine treatment of all the species except *F. micrantha*. *F. spicata* and *F. agraria*, and their characters are compared with spontaneous polyploids.—[D.E.A.]

33/1. MATTHIOLA INCANA (L.) R.Br. Saito, K., 1949. Studies on inducing polyploid flower-plants and their utilization: 1. On several polyploid plants of wallflower, stock and others, *J. Hort. Assoc. Jap.*, **18**, 129-137. An induced tetraploid of *Cheiranthus cheiri* had larger, deeper yellow and more fragrant flowers than the diploid type and was partially sterile. An induced tetraploid of *Matthiola incana* had larger and more fragrant pink flowers and was partially sterile, while an induced octoploid had larger and more fragrant flowers with thicker petals variegated with pink and white and was completely sterile.—[D.E.A.]

34/1. CHEIRANTHUS CHEIRI L.—See 33/1. MATTHIOLA INCANA (L.) R.Br.

35. RORIPPA. Lawalrée, A., 1950, Les Cressons de Fontaine, *Nat. Belge*, **31**, 28-33. Describes *Rorippa nasturtium-aquaticum*, *R. microphylla*, and the hybrid between them (*R. × sterilis*), and gives their known distribution in Belgium and Europe.—[D.H.K.]

39. CARDAMINE. Allen, D. E., 1952, *Cardamine pratensis* on the Lancashire dunes, *Bull. Liverpool Bot. Soc.*, no. **11**. Two distinct segregates of this species grow on the Lancashire dunes, viz., a local race of the common *Cardamine pratensis* L. sensu stricto ($2n = 56$) and the northern *C. polemonioides* Rouy ($2n = 64$). The latter grows in peaty "slacks" which are still moist in midsummer, the former in dryish places at the edges of the "slacks". *C. polemonioides* is very local in a pure state, but hybrids with *C. pratensis* occur over a much greater area, indicating that the species formerly had a wider range. Hybridisation is very extensive and the hybrids are fertile and can backcross with the parents. Introgression was found to be taking place in one colony of *C. polemonioides* analysed biometrically. With increasing desiccation of the "slacks" *C. pratensis* is gradually invading the habitat of *C. polemonioides* and threatens to hybridise it out of existence—unless a new intermediate entity is created, of which there are already signs. "In a few decades scarcely anyone will deduce that

the *C. pratensis* form found on the dunes has been created by the fusion of two distinct species".—[D.E.A.]

49/5. *SISYMBRIUM IRIO* L. Brunner, J. P., 1952, *Sisymbrium irio* L. in the Dublin district, *Irish Nat. J.*, **10**, 319-320. Gives a short account of the present distribution of the plant in Dublin.—[D.H.K.]

54. *BRASSICA*. Gates, R. R., 1953, Wild Cabbages and the Effects of Cultivation, *J. Gen.*, **51**, 363-372. The wild cabbage (*Brassica oleracea* L.), on the coasts of western Europe, shows enormous increase in size when taken into cultivation. It shows much variation, which is correlated with its self-sterility. It has the potentiality for producing, since its cultivation began, perhaps early in the Neolithic, kale, brussels-sprouts and cabbage. The historical evidence favours the derivation of cabbage and kale from Italy in pre-Roman times. The middle and eastern Mediterranean contains several species nearly related to *B. oleracea*. Probably cauliflower and broccoli came from *B. cretica*; the most eastern of these; and such cultigens as kohlrabi may have been derived from one of the middle Mediterranean species. The various cultivated forms appear therefore to have had a polyphyletic origin.—[Author's summary p.p.]

55. *DIPLOTAXIS*. Lübbert, G., 1951, Vergleichende cytologische morphologische und physiologische Untersuchungen innerhalb der Gattung *Diplotaxis*, *Beitr. Biol. Pflanz.*, **28**, 254-293. A cytological, morphological and physiological account of the genus. The distribution of *Diplotaxis muralis*, *D. tenuifolia*, *D. erucoides*, *D. viminea* and *D. catholica* in Europe and N. Africa is shown by a map. The chromosome numbers of the species are given as follows:—*D. erucoides* $2n = 14$, *D. catholica* $2n = 18$, *D. tenuifolia* $2n = 22$, and *D. muralis* $2n = 44$. The variation in plant size and leaf shape in *D. muralis* is discussed at length.—[D.H.K.]

55/2. *DIPLOTAXIS MURALIS* (L.) DC. Hoogenraad, H., 1950, Muur-zandkool, *Natura*, **47**, 206-209. The spread of *Diplotaxis muralis* in the Netherlands since the beginning of the present century is discussed and illustrated by maps.—[D.H.K.]

59/1. *CAPELLA BURSA-PASTORIS* (L.) Medic. Negodi, G., 1951, Tetraploida da colchicina in *Capsella bursa-pastoris* Moench, *Atti Mem. Accad. Sci. Modena*, **9**, 27-38.

61. *LEPIDIUM*. Meissner, H., 1950, Notizen über Wanderpflanzen, 1. *Lepidium densiflorum* Schrad., und *L. virginicum* L., *Mitt. Flora-soz. Arb.*, **2**, 77 & 93. *Lepidium densiflorum* and *L. virginicum*, American adventives closely allied to *L. ruderale*, have extended their ranges rapidly in Lower Saxony, apparently migrating along the railway tracks. The different characters of the three species are tabulated.—[D.H.K.]

64. **THLASPI.** Černohorsky, Z., 1950, Anatomie des graines des espèces tchéques du genre *Thlaspi* L., *Bull. Int. Cesk. Acad. Frant. Josef.*, **48**, 5-10. Anatomical differences are given for distinguishing between the seeds of *Thlaspi arvense*, *T. perfoliatum*, *T. alpestre* and *T. montanum*.—[D.H.K.]

66/1. **TEESDALIA NUDICAULIS** (L.) R.Br. Garjeanne, A. J., 1953, *Teesdalia*, *De Levende Natuur*, **56**, 146-154.

77. **CAKILE.** Harrison, J. W. Heslop, 1953, The new British Sea Rocket, *Cakile edentula* (Bigel.) Hooker, *Vasc. (Subst.)*, **38**, 30. A hybrid between *Cakile edentula* and *C. maritima* is reported as growing on the beach near Seilebost (v.c. 110). It was totally sterile, and displayed great heterosis.—[D.H.K.]

93/1. **KOHLRAUSCHIA PROLIFERA** (L.) Kunth. Böcher, T. W., K. Larsen & K. Rahn, 1953, Experimental and cytological studies on plant species: 1. *Kohlrauschia prolifera* and *Plantago coronopus*, *Hereditas*, **39**, 289-304. The diploid form of *Kohlrauschia prolifera* ($2n = 30$) is found in central Europe stretching towards the French side of the Pyrenees in the south-west, and alone forms the northern tongues of distribution reaching to the Kattegat and the southern part of the Baltic. The tetraploid plant ($2n = 60$) has a Lusitanian-western Mediterranean-southern English distribution. The only morphological difference between the two forms appears to be in the smaller size of the seeds in the tetraploid.—[D.H.K.]

98. **VISCARIA.** Håkansson, S., 1952, Om *Viscaria alpina* (L.) G. Don och *V. alpina* (L.) G. Don \times *vulgaris* Bernh. i sydöstligaste Blekinge. *Bot. Not.*, **1952**, 411-424. A report on the distribution of *Viscaria alpina* and the occurrence of a supposed hybrid with *V. vulgaris* in south east Blekinge, Sweden.—[D.H.K.]

98(2). **MELANDRIUM.** Burt, B. L., 1953, A note on typification. *Notes Roy. Bot. Gard. Edin.*, **21**, 163-164. The author shows that the correct name for the Red Campion is *Melandrium dioicum* (L.) Coss. & Germ. in spite of the fact that the name was first applied to the White Campion on its transfer from the genus *Lychnis*.—[D.H.K.]

100. **CERASTIUM.** Brett, O. E., 1952, Basic chromosome numbers in the genus *Cerastium*, *Nature*, **170**, 251-252. The following chromosome numbers are reported from counts made on British material:—*Cerastium alpinum* L. $2n = 72$, *C. arvense* L. $2n = 72$, *C. brachypetalum* Pers. $2n = 90$, *C. glomeratum* Thuill. $2n = 72$, *C. holosteoides* Fries (*C. vulgatum* auct.) $2n = 72$, *C. semidecandrum* L. $2n = 36$ and *C. tetrandrum* Curt. $2n = 72$.—[D.H.K.]

100. **CERASTIUM.** Brett, O. E., 1953, *Cerastium arcticum* Lange. *Nature*, **171**, 527-528. *Cerastium edmondstonii* (Wats.) Murb. & Ostenf. is an illegitimate name and should be replaced by *C. arcticum* Lange.

Chromosome counts have now been made on all the British species, and the following previously unpublished counts are given:—*C. arcticum* Lange $2n = 108$ and $2n = 195$, the latter number is believed to be due to the plant being cross-fertilised by *C. holosteoides*. *C. cerastoides* (L.) Britton $2n = 38$ and *C. pumilum* Curt. $2n = 90$ and 95 .—[D.H.K.]

100. CERASTIUM. Sollner, R., 1950, Polyploide intraspécifique chez *Cerastium arvense* L. et nombres chromosomiques de quelques autres *Cerastium*, *Experienta*, **6**, 335-337. A table of chromosome numbers of four subspecies of *Cerastium arvense* (subsp. *commune* Gaudin, subsp. *strictum* (Haenke) Gaudin, subsp. *suffruticosum* (L.) Koch, and subsp. *calcicola* (Schur) Borza) is given. Rohweder and R. Mattick-Ehrensberger found $2n = 72$ for *C. arvense*. The present author finds two chromosome races, $n = 18$ (diploid) and $n = 36$ (tetraploid). The lowland subsp. *commune* has a different number (36) from the alpine subsp. *strictum* (18); the latter is therefore not simply a high altitude form of *C. arvense*. Experimental work in cultivation led to the same result, these two subsp. retaining their differences. Subsp. *suffruticosum* differs very little from *strictum*, and subsp. *calcicola* (tetraploid) is closely allied to subsp. *commune*. It was found that the distribution of the diploid and polyploid forms followed neither altitude nor habitat (e.g. Haut-Jura plants are tetraploid, Alps diploid, and the tetraploid form is on both chalk and peaty soil). It seems that the present distribution is related to historic causes and to the origin of the two subsp. The polyploid occupies a vast area in central and eastern Europe whilst the diploid is local. Phylogenetically *strictum* is the oldest subsp. and probably the only representative of *arvense* in the alpine chain; the interesting point arises of an alpine form being the ancestor of a lowland and almost cosmopolitan form. Chromosome numbers of other species given are: *C. perfoliatum* L. $n = 19$, *C. chloraefolium* Fisch. & Mey. $n = 19$, *C. dahuricum* Fisch. $n = 19$ and *C. banaticum* (Roch.) Heuff. $n = 36$.—[E.B.B.]

100. CERASTIUM. Sollner, R., 1952, Nouvelle contribution la cytotaxonomie du genre *Cerastium*, *Experienta*, **8**, 104-105. Chromosome counts of some widely distributed species of *Cerastium* are tabled. They show that chromosome races in these species may be revealed when the species examined are from widely separated localities. One case *C. arvense* ($n = 18$ and 36), is discussed in the short note.—[E.B.B.]

100/5. CERASTIUM HOLOSTEOIDES Fr. Wiinstedt, A. K., 1953, *Cerastium holosteoides* Fries i Danmark, *Bot. Tidssk.*, **50**, 107-109.

101/2. STELLARIA NEMORUM L. Lawalrée, A., 1953, *Stellaria nemorum* L. subsp. *glochidosperma* Murb. en Belgique, *Bull. Jard. Bot. Brux.*, **23**, 77-79. A description and details of the distribution in Belgium of this subspecies are given; its general European distribution is from southern Sweden to the French and Dinaric Alps and the Apen-

nines; its eastern limits are not precisely known. The leaves of the subsp. are \pm deeply cordate, all distinctly petioled, at the most twice as long as broad; the typical plant has slightly cordate to subcuneate leaves, the upper sessile to subsessile, at least twice as long as broad. The bracts of the inflorescence are rapidly transitional to small scales, not foliaceous and gradually transitional as in the typical plant. Seed of subspecies with elongate and narrowly cylindrical protuberances; of typical plant with short and subovoid protuberances.—[E.B.B.]

101/2. *STELLARIA NEMORUM* L. Lawalrée, A., 1953, *Stellaria nemorum* L. subsp. *glochidosperma* Murb. en France et en Espagne, *Bull. Soc. Bôt. Franc.*, **100**, 270-272. The finding in 1953 of this plant in northern Spain led the author to study French and Spanish herbarium material, where he found that its distribution extends much further west than previously recognised, as well as reaching as far south as Madrid in Spain. The distribution of type *S. nemorum* in S.W. Europe should be further investigated. The following diagnostic characters to separate the subsp. are given:

Leaves oval-oblong, slightly cordate-subcuneate at base, upper sessile-subsessile, blade at least twice as long as broad; inflorescence bracts large and foliaceous, gradually transitional to leaves; seeds with short and hemispherical-subovoid protuberances at the margin ... *S. nemorum*

Leaves oval, \pm deeply cordate at base, upper petiolate and with blade at most twice as long as broad; bracts abruptly reduced to small scales, the lower hardly or not transitional to leaves; seeds with elongate or narrowly cylindric protuberances at the margin ... subsp. *glochidosperma* —[E.B.B.]

101/3. *STELLARIA MEDIA* (L.) Vill. Pal, N., 1952. A contribution to the life-histories of *Stellaria media* Linn. and *Polycarpon loeflingiae* Benth. & Hook., *Proc. Nat. Inst. Sci., India*, **18**, 363-378.

101/8. *STELLARIA ALSINE* Grimm. Tapio, S., 1951, Lähdetähtimön (*Stellaria uliginosa*) kukkimisesta, *Luonn. Tutk.*, **55**, 38. A short note on the flowering of the species.—[D.H.K.]

102/13. *ARENARIA MONTANA* L. Ingwersen, W. E. T., 1947, An addition to the alpine flora of Britain, *Nature Lover*, **4**, 133-137. Several large patches of *Arenaria montana* were discovered growing far from gardens on Dartmoor about 1930. The plant was competing successfully with native vegetation, and unless it was deliberately planted its occurrence in Devon is hard to explain. The nearest native habitat of the species to Britain is believed to be the Landes of south west France, where it usually inhabits open woodlands. The account is augmented by a photograph.—[D.H.K.]

103/11. *SAGINA PROCUMBENS* L. Garjeanne, A. J. M., 1951, *Sagina*, *De Levende Natuur*, **54**, 190-195. Some anatomical details of *Sagina procumbens* collected from different habitats are described. The flowers

are tetramerous or pentamerous, but some had 3, 2, 1 or 0 petals. Very few, if any, insects visit the flowers of *Sagina* and self-fertilisation is the rule. Tetramerous flowers produce 40-60 seeds and pentamerous flowers 50-70 seeds. The seeds appear to germinate in 4-5 days.—[D.H.K.]

106/1. *POLYCARPON TETRAPHYLLUM* (L.) L. Bugnon, F., 1951, Une variante remarquable de l'inflorescence au *Polycarpon tetraphyllum* L., *Monde des Plantes*, **276-277**, 18-19.

109. *MONTIA*. Clason, E. W., 1953, *Watermontia* in Noord-Drente, *De Levende Natuur*, **56**, 50-52.

111/2. *ELATINE HEXANDRA* (Lapierre) DC. McMillan, N. F., 1953, *Elatine hexandra* DC. in the Dibbin, Bromborough, Cheshire, *N.W.Nat.* (N.S.), **1**, 100.

112/14. *HYPERICUM PERFORATUM* L. 1950, St. John's Wort, a dangerous weed, *Fmg. S. Africa*, **25**, 61-63. *Hypericum perforatum* was introduced into S. Africa from Australia as an impurity in vetch seed in 1942. Since then it has spread at an alarming rate, and being poisonous to stock is becoming a serious pest.—[D.H.K.]

112/14. *HYPERICUM PERFORATUM* L. Huffaker, C. B., 1951, The return of native perennial bunchgrass following the removal of klamath weed (*Hypericum perforatum*) by imported beetles, *Ecology*, **32**, 443-458.

112/14. *HYPERICUM PERFORATUM* L. Clark, N., 1953, The biology of *Hypericum perforatum* L. var. *angustifolium* DC. (St. John's Wort) in the Oven Valley, Victoria, with particular reference to entomological control, *Austr. J. Bot.*, **1**, 95-120.

123/1×4. *TILIA PLATYPHYLLOS* × *TOMENTOSA*. Kobendza, R., 1951, Wartościowy mieszaniec lipy węgierskiej i szerokolistnej *Tilia Varsaviensis* (*T. argentea* × *platyphyllos*), *Roczn. Sekc. Dendr. Polsk. Tow. Bot.*, **7**, 159-174. A description of the hybrid between *Tilia platyphyllos* and *T. tomentosa* which has occurred naturally in Warsaw.—[D.H.K.]

127/12. *GERANIUM PUSILLUM* L. Shaw, R. J., 1952, A cytotaxonomic study of the genus *Geranium* in the Wasatch region of Idaho and Utah, *Madroño*, **11**, 297-304. *Geranium pusillum* has been introduced from Europe and is now commonly naturalised as a weed of lawns and waste places in the U.S.A. and southern Canada.—[D.H.K.]

132/1. *OXALIS ACETOSELLA* L. Uziak, Z., 1952, Obserwacje nad nerwatura liści *Oxalis acetosella* L., na tle siedliska w Białowieska Parku Naradowyn, *Ann. Univ. Mariae Curie*, **6**, 249-261. An account of studies on the innervation of the leaves of *Oxalis acetosella*.—[D.H.K.]

133/3. *IMPATIENS PARVIFLORA* DC. Erkamo, V., 1952, Pienikuk-kaiseta häpykannukseta *Impatiens parviflora* DC. Suomessa, *Arch. Soc.*

Zool.-Bot. Fenn. 'Vanamo', **6**, 87-94. Gives the history and distribution of the species in Finland. Some ecological data are also provided.—[D.H.K.]

133/4. *IMPATIENS GLANDULIFERA* Royle. Delvosalle, L., 1951, Apropos d'*Impatiens roylei* Walp., *Nat. Belge*, **32**, 37-38. An account of the arrival and spread of the species in Belgium.—[D.H.K.]

149/2. *ULEX GALLII* Planch. Corillion, R., 1950, Contribution à l'étude de la répartition d'*Ulex gallii* Planch. sur le littoral du nord de la Bretagne, *Bull. Soc. Sci. Bretagne*, **24**, 97-99. Details of the local distribution are given and *U. gallii* is found to be common on the coastal plains of north Brittany; its eastern limit is the estuary of the Rance.—[E.B.B.]

153/3. *MEDICAGO SATIVA* L. Vasiljčenko, I. T., 1948, On the origin of cultivated Lucernes (in Russian), *Bot. Zhurn.*, **33**, 591-604. The polyphyletic origin of the cultivated species of Lucerne in Western Europe is said to be connected with *M. varia* Mart., which the author claims is an ancient endemic species, and not a hybrid as is usually supposed.—[D.H.K.]

153/3. *MEDICAGO SATIVA* L. See 155. *TRIFOLIUM*.

155. *TRIFOLIUM*. Vicioso, C., 1952, Revisión del género *Trifolium*, *An. Jard. Bot. Madrid*, **10**, 347-412. The Spanish species of *Trifolium*, which include many also found in Britain, are described and keyed.—[D.H.K.]

155. *TRIFOLIUM*. Wexelsen, H., 1950, Polyploidiforedling en oversikt, *Forsk. Forsk. Landbr.*, **1**, 287-310. A review of the progress made in breeding polyploid forms of *Trifolium pratense*, *T. hybridum*, *T. repens* and *Medicago sativa*.—[D.H.K.]

155/12. *TRIFOLIUM SUBTERRANEUM* L. Brock, R. D., 1953, Species formation in *Trifolium subterraneum*, *Nature*, **171**, 939.

155/15. *TRIFOLIUM HYBRIDUM* L. Williams, W., 1951, Genetics of incompatibility in Alsike Clover, *Trifolium hybridum*, *Heredity*, **5**, 51-73.

172. *HIPPOCREPIS*. Hrabětova-Uhrova, A., 1949-1950, Generis *Hippocrepis* L. revisio, *Acta Acad. Sci. Nat., Morav.-Siles.*, **21** (4), 1-54 & **22**, 99-158, 219-250 & 331-356. A revision of the genus *Hippocrepis*. A key is given to all the species and varieties, and maps show the world distribution. Many new varieties and forms of *H. comosa* are described. A specimen in Herb. Mus. Nat. Budapest labelled "chalk, Oxford, 1893, Baker" is described as a new form:—

f. *gracilis* f. nov.—20-35 cm. alta. gracilis, subglabra, internodiis haud raro elongatis (4-8 cm.), caulibus teneribus. Folia 1-3 cm. longe petiolata, stipulis obovato-lanceolatis, membranaceis, diaphano-albidis, 2-4 mm. longis. Umbellae 4-9 floreae, pedunculo 8-11 cm. longo. Flores 8-10 mm. longi, unguibus tenuibus filiformibus, calice duplo longioribus. Calix subglaber solum margine ciliatus. Ungues petalorum longii praecipue unguis vexilli, quod limbo aequat: alae paulo angustiores ut in typo.—[D.H.K.]

172/1. *HIPPOCREPIS COMOSA* L. Bolman, J., 1950, Paardenhoeftklaver (*Hippocrepis comosa*), *Natura*, **47**, 54-56. The distribution of the species in the Netherlands is discussed.—[D.H.K.]

176. *VICIA*. Kostrakiewicz, K., 1951, Studia systematyczne nad polskimi gatunkami rodzaju *Vicia* L., *Bull. Acad. Polon. Sci.*, **27**, 1-71. Gives keys and descriptions of all the species of *Vicia* known to occur in Poland. These include a number of species also found in Britain.—[D.H.K.]

178/5. *LATHYRUS PALUSTRIS* L. Thommen, E., 1952, *Lathyrus palustre* L. record d'altitude, *Monde des Plantes*, **287-288**, 14. This species was found in 1950 at an altitude of 1,070 metres in a marshy meadow with *Swertia* and *Salix pentandra*. Fournier gives its limits as 0-500 metres.—[E.B.B.]

178/6. *LATHYRUS PRATENSIS* L. Larsen, K., 1953, Chromosome numbers of some European flowering plants, a preliminary note, *Bot. Tidssk.*, **50**, 91. *Lathyrus pratensis* which has been investigated from several places in Europe has been shown to contain polyploypes, one diploid, $2n = 14$ (strains from Denmark, Finland, the Baltic and Switzerland), and one tetraploid from south-west Europe, with $2n = 28$. These strains are being cultivated for further study.—[D.H.K.]

183. *PRUNUS*. Hruby, K., 1950, The cytology of tetraploid cherries, *Studia Bot. Cech.*, **11**, 87-97.

185. *RUBUS*. Beijerinck, W., 1952, The *Rubus*-flora of Belgium and the Netherlands: its study and problems, *Biol. Jaarb.*, **19**, 28-51.

185. *RUBUS*. Beijerinck, W. & A. J. Ter Pelkwijk, 1952, Determineertabellen voor onze Nederlandse bramen (*Rubi-Moriferi*), *De Levende Natuur*, **55**, 50-58. Gives a key to the species of *Rubus* found in the Netherlands, these include many also found in Britain.—[D.H.K.]

185. *RUBUS*. Beijerinck, W. & A. J. Ter Pelkwijk, 1952, Nieuwe bramen uit het Drentse district, *De Levende Natuur*, **55**, 89-96. Descriptions of new brambles found in the Netherlands include a number also known from the British Isles.—[D.H.K.]

185. *RUBUS*. Beijerinck, W. & A. J. Ter Pelkwijk, 1952, *Rubi* in the north eastern part of the Netherlands, *Acta Bot. Neerl.*, **1**, 325-360. Many British species are included in the account.—[D.H.K.]

185. RUBUS. Heslop-Harrison, Y., 1953, Cytological studies in the genus *Rubus*, 1. Chromosome numbers in the British flora, *New Phyt.*, **52**, 22-39. 217 chromosome determinations of British *Rubus* taxa are reported, including counts from 80 taxa hitherto not known cytologically. All species examined were found to be euploids. Studies of chromosome morphology are unlikely to assist very greatly in the elucidation of the origin of *Rubus* taxa owing to the uniformity and small size of the chromosomes.—[D.H.K.]

185. RUBUS. Vaarama, A., 1951, Om artkorsningförädling inom släktet *Rubus*, *Nord. Jordb.*, **1951**, 412-417. An account of the results of breeding work on *Rubus* carried out at the State Hort. Inst., Piikkiö, Finland, by crossing *R. arcticus* with other species of the genus. A short account on cytology, segregation and fertility in the F1 and F2 generations as well as in a colchicine-induced F2-amphiploid of the hybrid *R. idaeus* × *arcticus* is given. Differentiation of genomes in *Rubus* has probably taken place to a great extent through gene mutations and minor structural alterations not able to disturb the pairing capacity of the chromosomes. The successful artificial hybrids obtained were *R. phoenicolasius* × *arcticus*, *R. phoenicolasius* × *idaeus* × *arcticus* and *R. phoenicolasius* × *saxatilis* × *caesius*.—[D.H.K.]

187. GEUM. Raynor, L. A., 1952, Cytotaxonomic Studies of *Geum*, *Amer. J. Bot.*, **39**, 713-719. Most species of *Geum* have 42 zygotic and 21 gametic chromosomes. None of the *Geum* chromosomes is of peculiar morphology, nor can individual genomes be identified, with the exception of two Chilean species which have somewhat shorter, thicker chromosomes. Basic chromosome numbers in the subfamily *Rosoideae* tribe *Potentilleae*, indicate that *Geum* is a mostly hexaploid genus assuming 7 to be the basic chromosome number. Meiotic chromosome behaviour is very regular except in hybrids. On the basis of cytological evidence *Geum* is a closely knit taxonomic group.—[D.H.K.]

188. FRAGARIA. Scott, D. H., 1951, Cytological studies on polyploids derived from tetraploid *Fragaria vesca* and cultivated strawberries, *Genetics*, **36**, 311-325.

188. FRAGARIA. Staudt, G., 1953, Die geographische Verbreitung der Gattung *Fragaria* und die Bedeutung für die Phylogenie der Gattung, *Ber. Deutsch. Bot. Ges.*, **66**, 236-238.

188/2. FRAGARIA VESCA L. Dahlgren, K. V. O., 1953, Die eigenartigen Vererbungsverhältnisse der micrantha-Form von *Fragaria vesca*, *Svensk Bot. Tidsk.*, **47**, 1-15. A peculiar form of *Fragaria vesca* was found in an alpine region of central Scandinavia in 1927. Compared with the normal type it possessed very small petals which were not in contact with each other, and short concave sepals, but the epicalyx segments were more normal. It is believed that the form may be due to the influence of a virus. Details are given of experimental crossings of this form with typical plants.—[D.H.K.]

189. *POTENTILLA*. Luther, H. & L., 1953. Neue Fundorte von *Potentilla anglica* und *P. anglica* × *erecta*. *Mem. Soc. Fauna Flora Fenn.*, **28**, 25-32.

189. *POTENTILLA*. Stomps, T. J., 1951. *Potentilla anglica* Laich. ein neues Beispiel eines allopolyploiden Bastards. *Ned. Kruidk. Arch.*, **58**, 57-59. The somatic chromosome number of *Potentilla erecta* is 28, the same as that of *P. reptans*, but *P. anglica* appears to possess twice that number. The hybrids *P. anglica* × *reptans* and *P. erecta* × *anglica*, occasionally found in the field, proved to be 14 + 28. *P. anglica* × *reptans* is patroclinous, i.e. it shows a striking resemblance to *P. reptans*, whereas *P. erecta* × *anglica* is matroclinous, i.e. very much like *P. erecta*. Since the first-named hybrid must possess two sets of *reptans* chromosomes, and the second two sets of *erecta* chromosomes this behaviour becomes comprehensible. As the somatic cells of some of the *Potentilla* species contain 14 chromosomes, *P. erecta* and *P. reptans* are to be regarded as tetraploids; *P. anglica* therefore is not a tetraploid but an alloctoploid form.—[D.H.K.]

190. *ALCHEMILLA*. Oskarsson, I., 1953. A new *Alchemilla* species of the Eu-Vulgaris group found in Iceland, *Svensk. Bot. Tidsk.*, **47**, 80-83. *Alchemilla vestita*, *A. flicaulis*, *A. wichuræ*, *A. glomerulans*, *A. glabra*, *A. oxyodonta*, *A. subcrenata* and *A. murbeckiana* are all found in Iceland. A species closely related to *A. oxyodonta* but differing from it mainly in the strongly hairy indrescence of its branches and the upper part of the stem has been found on the island and is described as a new species:—*A. glacialis* sp. nov.—[D.H.K.]

190. *ALCHEMILLA*. Pawlowski, B., 1953. Przywrotniki Zebrane w Cziale Trzech Podrozy Balkańskich, *Acta Soc. Bot. Pol.*, **22**, 245-258. The distribution of the segregates of *Alchemilla vulgaris* in the Balkans is given. Some species also found in Britain are included.—[D.H.K.]

190. *ALCHEMILLA*. Rothmaler, W., 1952. *Alchemilla subglobosa* C. G. Westerl., ein Glazialrelikt des Harzes, *Vegetatio*, **4**, 32-39. An account of *Alchemilla subglobosa* in the Harz mountains where it is believed to be a glacial relict. The author also gives a key to all the segregates of *Alchemilla vulgaris* known from mid-Germany. Many species also found in Britain are included.—[D.H.K.]

190. *ALCHEMILLA*. Smith, A. M. & G. A. Shaw, 1953. *Alchemillas* of the *vulgaris* aggregate in West Yorkshire, *The Nat.*, **1953**, 53-56. The distribution and ecology of the segregates of *Alchemilla vulgaris* in Yorkshire is discussed; altitudinal limits are also given for some species.—[D.H.K.]

190(2). *APHANES*. Lawalrée, A., 1950, Les *Aphanes* de la flore Belge, *Bull. Soc. Roy. Bot. Belg.*, **83**, 129-131. Describes the differences between *Aphanes arvensis* and *A. microcarpa*, and gives their known distribution in Belgium, and throughout the world.—[D.H.K.]

190(2). APHANES. Navák, F. A., 1951, *Nepatrnee maloplody v Československu, Česk. Bot. Listy*, **4**, 53-57. An account of *Aphanes arvensis* and *A. microcarpa* in Czechoslovakia.—[D.H.K.]

190(2). APHANES. Reichgelt, T., 1952, *Aphanes microcarpa* in the Netherlands, *Acta Bot. Neerl.*, **1**, 115-121. *Aphanes microcarpa* in the Netherlands is as common as its near ally *A. arvensis* with which it was until recently confused. Maps showing the distribution of the two species in the Netherlands are given. *A. arvensis* predominates in the more fertile parts of the country, while *A. microcarpa* is found on poor, more or less acid, soils. Plants collected on the coastal dunes show a slightly different habit; they are small-leaved, and the stipules are so short that the achenes often protrude above their tops.—[D.H.K.]

195. SORBUS. De Pouques, M. L., 1951, Etude chromosomique de quelques Sorbus, *Bull. Soc. Sci. Nancy*, **10**, 41-46. Two forms of the cross *Sorbus torminalis* × *aria*, one from Fontainebleau, *S. latifolia* Pers. and the other *S. confusa* Gremli from Lorraine, were investigated cytogenetically. The former is fertile and it was thought that it would be a tetraploid but the investigations showed the two hybrids and parents all to have $2n = 34$. The hybrids were shown to be very close to each other and intermediate between the parents. The author puts forward the theory that the difference between the hybrids might be a result of the difference in frequency of the two parents in the areas concerned. The fertile *S. latifolia* would result from the cross in one direction and the sterile *S. confusa* from the reciprocal cross. The hybrids need to be artificially produced and investigated to test such a theory.—[E.B.B.]

195. SORBUS. Walter, E., 1950, Le Sorbus Mougeotii Soyer-Willemet et Godron dans le Vivarais, *Actes Congr. Assoc. Fr. Avanc. Sci.*, **1949**, 105-106. *Sorbus mougeotii* is locally abundant in Haute-Loire, where it has a higher more mountainous range than *S. aria*, with which it crosses. The hybrids are rare and isolated, and the two species are readily distinguished by their fruits by local children. *S. mougeotii* is probably of hybrid origin *S. aria* × *aucuparia*, a close parallel to *S. scandica* of Scandinavia. Its centre of distribution is in the Jura, whence it has colonised other French mountain regions.—[D.E.A.]

198. AMELANCHIER. Ter Pelkwijk, A. J., 1951, Over de benaming van enige Amelanchier-soorten. *Ned. Kruidk. Arch.*, **58**, 37-47. Representatives grown in the Netherlands as garden plants are identified. Two of them, *Amelanchier spicata* and *A. laevis*, have escaped from cultivation and are now completely naturalised, which has been reported also for *A. ovalis* which was misidentified. *A. laevis* occurs as f. *villosa* which appears to occur also in southern England and in Denmark; it is the plant described by Ascherson & Graebner as *A. canadensis*. Herbarium specimens show that it had run wild in the Netherlands as early as 1866.—[D.H.K.]

205/1. *PARNASSIA PALUSTRIS* L. Kullenberg, B., 1953, Några iakttagelser över insektbesöken på blommen av *Parnassia palustris* L., *Svensk. Bot. Tidsk.*, **47**, 439-448. Observations on insects visiting and pollinating the flowers of *Parnassia palustris* in southern Sweden.—[D.H.K.]

207. *RIBES*. Zielinski, Q. B., 1953, Chromosome numbers and meiotic studies in *Ribes*, *Bot. Gaz.*, **114**, 265-274.

211/22. *SEDUM ROSEA* (L.) Scop. Uhl, C. H., 1952, Heteroploidy in *Sedum rosea* (L.) Scop., *Evolution*, **6**, 81-86. This circumboreal species has $n = 11$ in seven localities in north-east North America as well as in six Old World localities. At eight other localities in the United States however $n = 18$. Little or none of the considerable morphological variation appears to be consistently correlated with the difference in chromosome number. It is suggested that the 18-chromosome strain may have arisen either as an amphiploid having the 11-chromosome strain as one parent, or as a hexaploid with basic number of 6 in the section. The distribution suggests that the 11-chromosome strain is of more recent arrival in North America.—[D.E.A.]

214/1. *HIPPURIS VULGARIS* L. Gessner, F., 1952, Der Druck in seiner Bedeutung für das Wachstum submerser Wasserpflanzen, *Planta*, **40**, 391-397. A study of the effects of water pressure and currents upon the growth of aquatics with particular reference to *Hippuris vulgaris*.—[D.H.K.]

217/5. *CALLITRICHE INTERMEDIA* Hoffm. Jones, H., 1952, Variation in Leaf Form in *Callitriche intermedia*, *Nature*, **170**, 848-849.

217/6. *CALLITRICHE HERMAPHRODITICA* L. Mendes, E. J., 1952, Acerca da existência de *Callitriche autumnalis* em Portugal, *Agron. Lusit.*, **14**, 52-58. The existence of *Callitriche hermaphroditica* (*C. autumnalis*) in Portugal is confirmed and its distribution recorded. A revision of the various species of *Callitriche* reported by different Portuguese systematists is also given.—[D.H.K.]

219/1. *LYTHRUM SALICARIA* L. Barabé, R., 1950, La Salicaire, *Agric. (Quebec)*, **7**, 356-360. *Lythrum salicaria*, introduced into Canada some years ago, is now spreading rapidly. In some districts it covers wide areas and has become a serious pest.—[D.H.K.]

220/1. *CHAMAENERION ANGUSTIFOLIUM* (L.) Scop. Harrison, J. W. Heslop, 1953, The present position of the Rosebay Willow Herb., *Vasc. (Subst.)*, **38**, 25. *Chamaenerion angustifolium* in lowland Durham differs in flower-colour, leaf-structure and other details from plants in upland habitats. These lowland plants are believed to have been of American origin, and have not been derived from native British populations. An enormous increase in the spread of the plant took place after the first World War, but a period of decline appears to have set

in, at least as far as the Birtley populations are concerned. The author requests information on the supposed status of the species in other parts of Britain.—[D.H.K.]

220/1. CHAMAENERION ANGUSTIFOLIUM (L.) Scop. Stephens, D. C. R., 1951, A study of Rosebay Willow Herb (*Epilobium angustifolium*) as a colonist of poor soils, *Mag. Blundell's School Sci. Soc.*, **6**, 52-55.

238. UMBELLIFERAE. Jermyn, S. T., 1953, Some interesting notes on the family Umbelliferae, *Essex Nat.*, **29**, 94-101.

238. UMBELLIFERAE. Malheiros-Gardé, N. & A. Gardé, 1951, Contribuição para o estudo cariológico da família Umbelliferae, *Gen. Iber.*, **3**, 23-25. Chromosome counts were made on fourteen species of Portuguese *Umbelliferae*, of these *Petroselinum segetum*, *Eryngium maritimum*, *Daucus carota* and *Aegopodium podagraria* occur also in Britain. *Aegopodium podagraria* was found to have diploid forms ($2n = 11$) as well as tetraploid forms ($2n = 22$).—[D.H.K.]

240/1. ASTRANTIA MAJOR L. Eberle, G., 1952, Sterndolden, *Natur und Volk*, **82**, 183-187. An ecological account of the species in Germany.—[D.H.K.]

256/1. CONOPODIUM MAJUS (Gouan) Loret. Jovet, P., 1952, *Conopodium denudatum* Koch en milieu calcaire, *Feuille des Nat.*, **7**, 20-22. An account of experimental tests on soil, etc., carried out in connection with the long-established station of this \pm calcifuge plant at Bois de la Cendrée, Longpoint, Aisne. Some differences are given between the leaves of this plant and those of the calcicolous *Bunium bulbocastanum*. The latter has leaves with the lobes terminating in a minute point (scarcely a mucro) and glabrous on the margins; *Conopodium majus* has lobes terminating in a clearly distinct acumen and the margins are always ciliate.—[E.B.B.]

275/1. ANGELICA ARCHANGELICA L. Schenk, E., 1950, *Archangelica* im Kreise Celle, *Mitt. Flor.-soz. Arb.*, **2**, 11. *Angelica archangelica* subsp. *litoralis*, frequent on the north European coasts, is a halophyte. *A. archangelica* subsp. *eu-archangelica* is a salt tolerant plant and is found on the banks of NaCl-containing rivers in Lower Saxony, but not along the Aller river where the salt content is low.—[D.H.K.]

279/1. CORIANDRUM SATIVUM L. Adatia, R. D. & G. L. Shah, 1952, A contribution to the life-history of *Coriandrum sativum* Linn., *Bombay U.J., Sect B., Biol. Sci. (N.S.)*, **20**, 34-36.

284/1. HEDERA HELIX L. Home, Sir J. M., 1952, Ivy as a forest weed, *Scot. For.*, **6**, 86-87. Although there is no exact information on the harm done to trees by ivy the author estimates the loss of increment in the timber crop to be 25%-35%. The various methods of controlling the plant in forest areas are discussed.—[D.H.K.]

284/1. *HEDERA HELIX* L. Jasiewicz, A., 1951, *Bluszcz, Chron. Przy. Ojcz.*, **7** (9/10), 3-11. The distribution of *Hedera helix* in Europe is discussed and illustrated with maps.—[D.H.K.]

287. *SAMBUCUS*. Michel, E., 1950, *Les sureaux du pays* (*Sambucus* L.), *Nat. Belge*, **31**, 54-56. Describes *Sambucus nigra*, *S. racemosa* and *S. ebulus*, and gives some ecological data.—[D.H.K.]

287/3. *SAMBUCUS EBULUS* L. Grigson, G., 1953, The Legend of a Plant, *Country Life*, **113**, 145. The origin of the legend that the plant grows where Danes' blood has been spilt is traced back to John Rous (ob. 1491), an antiquary of Warwick, who, however, said the plant grew from the blood of Englishmen slaughtered by the Danes. In Sweden there are similar legends associating the plant with the blood of the dead. These are presumably due to the foetid smell and the blood-red berries; and it was a widely held notion that plants grew out of corpses. The name "Danes'-blood" has also been applied in East Anglia to *Pulsatilla vulgaris* (*Anemone pulsatilla*). The association with the Danes in particular is probably incorrect, but was taken up by the romantic antiquaries. Turner (1538) first recorded the name Danewort, which is perhaps derived from "dain", meaning "to stink". The old English name is Walwort, meaning "Foreigner's Plant".—[D.E.A.]

287/3. *SAMBUCUS EBULUS* L. Gray, E. F., 1953, Legend of a Plant, *Country Life*, **113**, 585. The writer suggests that *Sambucus ebulus* was introduced into Britain by the Jutes, as a valuable herb.—[D.H.K.]

287/3. *SAMBUCUS EBULUS* L. Sargant, W. L., 1952, *Daneweed and the Danish Vikings in Rutland and Kesteven*, separately printed for Rutland Arch. & Nat. Hist. Soc., pp. 6. This species is considered to have been certainly introduced by the Danes, since it is found in the creeks and estuaries frequented by them round the English coast. The "Danes'-blood" legend found throughout the parts of England and south Sweden conquered by the Danes is attributed to the plant's having sprung from the equipment of the slain, the flower-stem having possibly been employed as a fibre. It is not so much associated with Danish settlements as with the sites of their battles. This hypothesis is supported by archaeological and historical evidence, mainly relating to the great Viking invasion of A.D. 865-877 which resulted in the conquest of Danelaw.—[D.E.A.]

291/2. *LONICERA PERI-CLYMENUM* L. Ammal, E. J. K. & B. Saunders, 1952, Chromosome numbers in species of *Lonicera*, *Kew Bull.*, **1952**, 539-541. Plants of *L. peri-clymenum* from Surrey were found to be tetraploids. The authors suggest that the distribution of diploid and tetraploid forms of the species in Britain needs further investigation.—[D.H.K.]

296. *GALIUM*. Ubach, M., 1951, Estudio anatomico de la epidermis del fruto algunas especies de *Galium*, *Coll. Bot.*, **3**, 110-135. Descriptions of the epidermal cells and hairs of the surface of the fruits in 9 species of *Galium*. In a number of hybrids these afford useful taxonomic characters. A key for the identification of species studied on the basis of fruit surface is provided.—[D.H.K.]

301. *VALERIANA*. Lawalrée, A., 1952, Le groupe du *Valeriana officinalis* L. en Belgique, *Bull. Jard. Bot. Brux.*, **22**, 193-200. It is stated that recent work reveals a number of species in this complex group and that the name *Valeriana officinalis* L. should be rejected as a nomen ambiguum. The characters of the group are given in detail and its polyploid nature commented upon. Two species and one variety are recognised in Belgium, keyed as follows:—

Middle cauline leaves petiolate, with 4-9 pairs of lobes with large teeth; fruits 4-5 mm. long; fl. end June-Aug.

Stem hirsute at least in the lower part *V. procurrens*

Stem not hirsute \pm glabrous *V. procurrens* var. *calvescens*

Middle cauline leaves very shortly petiolate, with 6-14 pairs of narrow lobes, entire or with small teeth; fruits 2-5 mm. long; fl. May-June ... *V. collina*

The Belgian distribution is given in detail. In general distribution *V. procurrens* Wallr. occurs in the British Isles; var. *calvescens* Walther similarly; *V. collina* Wallr. occurs in S.E. England.—[E.B.B.]

304/1. *VALERIANELLA LOCUSTA* (L.) Betsche. Garjeanne, A. J. M., 1950, *Valerianella*, *De Levende Natuur*, **53**, 101-107. Gives an account of the anatomy and morphology of the species.—[D.H.K.]

308/1. *SCABIOSA COLUMBARIA* L. Kloos, A. W., Jr., 1952, Aanwinsten van de Nederlandse flora in 1950, *Acta Bot. Neerl.*, **1**, 122-156. Describes a new form of *Scabiosa columbaria*—

f. *prolifera* f. nov. Capitula secundaria parva e capitulis primariis deducta. —[D.H.K.]

326/1. *ANTENNARIA DIOICA* (L.) Gaertn. Braun-Blanquet, J., 1952, Pflanzensoziologische Überlegungen als Hilfsmittel zur Erkennung systematischer Einheiten am Beispiel von *Antennaria hibernica* dargelegt, *Vegetatio*, **3**, 298-300. During the International Phytogeographical Excursion in Ireland in 1949 "*A. dioica*" was found to be common in some of the limestone areas. In the central and south European mountains however *A. dioica* is typical of non-calcareous sites. The Irish plant is therefore described as a distinct species:—

A. hibernica sp. nov.—*A. dioica* L. et *hansii* Kerner (*A. groenlandica* Porsild) affinis—Caudex laxo stoloniferus. Folia basalia laxo rosulata, late ovato-spathulata, 10-23 mm. longa, 3-7 mm. lata, apice saepe subtruncata-cuspidata, superne glabra viridia, inferne niveo-lanata, superiora lineari-lanceolata, acuminata. Caulis florales erecti, (5) 10-20 (30) cm. alti, sericei-lanati, 6-14 foliati. Inflorescentia laxo-cymosa, calathis 1-8, longe pedicellatis (0.5-2 cm.); campanulatis, 5-9 mm. longis. Squamae involucri obovatae, superiore parte niveae (non rubrae), apice rotundato vel emarginato. Pappi radii 7 mm. longi.

The author has also seen material of the new species from Scotland. [D.H.K.]

333/3. *INULA BRITANNICA* L. Garjeanne, A. J. M., 1952, *Inula, De Levende Natuur*, **55**, 221-227. A morphological and physiological account of the species.—[D.H.K.]

353/6. *BIDENS FRONDOSA* L. Lesmesle, R., 1952, De l'aire d'extension du *Bidens frondosus* L. dans la vallée de la Vienne, *Feuille des Nat.*, **7**, 9-10. A short phytogeographical account of the establishment of this N. American therophyte on the banks of the Vienne, where in some situations it has become dominant. It should be looked for along other waterways of the Atlantic side of the continent in areas where it has not yet been recorded.—[E.B.B.]

354. *GALINSOGA*. Crane, M. B. (Ed.), 1952, Cyto-ecology, *Rep. John Innes Hort. Inst.*, **1951**, 17-18. *Galinsoga parviflora* has $2n = 16$, while *G. ciliata*, "mostly confined to the vicinity of docks and probably introduced by shipping", is an allotetraploid with $2n = 32$. The species differ in their pollen grain and stomata sizes.—[D.F.A.]

354. *GALINSOGA*. Garjeanne, A. J. M., 1951, *Galinsoga, De Levende Natuur*, **54**, 7-14. An account of the spreading of *Galinsoga parviflora*. It is not certain which factors lead to the rapid spreading of immigrants like *Galinsoga*, *Elodea* and *Azolla*, but it is interesting to note that European *Galinsoga* seeds reintroduced into Peru, the native home of the species, led to eruptive development there. The species is very sensitive to night frosts. In experiments carried out by the author the percentage of seeds germinating was low. Several anatomical details of the plant are described.—[D.H.K.]

354. *GALINSOGA*. Haskell, G. & G. E. Marks, 1952, Chromosome ecology of British *Galinsoga* species, *New Phyt.*, **51**, 382-387. *Galinsoga parviflora* has $2n = 16$ and *G. ciliata* $2n = 32$. The species form eight and sixteen bivalents respectively at meiosis. Differences in chromosome morphology, stomata and pollen-grain sizes indicate that *G. ciliata* has not been derived directly from *G. parviflora*. Taxonomical difficulties may be due to a possible polyploid series within the genus.—[D.H.K.]

354. *GALINSOGA*. Tronchet, A. & J., 1951, Sur la présence à Besançon du *Galinsoga aristulata* Bicknell (= *G. parviflora* Cav. var. *hispida* DC.), *Ann. Sci. Univ. Besan.*, **6**, 3-5. This species was discovered by the authors in 1950 in St. Ferjeux. A brief summary of its known European distribution is given, and speculations on its method of arrival in Besançon. Characters to differentiate it from *Galinsoga parviflora* are given; the following are additional to those given by Lousley in *Watsonia*, **1**, 238-241 (1950) (where the correct name is established as *G. ciliata*):—

G. aristulata: outer phyllaries \pm acute, scarcely membranous at margins, finely fimbriate at apex; achenes of ligulate florets hairy on the inner face, glabrous on the outer.

G. parviflora: outer phyllaries rounded at apex, fringed and membranous all round; achenes of ligulate florets scarcely hairy.—[E.B.B.]

362/2. *TAGETES MINUTA* L. Jovet, P. & J. Vivant, 1951, *Tagetes minuta* L., adventice nouvelle pour le sud-ouest de la France, *Monde des Plantes*, **274-275**, 13-14. A description of *Tagetes minuta* which has been found for the first time in south-east France. The distribution of the species and some ecological data are also given.—[D.H.K.]

377/1. *TANACETUM VULGARE* L. Hassebrauk, K., 1951, Über eine rostwiderstandsfähige Dauermodifikation bei *Tanacetum vulgare* L., *Ber. Deutsch. Bot. Ges.*, **64**, 116-119. A form of *Tanacetum vulgare* in which each rachis bears a bundle of subdivided leaflets is described. The form was not infected by *Puccinia tanacetii*.—[D.H.K.]

378. *ARTEMISIA*. Straka, H., 1952, Zur Feinmorphologie des Pollens von *Salix* und von *Artemisia*, *Svensk. Bot. Tidsk.*, **46**, 204-227.

378/21. *ARTEMISIA VERLOTORUM* Lamotte. Nehou, J., 1952, L'*Artemisia verlоторum* Lamotte à Saint-Malo, *Monde des Plantes*, **285-286**, 1-2. Distribution and spread of this species in Saint-Malo is discussed and compared with that of *Artemisia vulgaris*. The latter is indigenous and establishes itself in already colonised waste ground, etc.: the achenes are wind-distributed. The former is a newcomer, spreading by stolons and establishing itself in uncolonised waste ground, etc.—[E.B.B.]

378/22. *Artemisia norvegica* Fr. Blakelock, R. A., 1953, *Artemisia norvegica* Fries in Scotland, *Kew Bull.*, **1953**, 173-184. *Artemisia norvegica* was discovered in August 1950 in Wester Ross, in the neighbourhood of Ullapool, Scotland, by Sir Christopher Cox, K.C.M.G. 24 colonies in all were counted, growing on the spur of a mountain between 2,350' and 2,450'. Each of the colonies was about 5-10 yards square and the collector estimates that he saw 500-1,000 plants. Details of associated species and some ecological data is given. A map shows the world distribution of the plant; apart from Scotland it is confined to the Dovrefjeld district and adjacent mountains in Norway, and to the Northern Urals.

The author discusses the possibility of *A. norvegica* being native in Scotland, but mentions the known deliberate introductions of certain alpine species into that country. It is concluded that the arguments for and against the species being a native are much the same as for *Diapensia lapponica*.

A full description of the plant is given, but the author states that "the solitary or few large capitula with wide dark brown margins to the involueral bracts, low growth and tufted habit distinguish it at once from any other British species of *Artemisia*".—[D.H.K.]

381. *DORONICUM*. Lindquist, K., 1950, Some results of a cytological investigation of *Doronicum*, *Hereditas*, **36**, 94-102. Three species have so far been investigated; of these *Doronicum pardalianches* $2n=60$ and *D. plantagineum* $2n = \pm 120$ are known to occur in Britain.—[D.H.K.]

383/10. *SENECIO VULGARIS* L. Haskell, G., 1953, Adaptation and the breeding system in Groundsel, *Genetica*, **26**, 468-484. Groundsel is a common polyploid weed with high phenotypic plasticity and colonising ability. Functionally it is an entomophilous cross-breeder yet unattractive to insects. Hence it mostly self-pollinates, but some crossing occurs during warm weather when insects are active. Hybrids between micro-species may show heterosis.

A ray-floreted groundsel, which differs by a single major gene, also occurs in western England. This has failed to spread, either being an ecospecies, or through a reduced reproductive capacity because its female ray-florets fail in pollination.

Groundsel investigated for suitability in biometrical studies has a shorter life-cycle than other common weeds in a glasshouse. Five generations of three families were grown together. There was little difference between generations in heights, first flowering times and number of branches. Families behaved more or less like pure lines and were inter-related, not unexpectedly as they derived from a limited population. Variation in each generation depended upon character, e.g. variation for branching remaining constant, while that for flowering time rapidly decreasing. In this respect families differed somewhat from each other.

Groundsel's highly advanced seasonal breeding system, of interbreeding with occasional outbreeding is compared with that of chickweed, another successful weed. Together with the relatively high reproductive capacity and efficient dispersal mechanism, it permits successful adaptation and colonisation. It leads also to production of the numerous micro-species with restricted distributions.—[Author's summary.]

393. *ARCTIUM*. Arènes, J., 1951, Les races françaises du genre *Arctium*, *Monde des Plantes*, **276-277**, 21-22. Describes and keys the various species and varieties of *Arctium* found in France and gives their distribution.—[D.H.K.]

411/2. *LAPSANA INTERMEDIA* M. Bieb. Gagnepain, F., 1950, Une nouvelle adventice en France, *Bull. Soc. Bot. Franc.*, **97**, 217-218. A short account of *Lapsana intermedia*, an adventive which has been discovered near Paris. The plant is new to France.—[D.H.K.]

415/1. *PICRIS ECHIOIDES* L. Villion, P., 1952, De l'extension d'une espèce eury méditerranéenne: *Picris echioides* L. = *Helminthia echioides* Gaertner dans la région Nord du Bessin, *Monde des Plantes*, **287-288**, 24.

This species has extended its range in this region about three kilometres from N. to S. inland. "Floras" of Normandy give it as mainly littoral.—[E.B.B.]

419. *HIERACIUM*. Wiinstedt, A. K., 1953, Nogle nye Hieracium arter i Danmark, 2, *Bot. Tidssk.*, **50**, 56-62. Six new species of *Hieracium* are described from Denmark, while a number of others are reduced in synonymy.—[D.H.K.]

422/3. *LEONTODON TARAXACOIDES* (Vill.) Mérat. Holub, J. & J. Moravec, 1952, *Thrincia saxatilis* (Lam. ex Stankov) Holub-Moravec em. v Československu, *Preslia*, **24**, 73-94. A revision of *Leontodon taraxacoides* in Czechoslovakia. The authors report that the correct name of the species is *Thrincia saxatilis* (Lam. ex Stankov) em. Holub-Moravec. The plant is divided into two subspecies, viz.:—subsp. *taraxacoides* (Vill.) Holub-Moravec and subsp. *hispida* (Roth) Holub-Moravec. The distribution of the two subspecies in Europe is discussed and illustrated by maps. Subsp. *taraxacoides*, to which the authors refer all the British material that they have seen, is widespread in western, central and southern Europe, while subsp. *hispida* is apparently confined to the Mediterranean region.—[D.H.K.]

428. *TRAGOPOGON*. Ownbey, M. & G. D. McCollum, 1953, Cytoplasmic inheritance and reciprocal amphiploidy in *Tragopogon*. *Amer. J. Bot.*, **40**, 788-796.

431/1. *JASIONE MONTANA* L. Garjeanne, A. J., 1953, *Jasione*, *De Levende Natuur*, **56**, 187-193. A taxonomic and physiological account of *Jasione montana* in the Netherlands.—[D.H.K.]

435. *CAMPANULA*. Hruby, J., 1950, Campanulastudien innerhalb der Vulgares und ihrer Verwandten in Mitteleuropa, *Mitt. Flora-soz. Arb.*, **2**, 77-93. A number of new varieties of *Campanula rotundifolia* are described.—[D.H.K.]

435/6. *CAMPANULA PERSICIFOLIA* L. Darlington, C. D. & L. F. La Cour, 1950, Hybridity selection in *Campanula*. *Heredity*, **4**, 217-248.

438/1. *VACCINIUM ULIGINOSUM* L. Hara, H., 1952, *Vaccinium uliginosum* L. in Japan, with reference to variations in widespread northern species, *J. Jap. Bot.*, **27**, 309-315 & **28**, 83-92. The variations in *Vaccinium uliginosum* are discussed in detail. The size and shape of leaves, corollas, anthers and berries are exceedingly variable in Japan as well as in Europe and N. America.—[D.H.K.]

445. *CALLUNA*. Hagerup, O., 1950, Thrips pollination in *Calluna*. *Kgl. Danske Vid. Selsk. Biol. Med.*, **18** (4), 1-16. *Calluna* may be pollinated in many different ways, the one most easily observed being bee-pollination. This method of pollination, however, fails completely in

some regions (e.g. the Faroes), where large pollinating insects are absent. In these areas pollination may be carried out by a very small insect (*Taeniothrips ericae*) which seeks shelter, food and a breeding ground within the flower, and which in return pollinates the flower by creeping on to the stigma.—[D.H.K.]

446/2. *ERICA TETRALIX* L. Hagerup, E. & O., 1953, Thrips pollination of *Erica tetralix*, *New Phyt.*, **52**, 1-7. As soon as the flower of *E. tetralix* opens it is pollinated autogamously. The horns of the anthers are not adaptations for insect pollination; but on the contrary promote autogamy. Being tightened springs pressed against the corolla, they force the anthers with their falling pollen into the most favourable position above the stigma. At the same time the flower is also pollinated by 1 mm. long insects, *Taeniothrips ericae* and *Frankliniella intonsa*, which can carry pollen from other flowers and lay their eggs in the tissue of the corolla.

As the males of *Taeniothrips* are rare and wingless, the winged females roam actively from flower to flower in order to find the males, thereby becoming active pollinators. Visits by large insects are rare and most often useless to the flower, which is frequently pollinated beforehand. The view of the classic flower biologists, e.g. Knuth, and their observations on autogamy ought to be reviewed by experiments with flowers wrapped in bags to prevent visits of insects.—[Authors' summary.]

452/1. *RHODODENDRON PONTICUM* L. Brown, J. M. B., 1953, The Rhododendron problem in the Woodlands of southern England, *Quart. J. For.*, **47**, 239-253. *Rhododendron ponticum*, native to the east and west parts of the Mediterranean vegetation region, was introduced to Britain in 1763 and has since become thoroughly naturalised in woodlands and shrubberies, particularly on sandy podzolic soils. The vigorous colonies resulting from the dissemination of seed from planted ornamental avenues and clumps are in many cases a serious hindrance to the regeneration of woods by planting or natural seeding; while the clear cutting of rhododendrons is very costly and not always of lasting effect. Some aspects of the ecology of *R. ponticum* are here reviewed in relation to the challenge which it presents to silviculture.—[Author's summary.]

457. *LIMONIUM*. Baker, H. G., 1953, Dimorphism and monomorphism in the Plumbaginaceae, 2. Pollen and stigmata in the genus *Limonium*, *Ann. Bot.*, **51**, 433-446; 3. Correlation of geographical distribution patterns with dimorphism and monomorphism in *Limonium*, *op. cit.*, **17**, 613-627.

460. *PRIMULA*. Ernst, A., 1951, "Maternal hybrids" nach interspezifischen Bestäubungen in der Gattung *Primula*, 2. Sektion *Farinosae*, *Arch. Klaus.-Stift. Ver. Forsch.*, **26**, 187-322.

460/2. *PRIMULA VULGARIS* Huds. Cresby, J. L., 1950, Population genetics in the genus *Primula*, *Abstr. Diss. Univ. Camb.*, **1948-49**, 9-10.

462. *CYCLAMEN*. Blasdale, W. C., 1952, *Cyclamen europaeum*, *Calif. Hort. Soc. J.*, **13**, 132-137. Gives an account of *Cyclamen europaeum*, including its geographical distribution and nomenclature.—[D.H.K.]

467/2. *ANAGALLIS ARVENSIS* L. Lehmann, E., 1952, Von der Erforschung einer heimischen Pflanzenart *Anagallis arvensis*—Gauchheil, *Beitr. Biol. Pflanz.*, **29**, 208-219.

473. *VINCA*. Pichon, M., 1951, Classification des Apocynacées: **22**. Les espèces du genre *Vinca*, *Bull. Mus. Nat. d'Hist. Nat.*, **23**, 439-444. A revision of the genus *Vinca* with keys to the species and varieties. Only three species (*Vinca major* L., *V. minor* L. and *V. herbacea* Waldst. & Kit.) are recognised with the remaining forms reduced to varieties.—[D.H.K.]

473/1. *VINCA MAJOR* L. Smedley, D. N., 1953, Fruit of the Greater Periwinkle, *N.W. Nat. (N.S.)*, **1**, 99-100. *Vinca major* apparently rarely sets fruit in Britain, and a short account is given of fruits found on a plant near Ross-on-Wye.—[D.H.K.]

476. *GENTIANACEAE*. Löve, D., 1953, Cytotaxonomical remarks on the *Gentianaceae*, *Hereditas*, **39**, 225-235. The chromosome numbers of seven species of Icelandic *Gentianaceae* are reported. Numbers of species also found in Britain are:— $2n = 36$ for *Gentianella amarella*, $2n = 36$ for *Gentianella campestris*, $2n = 14$ for *Gentiana nivalis*. All chromosome numbers known within the family are listed. It is shown that different basic numbers are met with in different sections, and that on the basis of these numbers as well as on chromosome morphology, the separation of *Gentiana* and *Gentianella* as two genera only is insufficient. Different taxonomical changes in order to get at generic uniformity are discussed.—[D.H.K.]

477/1. *BLACKSTONIA PERFOLIATA* (L.) Huds. Fabris, H. A., 1949, Dos Gencianáceas adventicias para la flora argentina, *Bol. Soc. Argent. Bot.*, **2**, 287-290. *Blackstonia perfoliata* and *Centaureum pulchellum* have occurred as adventives in the Argentine; the former species has also been found in Uruguay.—[D.H.K.]

478/2. *CENTAURIUM LITTORALE* (D. Turner) Gilmour. Pignatti, S., 1951, *Polygala exile* DC. e *Centaureum vulgare* Rafn. nella laguna Veneta, *Atti Ist. Bot. Univ. Pavia*, **9**, 268-274. *Centaureum littorale* has been discovered in Italy. The author suspects that it is an old indigenous plant, rather than a recent introduction.—[D.H.K.]

478/4. *CENTAURIUM PULCHELLUM* (Sw.) Druce. See 477/1. *BLACKSTONIA PERFOLIATA* (L.) Huds.

480. GENTIANA. Skalińska, M., 1952, Badania cytologiczne nad gatunkami rodzaju *Gentiana* z Tatra i Pienin, *Bull. l'Acad. Pol. Sci. Lett.*, **1-3**, **B.1**, 1951. A study of the cytology of seven species of *Gentiana* native in the Tatra and Pieniny mountains of Poland. Only one species found in Britain is included, *G. verna* $2n = 28$.—[D.H.K.]

496. AMSINCKIA. Kamb, P., 1952, Chromosome numbers in the genus *Amsinckia*, *Madroño*, **41**, 305-307.

496. AMSINCKIA. Lawalrée, A., 1950, Les *Amsinckia* adventices en Belgique, *Bull. Soc. Roy. Bot. Belg.*, **82**, 304-306. Describes *Amsinckia intermedia* Fisch. & Mey. and *A. parishii* A. Brand which have been found as adventives in Belgium.—[D.H.K.]

503. PULMONARIA. Lawalrée, A., 1949, Les *Pulmonaria* de Belgique, *Bull. Soc. Roy. Bot. Belg.*, **82**, 97-102. Five taxa of *Pulmonaria* (*P. affinis*, *P. angustifolia* subsp. *azurea*, *P. longifolia*, *P. mollis*, *P. mollissima*) have been attributed to the Belgian flora that do not occur in Belgium. The groups recognized are keyed as follows:—

Aestival leaves cordate at base *P. officinalis*
 Aestival leaves not cordate at base:

Leaves spotted, the aestival oval to elliptic, abruptly attenuate at the base *P. picta*

Leaves not spotted, the aestival lanceolate to lanceolate-elliptic, \pm gradually attenuate at the base *P. angustifolia* subsp. *tuberosa*

P. officinalis L. is divided into subsp. *officinalis*, with pale-spotted leaves, petiole of aestival leaves longer than blade, and subsp. *obscura*, without (rarely with) spotted leaves, and petiole shorter than the blade. Detailed distribution in Belgium is given and some descriptive notes. Hybrids are *P. officinalis* subsp. *officinalis* \times *angustifolia* subsp. *tuberosa* (*P. \times ovalifolia*) and *P. officinalis* subsp. *obscura* \times *angustifolia* subsp. *tuberosa* (*P. \times vosagisa*).—[E.B.B.]

506/1. MYOSOTIS SCORPIOIDES L. em. Hill. Ohwi, J., 1952, *Myosotis scorpioides* naturalised to Honshu, *J. Jap. Bot.*, **27**, 270.

507. LITHOSPERMUM. Johnston, I. M., 1952, Studies in the Boraginaceae, 23: A survey of the genus *Lithospermum*, *J. Arn. Arb.*, **33**, 299-363. Gives a key to all the species.—[D.H.K.]

513/1. CONVULVULUS ARVENSIS L. Wilcke, J., 1949, De bloemen van de akkerwinde, *De Levende Natuur*, **52**, 1-7. Studies on the flowers of *Convolvulus arvensis*. One plant may produce thousands of flowers during the course of the summer season. The structure of the buds and the opening of the flowers is described in detail. Some insect visitors are given. Ripe fruits are very rarely found in Holland and central Europe.—[D.H.K.]

515. CUSCUTA. Wendelbo, P., 1952, *Cuscuta campestris* i Norge, *Blyttia*, **10**, 106-107. The author reports two Norwegian finds of *Cus-*

cuta campestris. The host plants were *Satureja hortensis* and *Callistephus chinensis*.—[D.H.K.]

515/2. *CUSCUTA EUROPAEA* L. Gaertner, E. K., 1952, Observations on the host range of *Cuscuta europaea* among the Compositae, *Canad. J. Bot.*, **30**, 682-684. An account of the examination of 128 species of 44 genera of *Compositae* as to their susceptibility as hosts to *Cuscuta europaea*.—[D.H.K.]

515/11. *CUSCUTA AUSTRALIS* R.Br. Hjelmquist, H., 1953, *Cuscuta australis* i Sverige, *Bot. Not.*, **1953**, 97-104. Most of the specimens in Swedish herbaria determined as *Cuscuta campestris* have on re-determination proved to be *C. australis*. In most cases *C. australis* has been introduced with the seeds of garden plants, while *C. campestris* which has apparently occurred in only a few cases is believed to have been imported with clover and alfalfa seeds. The form of *C. australis* found in Sweden agrees most closely with the var. *cesatiana*, and its characteristics in comparison with *C. australis* sensu stricto and *C. campestris* are discussed.—[D.H.K.]

517. *SOLANUM*. Westergaard, M., 1948, The aspects of polyploidy in the genus *Solanum*, 3. Seed production in autopolyploid and allopolyploid *Solanum*, *Kgl. Danske Vid. Selsk. Biol. Med.*, **18** (3), 1-18.

517/7. *SOLANUM ROSTRATUM* Dunal. Meyer, M., 1950, Gestekelde nachtschade (*Solanum rostratum*), *Natura*, **47**, 35-36. An account of *Solanum rostratum*, a Mexican adventive, in the Netherlands.—[D.H.K.]

517/14. *SOLANUM SISYMBRIIFOLIUM* Lam. 1950, *Solanum sisymbriifolium* Lam., *Natura*, **47**, 83-84. Gives details of a N. American adventive often confused with *Solanum rostratum* Dunal in the Netherlands.—[D.H.K.]

518/1. *PHYSALIS ALKEKENGII* L. Hara, H. & S. Kurosawa, 1952, *Physalis alkekengi* and its Variation in East Asia, *J. Jap. Bot.*, **27**, 247-253. *Physalis alkekengi* is native from central and southern Europe eastwards to Asia Minor, Caucasus, north Persia and southern central Asia, but is unknown in Siberia, India and Malaya. The common Japanese form differs from the European plant by having a robust glabrous erect stem, much broader glabrous leaves, thick, generally glabrous calyx tubes, less acuminate corolla-lobes and larger lustrous fruiting-calyces. The chromosomes of both plants are the same in number and size. The history of the plant in east Asia is uncertain, and it is still doubtful whether it is indigenous to Japan, or has spread from ancient cultivation.—[D.H.K.]

522/1b. *DATURA STRAMONIUM* var. *TATULA* (L.) Torr. Rudolf, W. & P. Schwarze, 1951, Polyploidie-effekte bei *Datura tatula*, *Planta*,

39. 36-64. Tetraploid plants of *D. stramonium* var. *tatula* have a lower and more bushy form than the diploid and fewer flowers are produced.—[D.H.K.]

532/1. *LINARIA VULGARIS* Mill. Van Hest, P., 1952, Afwijkingen bij de Vlasleeuwenbek, *Nat.-Hist. Maand.*, **41**, 63-65. Studies in the peloric forms of *Linaria vulgaris*.—[D.H.K.]

532/7. *CHAENORHINUM MINUS* (L.) Lange. Champagnat, M., 1952. Remarques caryologiques et génétiques sur quelques *Chaenorhinum* du groupe minus, *Bull. Soc. Bot. Franc.*, **99**, 301-304. Short notes on (1) an experimentally produced hybrid *Chaenorhinum minus* × *C. minus* var. *praetermissum*; F1. showed all glabrous plants (as in the var.) and F2. one pubescent to three glabrous, dominance of glabrous type, although the var. is very restricted in distribution, being thus revealed. (2) *C. littorale* Fritsch is the first polyploid (hexaploid) known in the sub-genus.—[E.B.B.]

532/7. *CHAENORHINUM MINUS* (L.) Lange. Negodi, G., 1951, Cario-logia delle specie elementari di *Linaria minor* (L.) Desf. e tetraploidi da colchicina, *Atti Mem. Accad. Sci. Modena*, **9**, 1-26.

532/24-25. *KICKXIA*. Hoogenraad, H. R., 1952, Twee zeldzame leeuwenbekken, *Natura*, **49**, 81-85. The distribution of *Kickxia spuria* and *K. elatine* in the Netherlands is discussed and illustrated by maps.—[D.H.K.]

532/26. *CYMBALARIA MURALIS* G.M. & S. Touton, J. B., 1952, Les problèmes posés par *Cymbalaria toutoni* A. Ch. (mutation de *Cymbalaria muralis* Gunth.) *Rev. Gén. Bot.*, **59**, 5-12. Discusses experiments and hypotheses to explain the origin of this mutation, which is genetic, as the plant has not undergone morphological modification since its discovery 15 years ago. Its original natural locality has been destroyed and it has not been found in the wild since.—[E.B.B.]

534/1. *ANTIRRHINUM MAJUS* L. Mechelke, F., 1952, Die Entstehung der polyploiden Zellkerne des Antherentapetums bei *Antirrhinum majus* L., *Chromosoma*, **5**, 246-295.

541. *DIGITALIS*. Olechowska-Barańska, K., 1953, Nasiona *Digitalis* L. i ich cechy rozpoznawcze, *Acta Soc. Bot. Pol.*, **22**, 321-330. Having investigated the size of the seeds, and the anatomical structure of the seed-coat of *Digitalis purpurea*, *D. ambigua*, *D. lutea* and *D. lanata*, species found in Poland in both the wild and cultivated state, the author gives a key to their identification.—[Author's summary.]

541/1. *DIGITALIS PURPUREA* L. Grohne, U., 1952, Untersuchungen zur Frage der Lichtkeimung von *Digitalis purpurea* L., *Biol. Zentralbl.*,

71, 10-42. Studies on the effect of light on the germination of seeds of *Digitalis purpurea*.—[D.H.K.]

542/1. *ERINUS ALPINUS* L. Blackler, H., 1953, *Erinus alpinus* in Angus, *N.W. Nat. (N.S.)*, **1**, 451.

542/1. *ERINUS ALPINUS* L. Dallman, A. A., 1953, *Erinus alpinus* L. in Argyll, *N.W. Nat. (N.S.)*, **1**, 295.

542/1. *ERINUS ALPINUS* L. Palmer, C. E., 1953, *Erinus alpinus* L. in Argyll, *N.W. Nat. (N.S.)*, **1**, 450.

543. *VERONICA*. Hui-Lin Li, 1952, The Genus *Veronica* (Scrophulariaceae) in China, *Proc. Acad. Nat. Sci. of Philadelphia*, **104**, 197-218. A critical review of the thirty-four species recorded from China. The following species which also occur in Britain are discussed:—*Veronica spicata* L., the records are considered of doubtful value, although it may occur along the very northernmost borders; *V. serpyllifolia* L. subsp. *humifusa* (Dicks.) Syme, confined in China to high altitudes (2300-3700 metres) in the west; *V. arvensis* L., a single record and probably introduced; *V. polita* Fr. (as *V. didyma* Ten.), widespread; *V. persica* Poir., adventive; *V. beccabunga* L., alpine, found only in Yunnan and Szechuan; *V. anagallis-aquatica* L., common and widespread especially in the northern provinces; *V. catenata* Pennell (as *V. aquatica* Bernh.). western and central China.—[A.E.W.]

543. *VERONICA*. Lawalrée, A., 1953, *Veronica anagallis-aquatica* et *Veronica catenata* Pennell en Belgique, *Bull. Jard. Bot. Brux.*, **23**, 383-389. The author states that *Veronica catenata* has been confused with *V. anagallis-aquatica* and the distribution of the two species in Belgium is consequently not well known. From a study of herbarium material, after describing the two species, he gives details of their occurrence, and concludes that *V. catenata* is essentially a plant of maritime and low-country areas whilst *V. anagallis-aquatica* predominates in the western higher areas. This is in accordance with the world range of both so far as it is known; the latter has a much wider distribution, reaching higher altitudes. Hybrids, recorded elsewhere from areas of overlap in distribution, should be found in the central area of Belgium.—[E.B.B.]

543/7. *VERONICA BECCABUNGA* L. Kloos, A. W., Jr., 1952, Aanwinsten van de Nederlandse flora in 1950, *Acta Bot. Neerl.*, **1**, 122-156. Describes a new variety—var. *rubra* nov. var.—floribus phoeniceis nec roseis.—[D.H.K.]

543/41. *VERONICA FILIFORMIS* Sm. Thaler, I., 1951, Morphologisches über *Veronica filiformis* Smith und ihre Verwandten, *Phyton*, **3**, 216-226. The author gives a morphological and taxonomical account of *Veronica filiformis* and deals with its affinity to *V. persica*.—[D.H.K.]

543/41. *VERONICA FILIFORMIS* Sm. Thaler, I., 1953, Die Ausbreitung von *Veronica filiformis* Sm., *Phyton*, **5**, 41-54. The spread of *Veronica filiformis* in Europe is discussed and illustrated by a map. Many British records are cited.—[D.H.K.]

545. *EUPHRASIA*. Callen, E. O., 1952, Studies in the genus *Euphrasia* L., **3**, *Rhodora*, **54**, 154-156. Discusses *Euphrasia arctica* Lange ex Rostrup which is regarded as a widespread and polymorphic northern species occurring in N. America, Greenland, Iceland, the Faroe Islands, Scandinavia and Scotland. He regards *E. marshallii* Pugsl. as synonymous with it and *E. frigida* Pugsl. and *E. eurycarpa* Pugsl. as conspecific. He divides the species into five varieties of which three are British:—var. *arctica* (*E. marshallii* Pugsl.); var. *obtusata* (E. Joerg.) Callen (*E. frigida* var. *laxa* Pugsl.); var. *submollis* (E. Joerg.) Callen (*E. marshallii* var. *pygmaea* Pugsl., *E. eurycarpa* Pugsl.). Of the remaining varieties *E. arctica* var. *stromoensis* (Pugsl.) Callen described from the Faroes may occur in Scotland where "plants that seem to resemble it" have been seen.—[E.F.W.]

548/3. *RHINANTHUS CRISTA-GALLI* L. Hambler, D. J., 1953, Prochromosomes and supernumerary chromosomes in *Rhinanthus minor* Ehrh., *Nature*, **172**, 629-630.

548/3. *RHINANTHUS CRISTA-GALLI* L. Vallance, K. B., 1952, The germination of the seeds of *Rhinanthus crista-galli*, *Ann. Bot.*, **16**, 409-420.

549/2. *MELAMPYRUM ARVENSE* L. Gislen, T., 1949, Problems concerning the occurrence of *Melampyrum arvense* in Sweden, *Oikos*, **1**, 208-234. The species has much decreased in Sweden in recent times, the main cause appearing to be changes in agriculture. The possibility of a very early post-glacial immigration of all the *Melampyrum* species (except *M. nemorosum*) by way of a southern land bridge is discussed.—[D.H.K.]

549/2. *MELAMPYRUM ARVENSE* L. Hoogenraad, H. R., 1951, Wilde weit, *Natura*, **48**, 93-97. Notes on the distribution of *Melampyrum arvense* in the Netherlands.—[D.H.K.]

550/10. *OROBANCHE MINOR* Sm. Smith, A. M. & A. D. Greenwood, 1952, Notes on the biology of the Lesser Broomrape, *The Nat.*, **1952**, 102-105.

551/1. *LATHRAEA SQUAMARIA* L. Smith, A. M., 1952, The Toothwort, *Bull. Bradford Nat. Soc.*, **28**, 3-4. A short account of the species including details of localities and host plants in the Bradford area.—[D.H.K.]

578. *GALEOPSIS*. Hagberg, A., 1952, Heterosis in F1 combinations in *Galeopsis*: I & II, *Hereditas*, **38**, 33-82 & 221-245.

581. LAMIAM. Bernström, P., 1953, Cytogenetic Intraspecific Studies on *Lamium*, *Hereditas*, **39**, 241-256 & 381-437.

581/1. LAMIAM ALBUM L. Ooststroom, S. J. van, 1952, Een Merkwaardige vorm van *Lamium album* L., *Nat.-Hist. Maand.*, **40**, 37-39. A short account of an unusual form of *L. album* found in the Netherlands.—[D.H.K.]

581/3. LAMIAM PURPUREUM L. Dunstone, K., 1952, A New Record for South Australia, *S. Austr. Nat.*, **26**, 59. *Lamium purpureum* has become an established adventive in a market garden at Norton Summit, S. Australia.—[D.H.K.]

588. PLANTAGO. Garjeanne, A. J. M., 1951, *Plantago. De Levende Natuur*, **54**, 151-159. The species of the genus indigenous to the Netherlands are described, and many details of their anatomy are depicted, with particular reference to the minute anatomy of the flowers.—[D.H.K.]

588/3. PLANTAGO CORONOPUS L. Dodds, J. G., 1953, *Plantago coronopus* L. (Biological Flora), *J. Ecol.*, **41**, 467-478.

588/3. PLANTAGO CORONOPUS L. See 93/1. KOHLRAUSCHIA PROLIFERA (L.) Kunth.

593. HERNIARIA. Blackburn, K. B., 1953, Notes on Modern Research Methods in Taxonomy, *Rep. & Trans. Soc. Guern.*, **15**, 169-170. *Herniaria ciliata* Bab. from Guernsey has $2n = 72$, whereas a similar plant from Portugal often called *H. maritima* var. *ciliata* Bab. and believed by many to be the same thing has $2n = 108$.—[D.H.K.]

595. SCLERANTHUS. Rössler, W., 1953, *Scleranthi Lusitaniae, Agron. Lusit.*, **15**, 97-138. Describes and keys the species of *Scleranthus* found in Portugal.—[D.H.K.]

596. AMARANTHUS. d'Alleizette, C. & P. Aellen, 1953, Bemerkenswerte *Amaranthus*-Funde aus Frankreich, *Candollea*, **14**, 159-162. This account of new *Amaranthus* species recently discovered in France includes a description of a new hybrid—*A. × alleizettei* Aellen (*A. caudatus* × *chlorostachys*). Descriptions are also given of *A. × ozanonii* Thell. (*A. chlorostachys* × *retroflexus*), *A. bouchoni* Thell. and *A. palmeri* S. Wats.—[D.H.K.]

600. CHENOPODIUM. Kowal, T., 1953, Klucz do oznaczania nasion rodzajów *Chenopodium* L. i *Atriplex* L., *Polsk. Tow. Bot.: Monogr. Bot.*, **1**, 87-163. On a basis of morphological and anatomical features the author gives keys for the determination of the seeds of eighteen species of *Chenopodium* and ten species of *Atriplex*. The morphological key is based on the outer structure of the seed coat and on the size, outline and shape of the seeds. The anatomical key is based on

the structure of the outer and inner seed coats. Drawings of some of the seeds are given. Many species also found in Britain are included in the account.

The author draws conclusions from his studies regarding the taxonomical division of the genera *Chenopodium* and *Atriplex* into sections and proposes certain changes in this division. A method of determining the seeds of hybrids is also given.—[D.H.K.]

606. ATRIPLEX. See 600. CHENOPODIUM.

614/1. PHYTOLACCA AMERICANA L. Sauer, J. D., 1952, A geography of Pokeweed, *Ann. Miss. Bot. Gard.*, **39**, 113-125. *Phytolacca americana* is native in N. America but was introduced into the Mediterranean region about the year 1650. Its berries proved so useful for colouring low-grade wines that the plant became widely cultivated in Portugal, Spain, France and Italy. Escaping from cultivation it has become a fairly common weed in the region, and has been reported from all the European and African countries bordering the Mediterranean. The plant has now extended its range northwards into Switzerland, southern Germany, Austria, Hungary and Russia, eastwards to Persia and westward to the Azores, Canaries and Cape Verde. The plant is also cultivated as an ornamental in some European countries including England and France. It is now naturalised in S. Africa, and has been reported as an adventive from California, Arizona, Bermuda, Asia, Australia and Macronesia. The spread of the plant has been entirely influenced by the activities of man.—[D.H.K.]

615. POLYGONUM. Schotsman, H. D., 1950, De bouw der klieren van enige Polygonum soorten en bastardeen, *Ned. Kruidk. Arch.*, **52**, 262-276. An anatomical study of the glands of some species and hybrids of *Polygonum*. The species investigated were *P. persicaria*, *P. minus*, *P. lapathifolium*, *P. mite* and *P. hydropiper*, and the author shows that each of these species has a very specific type of gland by which it is easily identified. The hybrids *P. minus* × *persicaria*, *P. mite* × *persicaria* and *P. hydropiper* × *minus* were also studied, and although possessing a shape of gland deviating from all species, taken as a group the glands of the three hybrids are virtually identical.—[D.H.K.]

615/2×1. POLYGONUM CONVULVULUS × DUMETORUM. Lawalrée, A., 1952, Deux hybrides *Polygonum convolvulus* × *dumetorum*, *Bull. Jard. Bot. Brux.*, **22**, 211-213. Two new forms of the hybrid *Polygonum* × *convolvuloides* Brügger are described. Forma *intermedium* differs from *P. convolvulus* in pedicels jointed below middle and perianth segments clearly winged; from *P. dumetorum* in narrower wings and larger achenes. Forma *pterocarpum* differs from *P. convolvulus* in its winged fruiting perianth and smaller achenes; from *P. dumetorum* in short fruiting pedicels, jointed near the top. The fruits are figured.—[E.B.B.]

615/5. POLYGONUM AMPHIBIUM L. Hoogenraad, H. R., 1953, De Veenwortel, een tweeslachtige plant, *Natura*, **50**, 51-54.

615/14. *POLYGONUM* (Sect. *AVICULARIA*). Vindt, J., 1952, Le Genre *Polygonum* L. sect. *Avicularia* Meisn., au Maroc, *Bull. Soc. Sci. Nat. Maroc*, **31**, 27-36. A rearrangement of the section *Avicularia* is given after Fournier's study of the Moroccan material of the genus *Polygonum*. A key to the species in the section is supplied together with a key to the varieties of *P. aviculare* L. As many of the species occur, some as aliens, in the British Isles, and as the complex group is not well understood, the keys are reproduced here; general distribution, as taken from the descriptions following the keys, is interpolated:—

- A Plants annual, rarely biennial; achenes not more than 3 mm. long, included in or little exerted from perianth.
 - B Flowering branches leafy to top, leaves distinctly exceeding flowers (cosmopolitan) *P. aviculare*
 - BB Flowering branches slender, naked, or leaves not or little exceeding flowers, simulating interrupted spikes.
 - C Plants upright; achenes smooth or sub-smooth. \pm shining.
 - D Achenes 2.5-3 mm.; flowers 1-5 in scattered groups; perianth with broad greenish divisions on the back; plant \pm branched, branches straight. (C. & S. Europe, N. Africa, Asia) *P. patulum*
 - DD Achenes not more than 2 mm.; flowers solitary or few together; stems and branches slender, flexuous, zig-zag *P. aviculare* var. *rurivagum*
 - CC Plants spreading-diffuse, branches sometimes ascending, very branched from base; inflorescences crowded; flowers 1-3 with narrow greenish divisions on the back and broad pinkish margins; achenes 1.5-2.3 mm., subrugulose, dull or slightly shining. (S. European, littoral) *P. pulchellum*
- AA Plants perennial, with woody stock
 - B Plant glaucous of maritime sands, stem thick, ascending, branches upright; leaves subcoriaceous, elliptic or lanceolate crowded; ochrea very large, shining, the upper longer than internodes; achenes 4.5 mm., smooth, shining, exceeding perianth. (W. & S. Europe, N. Africa, America) *P. maritimum*
 - BB Plants decumbent or upper part of branches only ascending; achenes not more than 3 mm.
 - C Flower branches leafy, leaves = or exceeding internodes.
 - D Stems numerous, elongate, sometimes 1 m. long, spreading on the ground, naked below, branched. (S. France, C. & S. Italy) *P. romanum*
 - DD Stems few, subsimple, short, 1-20 cm., leafy their whole length; leaves with prominent subparallel nerves. (W. Algeria) ... *P. rhizoxyton*
 - CC Flower branches threadlike, naked or with leaves distinctly shorter than internodes.
 - E Leaves with very prominent nerves below, the secondary very curved towards the median.
 - F Stems numerous, knotty, with long internodes \pm soon denuded below; flower branches leafy; leaves oblong, elliptical or lanceolate; ochrea discoloured, membranous part long and deeply torn; flowers 2-4, peduncles unequal, often = or longer than flowers. (S. Europe except France, N. Africa, W. Asia) *P. equisetiforme*
 - FF Plant decumbent with very numerous soon denuded stems, not or little knotty, very branched, branches parallel; flower branches leafless or nearly so; leaves linear or linear-lanceolate, long (up to 3 cm.), flowers 4-7, peduncles = or longer than flowers. Endemic to Morocco *P. decumbens*

- EE Leaves with few nerves, little or not prominent, linear-lanceolate, shorter than internodes; flowers in 1-3, subsessile. (Algeria)
P. Battandieri

KEY TO VARIETIES OF *P. AVICULARE*.

- A Achenes c.2 mm., shining, sub-smooth; plant littoral, spreading, glaucescent; branches long, slender; leaves thick, oblong, or lanceolate, obtuse or subobtusate, with revolute margins var. *litorale*
 AA Achenes dull or scarcely shining.
 B Achenes more than 2 mm.; subsmooth or finely lined.
 C Plant very small, a few cm., ascending, subsimple or divided from the base into several stems; leaves very small, spatulate or lanceolate, the lower easily falling off; inflorescence usually 1-flowered, crowded towards top of stem var. *minimum*
 CC Not as above.
 D Plant decumbent or with solitary ascending branches.
 E Plant fairly laxly leaved; flower branches with distant inflorescence, ochrea shorter than internodes var. *triviale*
 EE Plant fairly densely leaved; inflorescence crowded towards top of branches, ochrea longer than internodes var. *condensatum*
 DD Plants with upright or ascending stems.
 F Leaves oval or elliptic, up to 1.5 cm. broad, up to 2.3 cm. long, obtuse or subobtusate at apex, \pm undulate at margins; plant robust, 20-50 cm. var. *monspeliense*
 FF Leaves lanceolate or lanceolate-linear, acute or acutiuscule at apex, lower larger; plant with elongate internodes; inflorescence subspiciform var. *erectum*
 BB Achenes small, 1-1.5 mm. (rarely 2 mm.) generally dull; plant erect with slender stems and branches, flexuous, zig-zag; leaves narrow, linear or linear-lanceolate, upper very narrow acuminate; inflorescence often 1-flowered, distant; plant becoming \pm reddish on drying
 var. *ruvavagum*
 —[E.B.B.]

615/14. → *POLYGONUM* (Sect. *AVICULARIA*). Vindt, J., 1953, Note complémentaire sur le genre *Polygonum* L. sect. *Avicularia* Meisn. du Maroc, *Bull. Soc. Sci. Nat. Maroc*, **32**, 167-168.

618. *RUMEX*. Lawalrée, A., 1952, Le Genre *Rumex* Sous-Genre *Acetosella* en Belgique, *Bull. Jard. Bot. Brux.*, **22**, 79-86. The writer states that the subgenus *Acetosella* (Meissn.) Rech. f. of the genus *Rumex* L. comprises four species, *R. angiocarpus* Murb. $2n = 14$, *R. tenuifolius* (Wallr.) Löve $2n = 28$, *R. acetosella* L. sensu stricto $2n = 42$ and *R. graminifolius* Lamb. $2n = 56$; basic chromosome number for subgenus = 7. The first two are represented in the Belgian flora. A detailed description of each species is given with full distribution in Belgium. World distribution is summarised. The species are differentiated ecologically: *R. angiocarpus* is found on dry banks and arable land (reaches 2,400 m.); *R. tenuifolius* is more calcifuge and is found on poor, especially sandy and acid soils. A new variety var. *turfosus* of *tenuifolius* is described (from Belgium) differing in shorter and less narrow leaves. *R. angiocarpus* is very variable; its variations are discussed from the morphological and genetic points of view; it is the only species showing "angiocarpy" or the joining of valve and achene into a false fruit.

Some salient points of difference between the two species (ex descr.) are:—

<i>angiocarpus</i>	<i>tenuifolius</i>
Plant green, rarely somewhat reddish	Usually entirely reddish;
Stem ascending or erect 20-40 cm.	Procumbent with erect flowering branches, rarely more than 15 cm. (green when young becoming reddish)
Leaves lower, hastate-subrotund, median lobe 1.5-3 times longer than broad	hastate-linear with petiole = blade, median lobe c.10 times longer than broad
cauline, 2.7 cm. \times 0.4-2 cm. margin not involute	rarely more than 2.3 cm. \times 2 mm., margin involute c. 1 mm.
Stamen less than 1 mm.	c. 1 mm.
Flower, mature female with valve = achene	a little longer than achene
False fruit a little less than 1 mm. long by as much broad, rough, dull.	Achene 0.9-1.3 mm. \times 0.6-0.8 mm., reddish-black, shining.

—[E.B.B.]

621/1. *ASARUM EUROPAEUM* L. Werth, E., 1951. *Asarum europaeum* ein permanenter Selbstbefruchter. *Ber. Deutsch. Bot. Ges.*, **64**, 287-294. The flowers of *Asarum europaeum* are not adapted for insect pollination and no insect visitors have been observed. The pollinisation mechanism is regarded as a form of cleistogamy, and although the reproductive capacity of the plant is low, it certainly enables it to survive. The seeds are distributed by ants.—[D.H.K.]

625/1. *HIPPOPHAE RHAMNOIDES* L. Van Soest, J. L., 1952, Zwei Unterarten von *Hippophae rhamnoides* L., *Mitt. Flor.-soz. Arb.*, **3**, 88. Describes *H. rhamnoides* subsp. *maritima* from sand dunes on the North Sea coast and subsp. *fluvialis* from the gravel banks of alpine streams.—[D.H.K.]

626/1. *VISCUM ALBUM* L. Froment, M. & Mme. P., 1953, Précisions sur la répartition géographique de *Viscum album* L. dans la région du Nord et dans le bassin Parisien. *Bull. Soc. Bot. Nord France*, **6**, 57-59. Many stations for mistletoe, with limits of distribution, are detailed for the north of France.—[E.B.B.]

626/1. *VISCUM ALBUM* L. Montfort, C. & L. Müller, 1952, Grundsätzliches zur Lebensrhythmik der Mistel (*Viscum album* L.) im jährlichen Längenzuwachs und in der Blattgestaltung, *Ber. Deutsch. Bot. Ges.*, **64**, 297-303.

626/1. *VISCUM ALBUM* L. Routier, 1953, Aperçu sur la répartition géographique de *Viscum album* L. en Bretagne et en Normandie, *Bull.*

Soc. Bot. Nord France, **6**, 8-9. Mistletoe grows abundantly on the schists and lower chalk, fairly frequently on granite but rarely on the upper chalk, sandstone or puddingstone in the areas under observation.—[E.B.B.]

626/1. *VISCUM ALBUM* L. Routier, J., 1953, Aperçu sur la répartition géographique de *Viscum album* L. dans la vallée de la Bresle. *Bull. Bot. Soc. Nord France*, **6**, 59. Short note on distribution of mistletoe in the valley of the Bresle, where it grows on both lower and upper chalk.—[E.B.B.]

626/1. *VISCUM ALBUM* L. Wiinstedt, A., 1952, Nye Bidrag til den Danske flore: 33. *Viscum album* L., *Bot. Tidssk.*, **49**, 212.

628. *EUPHORBIA*. Krochmal, A., 1952. Seeds of Weedy *Euphorbia* species and their identification, *Weeds*, **1**, 243-255. The seeds of 26 species of *Euphorbia* are described in detail.—[D.H.K.]

628/10. *EUPHORBIA ESULA* L. Charrier, G., 1950, Brevi note a proposito di una *Euforbia* raccolta in Val Sangone, Italy, *Nuov. Giorn. Bot., Ital.*, **57**, 684-688. The author reports a large colony of *E. esula* in the Sangone Valley (Cozie Alps) and discusses the systematic position of *E. esula* and *E. virgata*, closely allied forms of which are not always easily distinguishable from one another.—[D.H.K.]

628/11. *EUPHORBIA CYPARISSIAS* L. Moore, R. J. & D. R. Lindsay, 1953, Fertility and Polyploidy of *Euphorbia cyparissias* in Canada, *Canad. J. Bot.*, **31**, 152-163. *Euphorbia cyparissias*, a European species originally introduced into N. America as an ornamental, is now firmly established on roadsides and pastures in eastern Canada. The Canadian distribution is mapped from specimens in three herbaria. Plants with a somatic chromosome number of 20 and plants with the number $2n = 40$ occur in eastern Ontario and adjacent Quebec. According to all available evidence for this region, the diploid plants never set seed, whereas the tetraploid populations are highly fertile. The cells of the upper leaf epidermis of the tetraploid plants are conspicuously larger than those of diploid plants. By means of this criterion, the probable chromosome no. of herbarium specimens was determined. The distribution of the diploid and tetraploid plants in Ontario and western Quebec is mapped. Tetraploid plants are known from eight locations in this area, five of these infestations are serious. It is believed that the sterility of the diploid population is due to a genic condition which may interrupt normal pollen development.—[Authors' summary.]

628/11. *EUPHORBIA CYPARISSIAS* L. Troll, W. & B. Heidenhain, 1952, Studien über die Infloreszenzen von *Euphorbia cyparissias*, *Ber. Deutsch. Bot. Ges.*, **65**, 377-382.

631/1. *BUXUS SEMPERVIRENS* L. Shove, R. F., 1950, The common Box (*Buxus sempervirens*), *School Nat. Stud.*, **45**, 37-40. Gives an account of the morphology and physiology of the species. Some ecological data are also supplied.—[D.H.K.]

633. *ULMUS*. Ehrenberg, C. E., 1953, Studies on Elm Pollen, *Bot. Not.*, **1953**, 308-316.

633/3. *ULMUS* × *HOLLANDICA* Mill. Lawalrée, A., 1952, *Ulmus hollandica* Mill. en Belgique, *Bull. Jard. Bot. Brux.*, **22**, 66-70. *U.* × *hollandica* is the hybrid *U. carpiniifolia* × *glabra*; it is often planted and it is difficult to say whether it is native in Belgium and even elsewhere. A key to the Belgian forms is given:—

All leaves simply acuminate, not lobed-tricuspidate:

Epicormic shoots not provided with strong corky protuberances:

Leaves with petiole 6-15 mm. long; blade 8-16 mm. long × 5-10 cm. broad;
with 8-14 primary lateral nerves on each side of median nerve
hollandica

Leaves with petiole 3-5 mm. long; blade 8-16 cm. long × 3-5-7 cm. broad;
with 14-18 primary lateral nerves on each side of median nerve
f. belgica

Epicormic shoots with strong corky protuberances *f. major*

Leaves, at least some, lobed-tricuspidate in their upper parts
f. tricuspidata

Detailed descriptions and the distribution in Belgium of the hybrid and its forms are given; general distribution is given and *f. belgica* (Burgsdorf) Rehder and *f. major* (Smith) Rehder are said to occur in England.—[E.B.B.]

637/1. *URTICA DIOICA* L. Ivins, J. D., 1952, Concerning the Ecology of *Urtica dioica* L., *J. Ecol.*, **40**, 380-382.

638. *PARIETARIA*. Paclt, J., 1952, Über die Identität von *Parietaria ramiflora* Mönch mit *Parietaria erecta* Mertens et Koch (= *P. officinalis* L.), *Phyton*, **4**, 46-50. *Parietaria ramiflora*, *P. erecta* and *P. officinalis* cannot be separated from each other specifically or subspecifically, and the first two are probably merely immature forms of the latter.—[D.H.K.]

642. *BETULA*. Berrie, A. M. M., 1953, A Study of the Scottish Birch with special reference to the genetics and ecology of the species, *Summ. Thes. Univ. Glasgow*, **1951-52**, 10-11. Differentiation in the birch has proceeded cytologically, there being two races, a diploid and a tetraploid. These races are distributed in Scotland in such a way that the western region contains only tetraploids, while in the east, only a local area contains nothing but diploids. Between these areas there is a zone of intergradation.—[D.H.K.]

643. *ALNUS*. Erdtman, G., 1953, On the Difference between the Pollen Grains in *Alnus glutinosa* and those in *Alnus incana*, *Svensk Bot. Tidsk.*, **47**, 449-450.

643/1. *ALNUS GLUTINOSA* (L.) Gaertn. McVean, D., 1953, *Alnus glutinosa* (L.) Gaertn. (Biological Flora), *J. Ecol.*, **41**, 447-466.

644. *CARPINUS*. Berger, W., 1953, Studien zur Systematik und Geschichte der Gattung *Carpinus*, *Bot. Not.*, **1953**, 1-47.

644/1. *CARPINUS BETULUS* L. Corillion, R., 1953, Sur la répartition et l'aire d'indigénat du Charme (*Carpinus betulus* L.) dans le Massif armoricain, *Bull. Soc. Bot. France*, **100**, 320-323. A consideration of the distribution of the Hornbeam in the Breton massifs area leads the author to conclude that it must be considered indigenous in the south-east of this range.—[E.B.B.]

645/1. *CORYLUS AVELLANA* L. Wilcke, J., 1953, Elsen Hazelaar, *De Levende Natuur*, **56**, 1-5.

646. *QUERCUS*. Krahel-Urban, J., 1951, Trauben- und Stiel-Eiche in Schweden, *Forstwiss. Cbl.*, **70**, 319-336. A study of *Quercus petraea* and *Q. robur* on the borders of their natural range in Sweden. Low temperatures appear to be the main factor in determining the northern limits of the two species. The boundary of *Q. robur* corresponds roughly with that of the -5° C. January mean temperature line while that of *Q. petraea* largely coincides with the -3° C. January mean temperature line. The author suggests that natural hybridisation between the two species is more common than is usually supposed.—[D.H.K.]

646/3. *QUERCUS CERRIS* L. Corillion, R., 1950, *Quercus cerris* L. et sa végétation à Notre-Dame-du-Guildo (Côtes-du-Nord), *Bull. Soc. Sci. Bretagne*, **24**, 51-54. A short discussion on the distribution and ecology of the species, subspontaneous in this area.—[E.B.B.]

649/1. *FAGUS SYLVATICA* L. Michel, E., 1950, Les Fleurs et le Fruit du Hêtre, *Nat. Belge*, **31**, 181-182. Description of flowers and fruit of the beech with some details of the economic uses of the beech-nut. The nut is parasitised by the lepidopterous larva, *Carpocapsa grossana*.—[E.B.B.]

649/1. *FAGUS SYLVATICA* L. Motyka, J., 1953, Z zagadnień ekologii buka (*Fagus sylvatica* L.), *Ann. Univ. Mariae Curie, Sect. C. Biol.*, **8**, 121-164. Studies in the ecology of the beech in eastern Europe.—[D.H.K.]

650/11. *SALIX REPENS* L. Thompson, J., 1953, Intersexual Catkins of the Creeping Willow, *Salix repens*, on Birtley Fells (66), *Vasc. (Subst.)*, **38**, 12-13.

650/16. *SALIX LAPPONUM* L. Montserrat, P., 1951, El *Salix lapponum* L. en España, *Coll. Bot.*, **2**, 439-443. *Salix lapponum* subsp. *ceretana* has been found in a bog near Andorra in the Pyrenees; it is new to Spain.—[D.H.K.]

651. *POPULUS*. Bugula, W., 1951, Euro-amerykańskie mieszańce topoli czarnych, z ich naczynie oraz krótki przegląd dotychczasowych osiągnięć hodowli topoli WZSRR, *Sylvan*, **95**, 324-338. The author gives an account of the Euro-american hybrids between *Populus nigra* and *P. deltoides*, and a short review of poplar breeding in the U.S.S.R. The following hybrids are described in detail:—*P. × serotina*, *P. × marilandica*, *P. × regenerata*, *P. × eugenei*, *P. × brabantica*, *P. × gelrica* and *P. × robusta*.—[D.H.K.]

651. *POPULUS*. Van der Veen, R., 1951, Influence of Daylight on the Dormancy of some Species of the Genus *Populus*, *Phys. Plant.*, **4**, 35-40. The author gives an account of experiments carried out on cuttings and seedlings of *P. alba*, *P. × robusta*, *P. × marilandica*, *P. tremula*, *P. × trichocarpa*, *P. × serotina*, *P. nigra* and *P. × lasiocarpa*.—[D.H.K.]

651/1. *POPULUS CANESCENS* (Ait.) Sm. Gröhn, W., 1951, Die Graupappel in Schleswig-Holstein, *Mitt. Deutsch. Dendrol. Ges.*, **56**, 64-66. An account of *Populus canescens* in Schleswig-Holstein.—[D.H.K.]

651/2. *POPULUS TREMULA* L. Runquist, E. W., 1951, Ett fall av androgyna hängen hos *Populus tremula* L., *Bot. Not.*, **1951**, 188-191. A morphological account of the types of flowers noted in androgynous catkins that were found in association with hermaphrodite flowers in a clone of three trees of *Populus tremula* growing in Sweden. Seedlings raised from seed from some of the abnormal catkins are thought to be the result of self-pollination. A structural change in the chromosomes of a trisomic sex chromosome may be the cause of the anomaly.—[D.H.K.]

651/2. *POPULUS TREMULA* L. Seitz, F. W., 1952, Zwei neue Funde von Zwitterigkeit bei der Aspe, *Z. Forstgenet.*, **1**, 70-73. The author reports on two examples of hermaphroditism found in flowers of *Populus tremula* in southern Germany. A comparison is made with those found by Runquist in northern Sweden.—[D.H.K.]

652. *EMPETRUM*. McVean, D. N. & A. Berrie, 1952, Hermaphrodite *Empetrum* in Sutherland, *Scot. Nat.*, **64**, 45.—[D.H.K.]

653/1. *CERATOPHYLLUM SUBMERSUM* L. Nilsson, A. A., 1952, Om *Ceratophyllum submersum* L. i Långskrona och om nya lokaler i omgivningarna, *Bot. Not.*, **1952**, 127-137. The only previously known locality in Sweden for *Ceratophyllum submersum* was almost destroyed in 1931-35 when the canals around the castle of Långskrona were dredged. The plant appeared afterwards sporadically until 1946 since when it has not been seen there. It has however been refound in marl-pits east of Långskrona by the author, who suggests that it was possibly introduced from the original locality by water-birds.—[D.H.K.]

653/2. *CERATOPHYLLUM DEMERSUM* L. McGregor, R. L. & K. L. Sperry, 1951, Variation of *Ceratophyllum demersum* in Eastern Kansas, *Trans. Kansas Acad.*, **54**, 536-539. Mass collections of *Ceratophyllum* were made from four localities in eastern Kansas. All the material studied on the basis of fruit and leaf character (flower characters appear to be of little morphological value) was referable to *C. demersum* L. The species appears to be polymorphic by being subject to morphological changes due to environment.—[D.H.K.]

656/1. *ELODEA CANADENSIS* Michx. Ernst-Schwarzenbach, E., 1951, Die Ursachen der verminderten Fertilität von Elodea-Arten, *Planta*, **39**, 542-569.

656/1. *ELODEA CANADENSIS* Michx. Murray, I., 1952, Notes on Anacharis or Canadian Pondweed (*Elodea canadensis*) in Europe, *Aquarium J.*, **23**, 154-155.

657/1. *VALLISNERIA SPIRALIS* L. Michel, E., 1951, *Vallisneria spiralis* L., *Nat. Belge*, **32**, 145-149. An account of the species and its history in Belgium and France.—[D.H.K.]

659.→ *ORCHIDACEAE*. Ferlan, L., 1950, Aprenda a conhecer as Orquideas da sua terra, *Broteria*, **19**, 97-107. Gives an analytical key to the species found in Portugal. This includes most of those also found in Britain.—[D.H.K.]

659.→ *ORCHIDACEAE*. Gsell, R., 1951, Herbstbeobachtungen an Orchideen, *Ber. Schweiz. Bot. Ges.*, **61**, 280-376. A study of autumnal observations on forty different species of *Orchidaceae*, belonging to twenty genera. All the species developed the young shoots early in the autumn, these shoots consist of leaves and all parts of the inflorescence with the exception of spurs and pollinia.—[D.H.K.]

659/1. *HAMMARBYA PALUDOSA* (L.) Kuntze. Abbayes, H. des & R. Corillion, 1953, Répartition et végétation du *Malaxis paludosa* Sw. (Orchidacées) dans le Finistère, *Bull. Bot. Soc. France*, **100**, 355-358. Recent discoveries of and the disappearance from old localities of this orchid in the Finistère area are discussed. It occurs on *Sphagnum* in *Rhynchospora* associations, and tends to disappear as the *Sphagnum*-bogs become modified.—[E.B.B.]

660/1. *LIPARIS LOESELII* (L.) Rich. Törnroth, H., 1953, *Liparis loeselii* Rich., ny för Finlands Flora, *Mem. Soc. Fauna Flora Fenn.*, **28**, 2-4. Details are given of the first known station for *Liparis loeselii* in Finland. Some ecological data are included.—[D.H.K.]

662/1. *NEOTTIA NIDUS-AVIS* (L.) Rich. Smith, A. M., 1952, The so-called Saprophytic Orchids, *The Nat.*, **1952**, 159-163. The term "saprophytic" as used by various authors, and the orchid-fungus relationship is discussed. The author suggests that *Neottia nidus-avis* and

other so-called "saprophytic" orchids feed on a living fungus and give no advantage in return, i.e., they are parasitic on the fungus. It is concluded that there are no such organisms as saprophytic flowering plants.—[D.H.K.]

666/1. *EPIPOGIUM APHYLLUM* Sw. Jovet, P., 1952, *Epipogon aphyllum* Swartz, Orchidée boréo-montagnarde trouvée en forêt de Compiègne, *Feuille des Nat.*, **7**, 39-46. A remarkable extension of the range of the species westward from its usual French mountain stations; British stations still remain the most westerly however. A detailed account of the ecology of its new area is given and the general distribution of the species is discussed.—[E.B.B.]

668. *EPIPACTIS*. Young, D. P., 1953, Autogamous *Epipactis* in Scandinavia, *Bot. Not.*, **1953**, 253-270. Descriptions are given of the following autogamous (self-fertilised) *Epipactis* which occur in Sweden and Denmark:

E. leptochila (Godf.) Godf., from Falster and Møn (new to Scandinavia);

E. confusa sp. nov., from southern Sweden and Denmark, which formerly passed under the names of *E. microphylla* Ehrh. and *E. viridiflora* (Hoffm.) Rehb., and more recently was included under *E. persica* (Soó) Hausskn. by Nannfeldt, but is here considered a distinct species; and

E. phyllanthes G. E. Sm. var. *pendula* D. P. Young from Jutland and Funen, previously recorded by Nannfeldt as *E. leptochila*.

A revised key is given to the Scandinavian species of *Epipactis* section *Eu-epipactis*.—[Author's Summary.]

668/1. *EPIPACTIS PALUSTRIS* (L.) Crantz. Rantaniemi, P. A., 1952, Suo=neidonvaipan, *Epipactis palustris* (L.) Cr., merkittävä erillisesiintymä Tervolassa (P.P.), *Arch. Zool.-Bot. Fenn. 'Vanamo'*, **6**, 136-138. *Epipactis palustris* has been discovered in an isolated locality in N. Finland. Some ecological data are given.—[D.H.K.]

668/2. *EPIPACTIS HELLEBORINE* (L.) Crantz. Drew, W. B. & R. A. Giles, 1951, *Epipactis helleborine* (L.) Crantz in Michigan and its general range in North America, *Rhodora*, **53**, 240-242. The introduction of the species into the U.S.A. and its subsequent spread is discussed.—[D.H.K.]

668/2. *EPIPACTIS HELLEBORINE* (L.) Crantz. Weijs, J., 1952, The Colour-Difference in *Epipactis helleborine* Cr. Wats. & Coult., and the Selection of the Genetical Varieties by Environment, *Genetica*, **26**, 1-32. The author has found that climatological environmental influences play an important rôle in the natural selection of the colour-varieties of *E. helleborine* on the island of Ameland (Netherlands). Data were obtained from counts in open field of the frequency of the genetical colour vars.

Data were also obtained concerning the occurrence of self-pollination or allogamy of the species. Some conclusions are given regarding the systematics of the species, and a new variety is described:—

Var. *alba* Weijer var. nov.—Rhizome with many roots springing from the various nodes at different depths. Lower parts of stem never purple, with short, firm leaves, light-green, placed close together. Raceme short to fairly long and densely flowered, axis rough with short hairs. Ovary sometimes fairly densely hairy. Flowers with greenish petals and small slightly or not wrinkled bosses on heart-shaped white epichilium. Rostellum permanent.—[D.H.K.]

668/3(6). *EPIPACTIS PHYLLANTHES* G. E. Sm. Webb, D. A., 1953, *Epipactis phyllanthos* G. E. Sm.: An Orchid New to Ireland, *Irish Nat. J.*, **11**, 90-91. *Epipactis phyllanthos* has been found in Co. Wicklow. The author gives a short description of the species and its known British distribution, and suspects that it will be found elsewhere in Ireland.—[D.H.K.]

668/4. *EPIPACTIS PURPURATA* Sm. Nothdurft, H. von, 1952, Die violette Sumpfwurzel, *Natur und Volk*, **82**, 269-272. A short ecological account of the species in Germany illustrated by photographs.—[D.H.K.]

669. *ORCHIS*. Harrison, J. Heslop, 1952, Notes on the Distribution of the Irish Dactylorchids, *Veröffentl. Geobot. Inst. Rübel Zurich*, **25**, 100-113.

669. *ORCHIS*. Harrison, J. Heslop, 1953, Some problems of variation in the British dactylorchids, *S.E. Nat.*, **58**, 14-25.

669. *ORCHIS*. Harrison, J. Heslop, 1953, Microsporogenesis in some Triploid Dactylorchis Hybrids, *Ann. Bot.*, **17**, 539-549. During meiosis in naturally occurring triploid hybrids between the diploid *Orchis fuchsii* Druce ($2n=40$) and the two tetraploids *Orchis purpurella* Stephenson and *Orchis praetermissa* Druce ($2n=80$), there is a regular formation of 20 bivalents and 20 univalents. Since the tetraploid species themselves show typical 'diploid' behaviour in synapsis and fertility, they are considered to be allopolyploids, and the hybrid pairing to be allo-syndetic. The implication is therefore that both tetraploids are amphidiploids of which *Orchis fuchsii* has been one progenitor. It is suggested that varieties of the polytypic diploid *Orchis latifolia* L., sec. Pugsl. may have been the other progenitors. A feature of interest in the microsporogenesis of both parents and hybrids is the close synchronization of nuclear events in the pollen massulae, which behave as physiological units throughout meiosis and pollen-mitosis. In the triploids, although numerous dysploid nuclei are produced, none dies prematurely, probably because of mutual compensation within what is, in effect, a common cytoplasmic matrix.—[Author's summary.]

669/1. *ORCHIS PURPUREA* Huds. Horáková, V. M., 1950, Monstrosní květ u *Orchis purpurea* Huds., *Česk. Bot. Listy*, **2**, 158-159. A short

account of abnormal flowers of *Orchis purpurea* in Czechoslovakia.—[D.H.K.]

669/2. *ORCHIS MILITARIS* L. Sipkes, C., 1950, De Soldaatjes-Orchis in de duinen op Voorne, *De Levende Natuur*, **53**, 201-207. An ecological account of *Orchis militaris* in the Netherlands.—[D.H.K.]

669/2×1. *ORCHIS* × *JACQUINI* Godr. (*O. MILITARIS* × *PURPUREA*) D'Alleizette, C., 1951, A propos d' × *Orchis Jacquini* Godr. (= *O. militaris* × *purpurea*), *Bull. Soc. Franc. Ech. Pl. Vasc.*, **4**, 6-7. Both parents of this hybrid exhibit considerable variation in shape of labelum (illustrations given); recognition by this character is often difficult. The colour of the hood is a more reliable character; it is given as "always a more or less bright rose-lilac, standing out clearly in a group of individuals of the two parents."—[E.B.B.]

669/2 × 671/1. × *ORCHIACERAS SPURIA* Camus. Jans, A., 1951. *Orchiaceras spuria* Camus en Belgique, *Bull. Soc. Roy. Bot. Belg.*, **84**, 227-231. The hybrid between *Aceras anthropophorum* and *Orchis militaris* is described and figured. It has one constant recognition feature: the short conical spur, slightly recurved and about one quarter or one fifth the length of the ovary. The close affinity of *Aceras* with the *Militares* section of the genus *Orchis* is discussed.—[D.H.K.]

669/7. *ORCHIS INCARNATA* L. Butcher, D.A.P., 1952, The Pollination of Orchids, *Mag. Blundell's School Sci. Soc.* **7**, 42-46. Studies on the pollination of *Orchis incarnata* and *Platanthera bifolia*.—[D.H.K.]

669/9(3). *ORCHIS TRAUNSTEINERI* Sauter. Grégoire, L., J. J. Jansen & J. J. G. Prick, 1952, Beschouwingen over *Dactylorchis traunsteineri* (Sauter) Vermh. en *Dactylorchis deweveri* Vermh., *Nat.-Hist. Maand*, **41**, 17-22.

669/9(3). *ORCHIS TRAUNSTEINERI* Sauter. Harrison, J. W. Heslop, 1953, The Occurrence of *Dactylorchis traunsteineri* Saut. in Durham (66), *Vasc. (Subst.)*, **38**, 13. A plant, at the Blackhall Rocks, which has long passed as *Orchis purpurella* has been studied by the author who is now of the opinion that it falls well within the range of variability given for *O. traunsteineri* by Fuchs in his *Monograph of Orchis Traunsteineri* Saut.—[D.H.K.]

669/11. *ORCHIS FUCHSII* Druce. Löve, A., 1951, Töfragrös (*Dactylorchis fuchsii*) á Islandi, *Natturufr.*, **21**, 91-92. In Iceland only one species of the genus *Dactylorchis* was hitherto known, viz., *D. maculata* (L.) Vermeulen with the two subsp. *clodes* (Gris.) Vermeulen and *islandica* A. & D. Löve, the latter of which is endemic. Both these subsp. have the chromosome number $2n=80$. In the present paper the author reports the occurrence of the species *D. fuchsii* (Druce) Vermeulen in S.W. Iceland, where it was found to have the chromosome

number $2n=40$. It was collected as early as 1910 at Dalsmyrni but had hitherto passed as *D. maculata*.—[Author's summary.]

672. OPHRYS. Kullenberg, B., 1952, Recherches sur la Biologie Florale des Ophrys, *Bull. Soc. Hist. Nat. V. Afr. Nord*, **43**, 53-62.

672. OPHRYS. Shimoya, C. & L. Ferlan, 1952, Orchid studies, III. Chromosome determination in Ophrys (in Portuguese), *Broteria*, **21**, 171-176.

672/5. OPHRYS INSECTIFERA L. Kullenberg, B., 1950, Flugblommstret (Ophrys insectifera) och insekterna, *Svensk Faun. Rev.*, **12**, 21-30. Several insects of different orders have been noted visiting the flowers of *Ophrys insectifera* on the Swedish island of Öland, but only the males of two spp. of *Gorytes* (Hym. *Sphecidae*) seem to be active for transferring the pollinia.—[D.H.K.]

672/5. OPHRYS INSECTIFERA L. Kullenberg, B., 1951, Ophrys insectifera L. et les Insectes, *Oikos*, **3**, 53-70. An account of the scent of the flowers of *Ophrys muscifera*, its attraction to various species of insects, and the pollination of the species.—[D.H.K.]

672/5. OPHRYS INSECTIFERA L. Wolff, T., 1950, Pollinisation and Fertilisation of the Fly Ophrys, *Ophrys insectifera* L. in Allindelille Fredskov, Denmark, *Oikos*, **2**, 20-59.

672/5. OPHRYS INSECTIFERA L. Wolff, T., 1951, Ecological Investigations on the Fly Ophrys, *Ophrys insectifera* L. in Allindelille Fredskov, Denmark, *Oikos*, **3**, 71-97. The only known habitat of the species in Denmark is described, and an account of the previously far more abundant occurrence of the plant in this and a neighbouring wood is given. The effects of attacks on the plant by various insects and animals is also studied. The world distribution of the species is given.—[D.H.K.]

674(5)/2. PLATANThERA BIFOLIA (L.) Rich. See 669/7. ORCHIS INCARNATA L.

676/1. IRIS PSEUDACORUS L. Michel, E., 1950, Iris pseudacorus (Iris de marais), *Nat. Belge*, **31**, 124-126. A popular account (technical terms explained) of the species with some discussion on its various Continental common names, and on the origin of its adoption as the French royal emblem, the Fleur-de-Lis.—[E.B.B.]

684. NARCISSUS. Fernandes, A., 1952, Sur la phylogénie des espèces du genre Narcissus L., *Bol. Soc. Brot.*, **25**, 113-190. Having completed a cytological and morphological study of the Linnean species of *Narcissus*, the author discusses the possible phylogenetic relationships between them. The evolution of the various species is discussed and a suggestion made for a new classification of the genus.—[D.H.K.]

685/1. *GALANTHUS NIVALIS* L. Luyten, I. & J. M. Van Waveren, 1952, *De Orgaanvorming van Galanthus nivalis* L., *Med. Landbouwhoogesch. Wag.*, **52** (4), 105-128. *Galanthus nivalis* is native in south and central Europe with its centre of distribution in the Mediterranean region. It was probably introduced into western Europe during Roman times and is now extensively naturalised. The structure of the buds and flowers of the plant are dealt with at length.—[D.H.K.]

685/1. *GALANTHUS NIVALIS* L. Wilcke, J., 1953, *Het Sneeuwkllokje, De Levende Natuur*, **56**, 21-24. An account of the Snowdrop in the Netherlands.—[D.H.K.]

689. *RUSCUS*. Martinoli, G., 1951, *Studio Cariologico sul Genere Ruscus* (Asparagaceae), *Caryologia*, **4**, 86-97.

691. *POLYGONATUM*. Therman, E., 1953, Chromosomal Evolution in the Genus *Polygonatum*, *Hereditas*, **39**, 277-288.

691. *POLYGONATUM*. Therman, E., 1953, On the Cytology of the Genus *Polygonatum*. Groups *Verticillata* and *Oppositifolia*, *Ann. Bot. Soc. Zool. Bot. Fenn. 'Vanamo'*, **25**(6), 1-26.

706/3. *ENDYMION NON-SCRIPTUS* (L.) Garcke. Blackman, G. E. & A. J. Rutter, 1950, *Physiological and Ecological Studies in the Analysis of Plant Environment: V. An assessment of the factors controlling the distribution of the bluebell (Scilla non-scripta) in different communities*, *Ann. Bot.*, **14**, 487-520.

709/1. *FRITILLARIA MELEAGRIS* L. Kostecka, O., 1950, *Korona kostkowata, Chroń. Przy. Ojcz.*, **6**(9/10), 3-9. An account of the species in Poland.—[D.H.K.]

714/1. *NARTHECIUM OSSIFRAGUM* (L.) Huds. Jovet, P. & R. B. Perrot, 1950, *Sur le Narthecium ossifragum* (L.) Huds. dans les Pyrénées-Orientales, *Monde des Plantes*, **267-268**, 37-38. *Narthecium ossifragum* has been found in the Pyrénées-Orientales at an altitude of 2921 metres, far above its previously known vertical range.—[D.H.K.]

718/16. *JUNCUS TENUIS* Willd. Litardière, R. de, 1951, *Observations sur diverses plantes des Deux-sèvres, Monde des Plantes*, **278-279** 35-38.

718/16. *JUNCUS TENUIS* Willd. Moon, J. McK., 1953, *Juncus tenuis* Willd. in Ireland, *Irish Nat. J.*, **11**, 77. Gives a brief account of the history of the species in Ireland, and suggests that the plant is extending its range in many parts of the country.—[D.H.K.]

718/16. *JUNCUS TENUIS* Willd. Törnroth, H., 1952, *Juncus macer* Gray, ny för Finland, *Mem. Soc. Fauna et Flora Fenn.*, **27**, 8-10. *Juncus tenuis* has been discovered in Finland.—[D.H.K.]

719. *LUZULA*. Malheiros-Gardé, N. & A. Gardé, 1950, Fragmentation as a possible evolutionary process in the genus *Luzula* DC., *Gen. Iber.*, **2**, 257-262. The diffused centromere characteristic of the genus seems to have favoured a process of increase in chromosome number due to fragmentation, referred to as agmatoploidy, which, it is suggested, may also have occurred in the evolution of the related genus *Carex*.—[D.H.K.]

719. *LUZULA*. Malheiros-Gardé, N. & A. Gardé, 1951, Agmatoploidia no Genera *Luzula* DC., *Gen. Iber.*, **3**, 155-176.

719. *LUZULA*. Michalaska, A., 1953, Badania cytologiczne nad rodzajem *Luzula*, *Acta Soc. Bot. Pol.*, **22**, 169-186. The somatic chromosome numbers for the following *Luzula* species from natural stations in Poland were determined:— $2n=12$ for *L. silvatica*, *L. spadicea*, *L. nemorosa*, *L. pallescens* and *L. spicata*, $2n=24$ and 36 were found for *L. multiflora*, $2n=54$ for *L. sudetica* and $2n$ more than 50 for *L. pilosa*.

The possibility of the formation of polyploid numbers of chromosomes by the way of chromosome fragmentation is discussed.—[D.H.K.]

719. *LUZULA*. Noronha-Wagner, M. & D. Castro, 1952, Interpretação dum Comportamento Meiótico observado em *Luzula*, *Sci. Gen.*, **4**, 154-161. Meiosis was studied in plants of the tetraploid species, *Luzula campestris* and *L. nemorosa*. The authors describe the chromosome behaviour observed.—[D.H.K.]

719/6. *LUZULA CAMPESTRIS* (L.) DC. Noronha-Wagner, M. & D. Castro, 1952, Um Cromosoma Supranumerário em *Luzula campestris*, *Sci. Gen.*, **4**, 149-153. A few cases of trisomy were found in *Luzula campestris*. The trisomic plants ($2n=13$) appeared quite normal in all their morphology.—[D.H.K.]

721. *TYPHA*. Fasset, N. C. & B. Calhoun, 1952, Introgression between *Typha latifolia* and *T. angustifolia*, *Evolution*, **6**, 367-379. In many parts of the northern United States and southern Canada *Typha latifolia* and *T. angustifolia* occupy the same region and may often be found in the same colony. Mass collections have been made consisting of a spike and a leaf from each clone in a colony (or from each clone that could be conveniently reached). Six pairs of qualitative characters have been used in the analysis of these collections. The gap between the pistillate and staminate portions of the spike present in *T. angustifolia* and absent in *T. latifolia*, and the light-brown spike typical of *T. angustifolia* and the mottled black spike of *T. latifolia*, while reasonably constant for the respective "pure species", seem to diffuse readily from one species to the other in regions of coexistence.

The other four characters include the slender bract subtending the pistillate flower present in *T. angustifolia* and absent in *T. latifolia*; the filiform stigma of *T. angustifolia* and the flattened stigma of *T.*

latifolia; the flattened and flabellate aborted pistil of *T. angustifolia* and club-shaped aborted pistil of *T. latifolia*; the presence of knobbed hairs on the pistillate flower of *T. angustifolia* and the knobless hairs on the pistillate flower of *T. latifolia*. These characters are much more closely correlated, but there is nevertheless some diffusion of these characters from one species to the other.

Of the 821 individuals represented on the basis of these six characters, 536 are pure *T. latifolia*, 86 are pure *T. angustifolia*, and the rest show various recombinations of the characters of the two. It is concluded that while there has been introgression where the two species occur together, there are forces, both external and internal, tending to maintain them as specific entities.—[Authors' summary.]

724/1. *ACORUS CALAMUS* L. Berton, A., 1951, L'*Acorus calamus* dans le Nord, *Monde des Plantes*, **276-277**, 20. This species is naturalised in the N. as well as E. & W. of France. Points of distinction between its leaves and those of *Iris pseudacorus* are: yellowish-green, crinkled (but sometimes so in *Iris*), aromatic when rubbed, brittle. The leaves of *Iris* are bluish-green; not aromatic, and pliable.—[E.B.B.]

727/3. *LEMNA TRISULCA* L. Corrigan, M. J., 1952, Studies on the biology of Ivy-leaved duckweed (*Lemna trisulca*), *Mag. Blundell's School Sci. Soc.*, **7**, 26-41. An account of experimental studies on the methods of encouraging growth and the effects of temperature on the growth of *Lemna trisulca*. The effect of different intensities of light on the plant and the reasons which cause it to sink to the bottom of ponds and streams in the winter and to float just below the surface of the water at other times were also studied.—[D.H.K.]

729. *ALISMA*. Castro, D. & M. N. Wagner, 1950, Preliminary Observations on the cytology of the genus *Alisma* L. in Portugal, *Gen. Iber.*, **2**, 75-82. Caryological studies in *Alisma* show that there exist in north and central Europe two forms of *A. Plantago-aquatica* and two of *A. lanceolatum* each with different chromosome numbers. In Portugal *A. Plantago-aquatica* has $2n=14$ and *A. lanceolatum* $2n=26$.

Owing to the fact that a form of *A. Plantago-aquatica* with $2n=12$ is found elsewhere in Europe the authors discuss the possibility of *A. lanceolatum* with $2n=26$ being an amphidiploid of the two forms of *A. Plantago-aquatica* with 14 and 12.—[D.H.K.]

732/1. *SAGITTARIA SAGITTIFOLIA* L. Van Schoor, G. H. J., 1951. Action de lumières colorées sur le comportement de *Sagittaria sagittifolia* L., *Bull. Soc. Roy. Bot. Belg.*, **84**, 5-12. An account, illustrated by a graph, of experiments to show effect of varying light intensities on growth of *Sagittaria*. The formation of sagittate leaves is not dependent on immersion in water, but on the presence of light; they may even be produced in intense red light.—[E.B.B.]

737/5. *POTAMOGETON ALPINUS* Balb. Clason, E. W., 1953. Het Alpen Fonteinkruid in Noord-Drente, *De Levende Natuur*, **56**, 87-92.

740. ZOSTERA. Arasaki, S., 1950, Studies on the Ecology of *Zostera marina* and *Z. nana*, *Bull. Jap. Soc. Sci. Fish.*, **16**, 70-76. *Zostera marina* flourishes during early spring and early summer and decays from midsummer till late autumn. *Z. nana*, on the other hand, flourishes during late spring and late autumn, decaying in winter, its flowers opening twice in the year, in late spring and late autumn. Seeds germinate in the sea after a dormancy of several months. The seedlings of *Z. marina* appear abundantly in early spring, while those of *Z. nana* appear in late spring.—[D.E.A.]

746/3. SCHOENOPLECTUS LACUSTRIS (L.) Palla. Seidel, K., 1952, Zur Ökologie von *Scirpus lacustris*, *Ber. Deutsch. Bot. Ges.*, **64**, 342-352. An account of studies of *S. lacustris* in E. Holstein. The growth of the plant and the stem structure is described in detail. The course of seed germination is discussed and ecological data given.—[D.H.K.]

747/2. ERIOPHORUM ANGUSTIFOLIUM Honck. Phillips, M. E., 1953, Studies in the Quantitative Morphology and Ecology of *Eriophorum angustifolium* Roth. I, The Rhizome System, *J. Ecol.*, **41**, 295-318.

747/2. ERIOPHORUM ANGUSTIFOLIUM Honck. Raymon, M., 1953, On the presence of *Eriophorum angustifolium* Honck. in the Southern Hemisphere, *Svensk Bot. Tidsk.*, **47**, 122-123.

750/1. CLADIUM MARISCUS (L.) Pohl. Cedercreutz, C., 1950, *Cladium mariscus* (L.) R. Br., ny för Finland, *Mem. Soc. Fauna et Flora Fenn.*, **24**, 10-12. *Cladium mariscus* has been discovered in Finland.—[D.H.K.]

753. CAREX. Arnal, C., 1952, Essai sur la répartition des sexes chez le *Carex*, *Ann. Univ. Sarav.*, **1**, 102-114. An analysis of the results of plotting the relative positions of male and female flowers of the spikelets of 600 specimens, comprising about 100 species of the genus *Carex*. Two basic "sexual gradients" emerge, of which the variations and combinations are sufficient to explain many apparent anomalies. The distribution of the sexes in *Carex* is partly determined physiologically and partly by environmental variation; it is consequently a "bad" systematic character.—[E.B.B.]

753. CAREX. Neumann, A., 1952, Vorläufiger Bestimmungs-Schlüssel für *Carex*-Arten Nordwestdeutschlands im blütenlosen Zustande, *Mitt. Flor.-soz. Arb.*, **3**, 44-77. A tentative key, based on vegetative characters, to the *Carex* species of N.W. Germany. Includes many species found in Britain.—[D.H.K.]

753. CAREX. Oskarsson, I., 1951, Islenzkar starir, *Natturuf.*, **21**, 3-23. An account illustrated by distribution maps, of the Carices of Iceland. At present 42 valid species are known in the island, of these 50% are common and well distributed, 35% have a more limited distribution, and 15% are rare. The author expresses the opinion that the

Icelandic population of sedges originated from a common arctic population of the late Tertiary, and that no less than 50% of the species found at the present time have survived at least the last three glacial periods of the Pleistocene. The following five species are believed to be post-glacial:—*Carex diandra*, *C. flacca*, *C. pallescens*, *C. pilulifera* and *C. pulicaris*. It is thought that *C. pallescens* was most likely brought to Iceland by the early settlers of the country.—[D.H.K.]

753. CAREX. Raymond, M., 1951, Sedges as material for phyto-geographical studies, *Mém. Jard. Bot. Montréal*, **20**, 1-23.

753. CAREX. Savile, D. B. O. & J. A. Calder, 1953, Phylogeny of *Carex* in the Light of Parasitism by the Smut Fungi. *Canad. J. Bot.*, **31**, 164-174. By using evidence derived from the relationship with smut fungi (*Utricularia* and *Planetella*) that attack its members, new light has been shed on the phylogeny of *Carex*. The genus is believed to be essentially monophyletic and derived from *Kobresia*. It has been found necessary to erect a new subgenus *Kuekenethalia*, composed principally of those sections with persistent styles and bladdery perigynia that were formerly placed in *Eucarex*: *Uncinia* is shown to be an offshoot of the evolutionary line that gave rise to *Kuekenethalia*.—[Author's summary.]

753/13. CAREX LAEVIGATA Sm. Bonnot, E., 1950, *Carex helodes* Link dans les monts du Roannais, *Bull. Soc. Linn. Lyon*, **19**, 191-192. *Carex laevigata* has been found in the mountains of central France near Roanne. Its general distribution and synonymy are discussed.—[D.H.K.]

753/20-22. CAREX FLAVA agg. Reiter, M., 1950, Der Formenkreis von *Carex flava* L. s. lat. und seine Bastards im Lande Salzburg, *Mitt. Nat. Arb. Haus. Nat. Salzburg*, **1**, *Botanische Arbeitsgruppe*, 42-46. Descriptions are given of the following species and hybrids:—*Carex serotina*, *C. lepidocarpa*, *C. flava*, *C. flava* × *lepidocarpa*, *C. flava* × *serotina*, *C. lepidocarpa* × *serotina*, *C. flava* × *hostiana*, *C. hostiana* × *flava*, *C. hostiana* × *lepidocarpa* and *C. hostiana* × *serotina*.—[D.H.K.]

753/23. CAREX EXTENSA Good. Høeg, O. A. & J. Lid, 1949, *Carex extensa*, ny för Norge, *Blyttia*, **7**, 87-91. *Carex extensa* was found for the first time in Norway in 1949, growing in salt-marshes on the island of Skåtøy on the Skager Rack coast.—[D.H.K.]

753/51(2). CAREX BICOLOR All. Gjaerevoll, O., 19. Contribution to the Ecology of *Carex bicolor* All. in Scandinavia, *Kong. Norsk Vid. Selsk.*, **22**, 11-15. *Carex bicolor* is considered to be a glacial relict in Norway. The author deals with its distribution in Scandinavia and gives lists of associated species.—[D.H.K.]

753/74. CAREX PULICARIS L. Davidsson, I., 1950, Ný starartegund og nokkrir fundarstadir jarta, *Natturfr.*, **20**, 187-189. *Carex pulicaris* has been discovered in Iceland.—[D.H.K.]

754.→ GRAMINEAE. Claustres, G., 1952, Variations de type épharmonique de l'histologie foliaire des Graminées en rapport avec le métabolisme hormonal, *Rev. Gen. Bot.*, **59**, 429-438. Experiments with synthetic "photohormones" on certain grasses produced adaptive variations in the foliar cells similar to those produced by warm, dry conditions. Details of the results are given, illustrated by diagrams of cross-sections of leaves in various sections of *Festuca*, *Deschampsia flexuosa* and *Agrostis schleicheri*.—[E.B.B.]

754.→ GRAMINEAE. Fasseux, W., 1950, La Tribu des Festuceae et ses affinités avec les Tribus voisines, *Bull. Soc. Roy. Bot. Belg.*, **82**, 307-314.

754.→ GRAMINEAE. Fasseux, W., 1951, Eléments d'Organologie des Graminées, *Nat. Belge*, **32**, 87-93. A useful analysis, illustrated by diagrams, of the morphological characters of grasses, examples being freely given.—[E.B.B.]

754.→GRAMINEAE. Forlani, R., 1950, Ibridazioni interspecifiche e intergeneriche di Graminacee, *Ann. Sper. Agr.*, **4**, 537-560.

754.→ GRAMINEAE. Paunero, E., 1953, La Agrostideas españolas, *An. Jard. Bot. Madrid*, **11**, 319-418. The grasses of the tribe *Agrostideae* found in Spain are keyed and figured. Many of the species are also found in Britain.—[D.H.K.]

754.→ GRAMINEAE. Wycherley, P. R., 1952, Temperature and Photoperiod in relation to flowering of three perennial grass species, *Med. Landb. Wagen.*, **52** (2), 75-92. Studies on *Cynosurus cristatus*, *Dactylis glomerata* and *Lolium perenne*.—[D.H.K.]

754.→ GRAMINEAE. Wycherley, P. R., 1953, The Distribution of Viviparous Grasses in Great Britain, *J. Ecol.*, **41**, 275-288.

754/10. DIGITARIA SANGUINALIS (L.) Scop. Gianfagna, A. J. & A. M. S. Pridham, 1951, Some Aspects of Dormancy and Germination of Crabgrass Seed, *Digitaria sanguinalis* Scop., *Proc. Amer. Soc. Hort. Sci.*, **58**, 291-297. The control of *Digitaria sanguinalis*, a major weed in many parts of the U.S.A. is made difficult by its seeds germinating over long periods. The authors give new information on the facts affecting dormancy and germination.—[D.H.K.]

756. SETARIA. Pohl, R. W., 1951, The Genus *Setaria* in Iowa, *Iowa State Coll. J. Sci.*, **25**, 501-508. The author illustrates and gives a key to the various species of *Setaria* found in Iowa. These include several which are found in Britain.—[D.H.K.]

758/3. SPARTINA TOWNSENDII H. & J. Groves. Corillion, R., 1951, Extension récente du *Spartina townsendii* Groves en Bretagne, *Monde des Plantes*, **274-275**, 2. A short account of the recent spread of the species in Brittany.—[D.H.K.]

758/3. *SPARTINA TOWNSENDII* H. & J. Groves. Deloffre, G., 1953, Observations écologiques sur les peuplements de *Spartina townsendii* de la baie de Brakman, *Bull. Soc. Bot. Nord France*, **6**, 13-14. Observations on *Spartina townsendii* planted in 1948 in the bay of Brakman (at mouth of R. Escaut) show that it has developed on the clay basins but not on the sandy banks of the creeks.—[E.B.B.]

758/3. *SPARTINA TOWNSENDII* H. & J. Groves. McMillan, N. F., 1953, *Spartina townsendii* H. & J. Groves, at Parkgate, Cheshire, *N.-W. Nat. (N.S.)*, **1**, 98.

758/3. *SPARTINA TOWNSENDII* H. & J. Groves. Pratt, M. C., 1953, *Spartina townsendii* H. & J. Groves on the Dee Marshes, *N.-W. Nat. (N.S.)*, **1**, 98-99. A short ecological account of the species, and its status and progress, on the Dee Marshes.—[D.H.K.]

758/3. *SPARTINA TOWNSENDII* H. & J. Groves. Van Schreven, A. C., 1952, The Fruit of *Spartina townsendii* Groves, *Koninkl. Nederl. Akad. Wetensch.*, **55**, 150-162.

760. *TRAGUS*. Fasseaux, W., 1949, Les *Tragus* Adventices en Belgique, *Bull. Soc. Roy. Bot. Belg.*, **82**, 67-69. Describes the species which have occurred as adventives in Belgium.—[D.H.K.]

762. *DACTYLOCTENIUM*. Fasseaux, W., 1951, Les *Dactyloctenium* Adventices en Belgique, *Bull. Soc. Roy. Bot. Belg.*, **84**, 153-155. Describes *Dactyloctenium radulans* (R. Br.) P.B. and *D. aegyptium* (L.) P.B. which have occurred as adventives in Belgium.—[D.H.K.]

765. *PHALARIS*. Paunero, E. 1948, Revisión de las especies españolas del género *Phalaris*, *An. Jard. Bot. Madrid*, **8**, 475-522. A key, descriptions and synonyms are given for the Spanish species, *Phalaris paradoxa*, *P. canariensis*, *P. brachystachys* and *P. arundinacea*, and their varieties and forms.—[D.H.K.]

765. *PHALARIS*. Størmer, P., 1950, Nøkkel til de norske *Phalaris*-artene, *Blyttia*, **3**, 156-159. The author presents an illustrated key to the species of *Phalaris* found in Norway.—[D.H.K.]

770. *ALOPECURUS*. Nissen, O., 1949, Cytology and Fertility of the hybrid *Alopecurus pratensis* L. × *A. aequalis* Sobol. and its progeny. *Agron. J.*, **41**, 164-166.

770. *ALOPECURUS*. Paunero, E., 1952, Las especies españolas del género *Alopecurus*, *An. Jard. Bot. Madrid*, **10** (2), 301-346. An account of the species of *Alopecurus* found in Spain, including many also found in Britain. *A. aequalis* is reduced to a variety of *A. geniculatus*.—[D.H.K.]

777/1. *PHLEUM PRATENSE* L. Nordenskiöld, H., 1953, A Genetical Study in the Mode of Segregation in Hexaploid *Phleum pratense*, *Hereditas*, **39**, 469-488.

777/3. *PHLEUM PHLEOIDES* (L.) Karst. Böcher, T.-W., 1950, Chromosome Behaviour and Syncyte Formation in *Phleum phleoides* (L.) Karst., *Bot. Not.*, **3**, 353-368. Meiosis is described in plants from eastern and western Europe and Scandinavia. The chromosome number is $2n=14$ or 28. B chromosomes are often present. Structural aberrations were noted in some cases. Syncyte formation was fairly frequent in two samples.—[D.H.K.]

780/2. *AGROSTIS STOLONIFERA* L. Hildegard, J., 1952, Aneuploidie und Systematik bei *Agrostis stolonifera* L. und *Festuca rubra* L. aus Schleswig-Holstein, *Ber. Deutsch. Bot. Ges.*, **65**, 330-337.

780/2(2). *AGROSTIS GIGANTEA* Roth. Størmer, P., 1952, *Agrostis gigantea* Roth, *Blyttia*, **3**, 73-76. A report of the distribution of *Agrostis gigantea* in Norway, where the grass has been recognised as an independent species since 1949.—[D.H.K.]

783. *CALAMAGROSTIS*. Jalas, J., 1950, Kastikkalajit uusimpien solu = ja perinnöllisyystutkimusten valossa, *Luonn. Tutk.*, **4**, 120-123. An account of the Finnish species of *Calamagrostis* and their hybrids. The chromosome numbers of the species also found in Britain are given as *C. canescens* $2n=28$ and *C. epigeios* $2n=42$.—[D.H.K.]

787/1. *AMMOPHILA ARENARIA* (L.) Link. Gemmell, A. R., P. Greig-Smith and G. H. Gimingham, 1953, A Note on the Behaviour of *Ammophila arenaria* (L.) Link in relation to Sand-Dune Formation, *Trans. and Proc. Bot. Soc. Edinb.*, **36**, 132-136.

791/4. *DESCHAMPSIA FLEXUOSA* (L.) Trin. See 792/1. *HOLCUS MOLLIS* L.

792. *HOLCUS*. Beddows, A. R. & K. Jones, 1953, Chromosome Numbers in *Holcus mollis*, *Nature*, **171**, 938-939. Cytological examination of 60 plants of *Holcus mollis* from 6 localities in England and Wales has shown that the plant has three chromosome numbers:— $2n=28$ (tetraploid), $2n=35$ (pentaploid) and $2n=42$ (hexaploid). The pentaploid form is the most frequent, and in some areas at least it co-exists with the tetraploid and hexaploid forms. More extensive investigations are being made to determine the distribution and relative frequency of the chromosome types in various areas and their relation to each other. *H. lanatus* was found to have $2n=14$.—[D.H.K.]

792/1. *HOLCUS MOLLIS* L. Jowett, C. H. & G. Scurfield, 1952, Statistical Investigations into the Success of *Holcus mollis* L. and *Deschampsia flexuosa* (L.) Trin., *J. Ecol.*, **40**, 393-404.

792/1. *HOLCUS MOLLIS* L. Ovington, J. D., 1953, A Study of Invasion by *Holcus mollis* L., *J. Ecol.*, **41**, 35-52.

798. *CHLORIS*. Fasseaux, W., 1952, Les *Chloris* Adventices en Belgique, *Bull. Soc. Roy. Bot. Belg.*, **84**, 239-242. The author describes and gives a key to the identification of the species of *Chloris* found as adventives in Belgium.—[D.H.K.]

802/1. *PHRAGMITES COMMUNIS* Trin. Otterstrom, C. V., 1950, Tagrør (*Phragmites communis* Trinius) med spiredygtigt Frø. *Flora og Fauna*, **56**, 46. A short note on the morphology of the seeds of *Phragmites communis*.—[D.H.K.]

802/1. *PHRAGMITES COMMUNIS* L. Weber, H., 1950, Gramineenstudien III. Neue Beobachtungen über die Kriechsprosse von *Phragmites communis* Trinius, *Biol. Zentralbl.*, **69**, 323-334.

808. *CYNOSURUS*. Petetin, C. A., 1950, Dos especies de *Cynosurus* adventicias en la Argentina, *Rev. Argent. Agron.*, **17**, 83-88. *Cynosurus cristatus* and *C. echinatus* have been found as adventives in the Argentine.—[D.H.K.]

809. *KOELERIA*. Jungblut, F., 1951, Contribution à l'Etude du Genre *Koeleria* Pers. au Grand-Duché de Luxembourg, *Bull. Soc. Roy. Bot. Belg.*, **83**, 241-255. An account illustrated by tables and photographs of the three species of *Koeleria*—*K. pyramidata* (Lam.) Domin, *K. gracilis* Pers. and *K. albescens* DC.—which occur in the Grand Duchy. Their distribution is related to geological formations.—[D.H.K.]

819/1. *DACTYLIS GLOMERATA* L. Rebischung, J., 1951, Auto et interfertilité chez le Dactyle, *Ann. Inst. Nat. Rech. Agron., Ser. B.*, **1**, 20-33. A three year study of material of *Dactylis glomerata* from the vicinity of Paris showed that the proportion of individuals having a high degree of self-fertility was low.—[D.H.K.]

824/2. *POA PRATENSIS* L. Juhl, H., 1952, Zytologische Untersuchungen an einigen Formen von *Poa pratensis* L. in Schleswig-Holstein, *Flora*, **139**, 462-476. A cytological account of the *Poa pratensis* complex in Schleswig-Holstein.—[D.H.K.]

824/2. *POA PRATENSIS* L. Nielsen, E. L. & D. C. Smith, 1952, Interrelations of Selected Plant Characters in Kentucky Blue Grass (*Poa pratensis* L.), *Bot. Gaz.*, **114**, 53-62.

824/2. *POA PRATENSIS* L. Nissen, Ø., 1950, Chromosome Numbers, Morphology and Fertility in *Poa pratensis* L. from South Eastern Norway, *Agron. J.*, **42**, 135-144. A study of the chromosome numbers, morphology, and fertility in 24 strains of *Poa pratensis* collected from pastures in south east Norway. Nearly all the strains had aneuploid numbers varying from $2n=53$ to 92. The data obtained lead to the conclusion that apomixis is the usual mode of reproduction in the Norwegian material examined.—[D.H.K.]

824/11 × 2. *POA ALPINA* × *PRATENSIS*. Åkerberg, E. & S. Bingefors, 1953, Progeny Studies in the hybrid *Poa pratensis* × *Poa alpina*. *Hereditas*, **39**, 125-135.

824/14. *POA ANNUA* L. Magrou, J., 1950, Transformation du *Poa annua* L. en plante vivace à rhizomes, *Bull. Soc. Bot. Franc.*, **97**, 9-11. *Poa annua* planted in soil containing the correct fungus will become a perennial as the result of the formation of mycorrhiza.—[D.H.K.]

824/14. *POA ANNUA* L. Magrou, J. & F. Mariat, 1950, Transformation expérimentale d'une plante annuelle (*Poa annua* L.) en plante vivace, *Compt. Rend. Acad. Sci. Paris*, **230**, 22-25. A plant of *Poa annua* has been induced to perennate by growing it on soil from the Pyrenees. The change is attributed to mycorrhizal action.—[D.H.K.]

825/3(2). *GLYCERIA DECLINATA* Bréb. Litardière, R. de, 1951, Observations sur diverses plantes des Deux-sèvres, *Monde des Plantes*, **278-279**, 35-38.

825 (2) *GLYCERIA*. Jungblut, F., 1953, Les Espèces du Genre *Glyceria* R. Br. au Grande-Duché de Luxembourg, *Bull. Soc. Roy. Bot. Belg.*, **86**, 25-37. *Glyceria maxima* (Hartm.) Holmberg, *G. plicata* Fries and *G. fluitans* (L.) R. Br. have been known in the Grand Duchy for some time. Recent investigation has revealed the presence of *G. declinata* Bréb. A diagram shows the distinctive 3-toothed lemma of *G. declinata* and a table gives other diagnostic differences between the species of the sect. *Euglyceria*; J. M. Lambert's description of *G. declinata* is included and compared. *G. fluitans* and *G. declinata* prefer acid situations but the former is commonly distributed, whereas the latter is considered rare. *G. plicata* is frequent but prefers more alkaline conditions. A map illustrates the discussion on distribution. Plates show the variation in form of these species; var. *sub-spicata* Cogn. of *G. fluitans* and var. *depauperata* Crép. of *G. plicata* are recognised and a new form, f. *effusa*, of the latter is described:—distinguished from *plicata* by long, slender, slightly flattened stem; long, narrow leaves; depauperate panicle bearing long, slender, spreading branches. The hybrid *G. fluitans* × *plicata* (*G.* × *intersita* Haussknecht) is also recorded.—[E.B.B.]

825/3(2). *GLYCERIA DECLINATA* Bréb. Litardière, R. de, 1951. Nouvelles localités françaises du *Glyceria declinata* Bréb., *Monde des Plantes*, **282**, 50. Gives new French stations for *Glyceria declinata*.—[D.H.K.]

826. *FESTUCA*. Markgraf-Dannenberg, I., 1952, Studien an irischen Festuca-Rassen, *Veröffentl. Geobot. Inst. Rübel Zurich*, **25**, 114-142. Studies on the *Festuca rubra* and *F. ovina* complex in Ireland. A key is given to all the known varieties and forms. *F. ovina* subsp. *indigesta* var. *molineri* Litard., a plant known from Spain, Portugal and Morocco is reported from Clare and Galway; it is new to the British Isles.

A new subvar. of *F. ovina* var. *vulgaris* is described from Waterford and Sligo, viz., subvar. *hibernica*—*Planta abbreviata* (usque ad 30 cm. alta). Folia vix setiformia (0.3—0.5 [0.6] mm. lata), laevia. Panícula brevis (4.6 cm. longa). Spiculæ magnæ (quadrifloræ usque ad 7.0 mm. longæ), glumæ fertiles usque ad 5.0 mm. longæ, aristæ breves (0.3-0.5 [0.6] mm. longæ).

Some ecological data are also given.—[D.H.K.]

826. *FESTUCA*. Litardière, R. de, 1952. Contribution à l'étude des Festuca du Portugal, *Agron. Lusit.*, **14**, 31-51. Describes and gives a key with observations on the species found in Portugal.—[D.H.K.]

827/7. *FESTUCA RUBRA* L. See 780/2. *AGROSTIS STOLONIFERA* L.

826/11b. *FESTUCA LONGIFOLIA* var. *TRACHYPHYLLA* (Hack.) Druce. Jalas, J., 1952, *Festuca ovina* subsp. *capillata* (Lam.) Sch. & K. ja *Festuca trachyphylla* (Hack.) Krajina Suomessa, *Mem. Soc. Fauna Flora Fenn.*, **27**, 10-12. *Festuca longifolia* var. *trachyphylla* has been found growing abundantly on a lawn in Maarianhamina (Finland). A list of all Finnish localities of this species known at present is given.

F. tenuifolia has been discovered in the Finnish province of Ahvenanmaa (Åland), where it was probably introduced with grass seed.—[D.H.K.]

826/12. *FESTUCA TENUIFOLIA* Sibth. See 826/11b. *FESTUCA LONGIFOLIA* var. *TRACHYPHYLLA* (Hack.).

827. *BROMUS*. Fasseaux, W., 1951. Le Groupe du *Bromus mollis* L. en Belgique, *Nat. Belge*, **32**, 190-196. A key is given to the four sections into which the native and introduced species of *Bromus* of Belgium may be subdivided: *Zeobromus*, *Ceratochloa*, *Stenobromus*, *Festucaria*. The species comprising the section *Zeobromus*, to which the group *Bromus mollis* L. belongs, are keyed out in detail and detailed descriptions of *B. mollis*, *B. thominii*, *B. lepidus* and *B. molliformis* follow; the introduced *B. macrostachys* Desf., and *B. scoparius* L. are mentioned, and *B. interruptus* Druce should be looked for. The following table is given to differentiate three closely allied species:—

	<i>B. mollis</i> L.	<i>B. thominii</i> Hardouin	<i>B. lepidus</i> Holmb.
Stem	20-80 cm., numerous, erect or ascending	5-20 cm., spreading or geniculate - ascending forming low and tight tufts	25-60 cm., as <i>B. mollis</i>
Panicle	10-15 cm., oblong, fairly lax, spreading during anthesis, contracted after flowering	1-5 cm., ovoid, compact, contracted even during flowering	5-7 cm. usually contracted
Lemma	8-9 mm., usually hairy at the margins forming an obtuse angle, depressed or split at apex	6½-8 mm., usually glabrous at the margins rounded or forming a weak angle, apex as <i>B. mollis</i>	5½-6½ mm., usually glabrous at the margins forming a right angle a little below the middle, split at apex to point of insertion of the awn and forming 2 triang. somewhat diverging teeth
Awn	=lemma	Shorter than lemma	Shorter than lemma
Palea	broadest towards middle, = fruit, ciliate its whole length	as in <i>B. mollis</i>	broadest towards the apex, shorter than fruit, ciliate ¾ of its length
Caryopsis ..	with apical hairs not reaching base of awn	with apical hairs a little exceeding the base of awn	equalling or slightly exceeding the lemma, with apical hairs distinctly exceeding it

[E.B.B.]

827. *BROMUS*. Isely, D., D. West & R. W. Pohl, 1951, Seeds of Agricultural and Weedy *Bromus*, *Iowa State Coll. J. Sci.*, **25**, 531-548. The authors illustrate and give keys to the identification of the various species of *Bromus*, and their seeds found in the U.S.A. Many of these occur as adventives in Britain.—[D.H.K.]

827/9. *BROMUS INERMIS* Leyss. Knobloch, I. W., 1953, Tetraploid Smooth Bromegrass, *Bull. Torr. Bot. Club*, **80**, 131-135.

827/16. *BROMUS SECALINUS* L. Isely, D., 1952, Seeds of *Bromus secalinus* and *B. commutatus*, *Proc. Iowa Acad.*, **58**, 155-163.

827/17. *BROMUS COMMUTATUS* Schrad. See 827/16. *BROMUS SECALINUS* L.

835. *HORDEUM*. Covas, G., 1949, Taxonomic Observations on the North American Species of *Hordeum*, *Madroño*, **10**, 1-21. Deals with the taxonomy and cytology of the group. A key is given to all the known species of N. America.—[D.H.K.]

835. HORDEUM. Covas, G., 1952, Número de cromosomas de las especies de "Hordeum", *Rev. Argent. Agron.*, **19**, 52-53. A short account of studies on the genus. The haploid numbers of the following species are given as:—*Hordeum hystrix* Roth 7, *H. jubatum* L. 14, *H. marinum* Huds. 7, *H. nodosum* L. 14, *H. leporinum* Link 14, and *H. murinum* L. 7.—[D.H.K.]

836/1. ELYMUS ARENARIUS L. Nehou, J., 1950, Apparition d'Elymus arenarius L. (Graminées) en Bretagne, *Bull. Soc. Sci. Bretagne*, **24**, 101-104. First discovery of this species in Brittany; an account of the associated species is given; its origin is suggested as by grain or rhizome from the opposite bank of the bay of St. Michael's Mount (Normandy).—[E.B.B.]

840/1. TAXUS BACCATA L. Fabijanowski, J., 1951, Cis (*Taxus baccata* L.), *Chroń. Przy. Ojcz.*, **7(3/4)**, 18-32. A study of the distribution of the species in Poland.—[D.H.K.]

840/1. TAXUS BACCATA L. Traczyk, T., 1953, Obserwacje nad rozmieszczeniem cisa (*Taxus baccata* L.) w Sudetach, *Ann. Univ. Mariae-Curie*, **8**, 103-119. Studies on *T. baccata* in eastern Europe.—[D.H.K.]

841/1. PINUS SYLVESTRIS L. Wareing, P. F., 1953, Experimental Induction of Male Cones in *Pinus sylvestris*, *Nature*, **171**, 47. A short account of disbudding experiments carried out on *Pinus sylvestris* at Oxshott Common, Surrey.—[D.H.K.]

842/1. LARIX DECIDUA Mill. Christiansen, H., 1950, A Tetraploid *Larix decidua* Miller, *Kgl. Danske Vid. Selsk. Biol. Medd.*, **18 (9)**, 1-9. A short account of a tetraploid larch discovered at Sealand, Denmark in 1949.—[D.H.K.]

844. EQUISETUM. Hogendijk, T. R., 1953, Twente's paardestaarten, *Natura*, **50**, 13-19.

844/4. EQUISETUM PRATENSE Ehrh. Berton, A., 1952, A propos d'Equisetum pratense Ehrh., *Monde des Plantes*, **282**, 54. The author gives taxonomic notes, and new French stations for the species.—[D.H.K.]

PTERIDOPHYTA. Bange, C., 1953, Quelques mots sur la Nomenclature du Dryopteris Filix-mas et de l'Athyrium Filix-femina, *Bull. Soc. Roy. Bot. Belg.*, **86**, 135-136.

PTERIDOPHYTA. Boullard B., 1951, Champignons endophytes de quelques Fougères indigènes et observations relatives à *Ophioglossum vulgatum* L., *Le Botaniste*, **35**, 257-281. The author gives detailed accounts of the endotrophic mycorrhiza associated with the following ferns: *Polystichum spinulosum*, *P. filix-mas*, *Pteris aquilina*, *Blechnum*

spicant, *Scolopendrium officinale*. The material for study was gathered from three widely separated localities. Previous work on these species, including that of British authors, is discussed and compared; observations only are given on *Ophioglossum vulgatum* as much more work had already been done, the results of which the author more or less confirms. *Polypodium vulgare* surprisingly gave no evidence of endophytic association.—[E.B.B.]

PTERIDOPHYTA. Chevalier, A., 1953, Sur deux nouvelles formes de Fougères des environs de Domfront (Orne), *Bull. Soc. Bot. France*, **100**, 336-339. Two new forms of ferns from the neighbourhood of Domfront are described by the author and illustrated by line drawing. *Dryopteris spinulosa* subsp. *crispiloba* has the lobes of the pinnules curved downwards giving the frond a crisped appearance. *Asplenium adiantum-nigrum* var. *clandestinum* is a very minute, decumbent variety (frond 3-8 cm. long).—[E.B.B.]

PTERIDOPHYTA. Grigson, G., 1953, Ferns, Rock and Water, *Country Life*, **113**, 650-651. A popular account of some British ferns and their habitats.—[D.H.K.]

PTERIDOPHYTA. Tryon, R. M., Junr., 1952, A sketch of the history of fern classification, *Ann. Miss. Bot. Gard.*, **39**, 255-262.

847/1. **PTERIDIUM AQUILINUM** (L.) Kuhn. Burke, D.P.T., 1953, A Study of the Influence of Light and Soil Properties on the Growth of Bracken (*Pteridium aquilinum*), *Mag. Blundell's School Sci. Soc.*, **8**, 13-17.

847/1. **PTERIDIUM AQUILINUM** (L.) Kuhn. Conway, E., 1952, Bracken—the problem plant, *Scot. Agric.*, **1952**, 181-184. Bracken is estimated to have invaded $\frac{1}{2}$ -1 $\frac{1}{2}$ million acres in the west of Scotland, mainly in the Highlands, and the infestation of further areas is progressing. Control measures must be directed against the underground stems either directly by ploughing or indirectly by continually cutting away the fronds, thus exhausting the plant.—[D.H.K.]

847/1. **PTERIDIUM AQUILINUM** (L.) Kuhn. Conway, E., 1953, Spore and Sporeling Survival in Bracken (*Pteridium aquilinum* (L.) Kuhn), *J. Ecol.*, **41**, 289-294.

850/1. **PHYLLITIS SCOLOPENDRIUM** (L.) Newm. Sipkes, C., 1952, De Tongvaren (*Phyllitis scolopendrium*), *Natura*, **49**, 17-18.

851. **ASPLENIUM**. Meyer, D. E., 1952, Untersuchungen über Bastardierung in der Gattung *Asplenium*, *Biol. Bot.*, **123**, 1-34. A morphological and cytological account of the various species and the hybrids between them.—[D.H.K.]

851/3. **ASPLENIUM VIRIDE** Huds. Senay, P., 1952, Découverte de l'*Asplenium viride* Huds. dans la Seine-Inférieure, *Bull. Soc. Bot.*

France, 99, 306-308. This species was discovered in July 1952 growing in a wall-joint (calcareous sandstone) at Ancretteville, a locality far removed from its usual alpine habitats. One suggestion as to means of introduction is that the spores might be wind-borne from S. Wales.—[E.B.B.]

856. DRYOPTERIS. Bange, C., 1952. Nomenclature de quelques genres de Fougères. 1. *Dryopteris*, Bull. Bot. Soc. France, 99, 290-293. Guétrot's arguments (1937, *Pteridophyta Eliccata*) rejecting the name *Dryopteris* are shown to be erroneous. It is here accepted in the narrow sense, distinct from *Lastrea*, *Gymnocarpium* and *Polystichum*. French species included are:—*D. filix-mas*, *D. villarsii*, *D. dilatata*, *D. spinulosa*, *D. aemula* and *D. cristata*.—[E.B.B.]

856. DRYOPTERIS. Reichling, L., 1953, *Dryopteris paleacea* (Sw.) Handel-Mazetti et *Dryopteris* \times *tavelii* Rothmaler au Grande-Duché de Luxembourg et en Belgique, Bull. Soc. Roy. Bot. Belge, 86, 39-57. *Dryopteris paleacea* (*D. borrieri* Newm.) is found in Luxembourg on acid soils in damp beechwoods; it is yet to be recorded from Belgium. The hybrid *D. \times tavelii* (*D. filix-mas* \times *paleacea*) has been recorded from several localities in both countries on various soils. Comparison of European with tropical material of *D. paleacea* reveals no morphological evidence for distinguishing more than one species in the taxon; its nomenclature remains somewhat uncertain.

Detailed descriptions, including the morphology, ecology, phenology and geographical distribution, of *D. paleacea* and the hybrid are given, illustrated with diagrams and photographs. The characters of the hybrid and its two parents are contrasted in a table. *D. \times tavelii* shows an intermediate character in many respects but favours *D. filix-mas* in its soft, tapering frond and soft, not coriaceous, indusium; it resembles *D. paleacea* in its dense, dark scales, evergreen frond, \pm opposite, right-angled pinnae, black spots at base of pinnules and apogamous method of reproduction. Clearly distinct from the former parent, it is often difficult to distinguish from the other parent, especially in a dried state. The many forms intermediate between the hybrid and *D. paleacea* require further cytological investigation.—[E.B.B.]

856/3. DRYOPTERIS SPINULOSA (O. F. Muell.) Watt. Manton, I. & S. Walker, 1953, Cytology of the *Dryopteris spinulosa* complex in Eastern North America, Nature, 171, 1116-17.

858/1. POLYPODIUM VULGARE L. Martens, P., 1950, Les Paraphyses de *Polypodium vulgare* et la sous-espèce *serratum*, Bull. Soc. Roy. Bot. Belge, 82, 225-261. An analysis of a number of distribution tables, which have been drawn up from the examination of many hundreds of specimens from all the continents except Australia, leads to the conclusion that the area of the subsp. *serratum* coincides with that of material bearing paraphyses. The area is roughly mediterranean, extending through France to the British Isles; British material from England, Ireland and Wales was examined and is of interest as being

from the northern limits of the area. The structure of the organs, which are branched and gland-tipped, arising from the receptacle of the sori, is described and illustrated; their great importance as diagnostic characters for the determination of the subspecies is discussed.—[E.B.B.]

858/1b. *POLYPODIUM VULGARE* subsp. *SERRATUM* (Willd.) Christ. Litardière, R. de, 1951, Observations sur diverses plantes des Deux-sèvres, *Monde des plantes*, **278-279**, 35-38.

OPHIOGLOSSACEAE. Nishida, M., 1952, A New System of Ophioglossales, *J. Jap. Bot.*, **27**, 271-278. The order *Ophioglossales* is classified into two suborders *Ophioglossineae* and *Botrychiineae*, by the character of the vascular system.—[D.H.K.]

862/1. *TRICHOMANES SPECIOSUM* Willd. Kertland, M. P. H., 1952, The Killarney fern in Co. Antrim, *Irish Nat. J.*, **10**, 320. Records the discovery of the species in a cave in Co. Antrim (H.39) in 1952.—[D.H.K.]

863/1. *HYMENOPHYLLUM TUNBRIGENSE* (L.) Sm. Turmel, J.-M., 1952, L'Hymenophyllum tunbrigense Sm. et Sow. aux Pyrénées, *Monde des Plantes*, **283-284**, 62. The species previously unknown at altitudes above 1000 metres has now been discovered at 1750 metres altitude in the French Pyrénées. Some ecological data are given.—[D.H.K.]

868/1. *AZOLLA FILICULOIDES* Lam. Rechow, M. von, 1952, Azolla filiculoides im Interglazial von Wunstorf bei Hanover und das wahrscheinliche Alter dieses Interglazials, *Ber. Deutsch. Bot. Ges.*, **65**, 315-318.

861/1. *AZOLLA FILICULOIDES* Lam. West, R. G., 1953, The Occurrence of Azolla in British Interglacial Deposits, *New Phyt.*, **52**, 267-272. The discovery is reported of *Azolla filiculoides* Lam. in Interglacial deposits in Britain. It is shown that the terminal structure of the glochidia permits a distinction from *A. caroliniana* Willd., and the stalk structure of the glochidia from the other species in the section *Euazolla*. The presence of *A. filiculoides* in Interglacial deposits may give some indication of their age and also of climatic conditions during their formation.—[Author's summary.]

870/5. *LYCOPodium CLAVATUM* L. Dhien, R., 1952, Une rare variation du *Lycopodium clavatum* L., *Bull. Soc. Bot. France*, **99**, 284-285. *Lycopodium clavatum* var. *laurentianum* Vict. formerly known only from America has been discovered in the Vosges Mountains.—[D.H.K.]

872.-> *CHARACEAE*. Brook, A. J., 1953, Some New Records of Stoneworts (Charophyta) in Scotland, *Scot. Nat.* **65**, 190. Gives details of a number of interesting Charophytes discovered in Scotland during studies on several freshwater lochs by workers from the Brown Trout Research Laboratories, Pitlochry.—[D.H.K.]

FIELD MEETINGS, 1953

MAY 9th, 1953. ROYAL BOTANIC GARDENS, KEW

About 80 members and friends joined the party which visited the exhibition arranged to commemorate the centenary of the Herbarium and Library. The exhibits illustrated various aspects of the work carried out at Kew since 1853, and of the development of the herbarium (which now includes some six million collectings) and the library. They included demonstrations of methods of collecting and mounting material and of the many valuable contributions to the knowledge of the flora of the British Commonwealth and elsewhere made during the past century.

A most interesting historical survey of the work and purpose of this great establishment was given by Sir Edward Salisbury, and visitors were handed a booklet listing the exhibits and summarising the history and work of the herbarium and library. The Society's thanks are due to the Director for extending to us an invitation to be present on this historic occasion, and for providing tea. We are also grateful to the members of the staff who took so much trouble to explain their exhibits and answer our questions. All those who attended had a most profitable as well as a most interesting afternoon.

J. E. LOUSLEY.

MAY 22nd to 25th, 1953. BANGOR

Leader: Prof. P. W. RICHARDS

This was a most enjoyable and light-hearted week-end, which 48 members and friends attended.

The party met at the Department of Botany, University College of North Wales at Bangor on Friday evening, and were welcomed by Professor Richards. An interesting display of exhibits was shown and the general programme for the week-end explained. Members were given the freedom of the library and the use of some equipment, and this was much appreciated.

On Saturday morning the party left by coach for Anglesey, and a short stop was made at Newborough Warren to see *Mibora minima* and the plant was duly found in some quantity. The journey then continued to Aberffraw where the party separated and made a detailed examination of the dunes and dune slacks. Many interesting plants were seen including *Ophioglossum vulgatum*, *Carex extensa*, *Linum catharticum* on the one hand and *Blismus rufus*, *Pinguicula vulgaris* and *Selaginella selaginoides* on the other. In addition, *Centaurium littorale*, *Orchis strictifolia* subsp. *coccinea*, *Eleocharis quinqueflorus* (*E. pauciflora*) and *Equisetum variegatum*, were found. *Mibora minima* was seen again here at its 'locus classicus'.

After lunch the party continued by coach to Llanbedr-goch, where a most fascinating fen was explored. Again as in the morning, a wide range of plants was seen, calcicoles and calcifuges often growing together in close proximity. Among the more interesting plants seen were, *Arabis hirsuta*, *Viola lutea*, *Rosa spinosissima*, *Menyanthes trifoliata*, *Scilla verna*, *Antennaria dioica*, *Asplenium adiantum-nigrum*, *Carex caryophylla*, *Potentilla palustris*, *Pedicularis palustris*, *Drosera rotundifolia*, *Pinguicula vulgaris*, *Schoenus nigricans*, *Cladium mariscus*, *Carex limosa*, and *C. lasiocarpa*.

Whit Sunday, a brilliantly fine day, was spent at Cwm Idwal. A few members who had explored the Cwm before, went, under the guidance of Mr. Evan Roberts and Mr. Inigo Jones, to Black Ladders, where interesting alpine plants were seen. The remainder of the party made the climb through grassland with *Viola palustris*, *Scirpus cespitosus*, *Carex dioica*, and *C. panicea*, up to the head of the Cwm where a number of alpine plants were seen including *Thalictrum alpinum*, *Trollius europaeus*, *Meconopsis cambrica*, *Minuartia verna*, *Saxifraga nivalis*, *S. oppositifolia*, *S. stellaris*, *S. hypnoides*, *Sedum rosea*, *Silene acaulis*, *Oxyria digyna*, *Empetrum nigrum*, *E. hermaphroditum*, *Asplenium viride*, *Cystopteris fragilis*, *Dryopteris borreri*, *D. abbreviata*, *Hymenophyllum wilsoni*, *Cryptogramma crassa*, *Thelypteris phegopteris*, *T. dryopteris*, *Lycopodium alpinum*, and many others.

Whit Monday was spent on limestone at Pabo and at Little Orme. A short stop was made at a small limestone hill near Pabo where the following plants were seen, *Arabis hirsuta*, *Cardaminopsis petraea*, *Helianthemum canum*, *Cotoneaster microphyllus*, *Veronica spicata* subsp. *hybrida*, and *Orchis morio*. Mr. Price Evans, who joined the party here, showed members a fine limestone pavement on Pabo ridge, and, during heavy rain following a violent thunderstorm, gave a most interesting and instructive talk on the botany, geology and ecology of the ridge. Mr. Price Evans has studied the district for many years, and we had the benefit of his expert knowledge. *Geranium sanguineum*, *Convallaria majalis* and *Juniperus communis* were seen here, together with many *Hieracia* which were just coming into bloom. We were very fortunate that this thunderstorm cleared the ridge as well as it did. A little further north, very great damage was done. A last stop on this good day was at Little Orme where the following plants were seen, *Brassica oleracea*, *Minuartia verna*, *Geranium lucidum*, *Silene nutans*, *Helianthemum canum*, *Sedum forsterianum*, *Cotoneaster microphyllus* in great quantity, *Potentilla tabernaemontani*, *Marrubium vulgare*, *Veronica spicata* subsp. *hybrida*, and *Scilla verna*.

The Society's grateful thanks are due to Prof. Richards for his leadership and interest, and to his enthusiastic helpers, Messrs Price Evans, Evan Roberts and Inigo Jones.

JUNE 27th to JULY 4th, 1953. FORRES

Leader: Miss M. McCALLUM WEBSTER

The object of this Meeting was to attempt to confirm some of the old records in the *Flora of Moray* (1935) by James Burgess, and to add new ones. Lists of plants for which records were desired were handed to the forty-two members and guests attending, and except for the visit to Cairngorm (v.cc. 94 and 96), the week was spent in Elgin (v.c. 95).

Most of the party arrived on the morning of Saturday, June 27th, and in the afternoon Greshop Wood (about a mile west of Forres) and the adjacent stretch of the river Findhorn were visited. Mrs. Grant-Peterkin most kindly invited the party to tea at Greshop House. In the evening an informal meeting was held at the Cluny Hill Hotel.

On Sunday, June 28th, Darnaway Woods (the property of the Earl of Moray) were studied. Here, in a young fir plantation, *Trientalis europaea* and *Pyrola minor* were seen; on the steep, wooded west-bank of the river Findhorn, *Trollius europaeus*, *Stellaria nemorum* and *Geum* \times *intermedium* were found, and on a damp slope nearby, Dr. Meldreis collected *Festuca rubra* var. *planifolia*. After lunch, the opposite bank of the river was visited, near the long-disused Cothall Limestone quarry. This is in old mixed deciduous woodland, mainly ash, regenerating naturally. Here *Monotropa hypopitys* (one of the rarest plants in Moray) was rediscovered in its old station, with abundant *Listera ovata*, which is also uncommon in v.c. 95. In the pine wood around Blairs Loch, about a mile distant, an abundance of *Goodyera repens* was seen.

Monday, June 29th, was spent in the "Culbin State Forest", formerly the Culbin Sands, a tract some eight miles long by three miles wide, along the coast of the Moray Firth between Nairn and Findhorn, now almost completely planted with conifers. Among the dunes are depressions known as "winter lochs", which are relics of the course of the river Findhorn before 1694, when the great sandstorm blocked the mouth and altered the course of the river to its present position further east. On the way to Buckie Loch, a stop was made and in a very small area we saw *Moneses uniflora*, *Orthilia secunda* (*Pyrola secunda*), *Pyrola minor*, *Corallorhiza trifida*, *Goodyera repens* and *Listera cordata*. Further into the Forest, we were met by Mr. Milne, the Head Forester, and were shown the "thatch" of branches in which the young trees are planted. The Buckie Loch is to remain unplanted. It was completely dry, a wide flat area with *Corallorhiza trifida* in plenty in the grass at the eastern end, and fine *Botrychium lunaria* and *Ophioglossum vulgatum*. Where water had most recently stood, *Littorella uniflora* formed a turf. Working westward, we reached the coastal dunes where *Juncus balticus* and *Poa subcaerulea* were abundant, with *Radiola linoides*, *Hypochaeris glabra*, *Ligusticum scoticum* and *Pyrola media* (new in this area). On the return journey we were delighted by the kind invitation of the Hon. Mrs. Murray to take tea at Moy House, and visit the gardens, where Miss Gibbons found an odd association of *Sedum album* and *Goodyera repens* growing on a potting shed roof.

Tuesday, June 30th, was spent near the village of Findhorn, the morning on the estuary salt-marsh and the afternoon on the seaward dunes where *Thalictrum minus* subsp. *arenarium*, *Astragalus danicus*, *Vicia lathyroides* and *Rumex longifolius* were seen. Towards 4 o'clock the scattered groups gathered at Quay Cottage, where we were invited to a welcome cup of tea by Mrs. McCallum Webster. In the evening we were shown the coloured film 'The Culbin Story', kindly lent by the Forestry Commission.

On Wednesday, July 1st, the party left Forres at 8.30 a.m. for Glenmore Lodge where we were joined by members of the Moray Mountaineering Club who kindly volunteered to help the leader should the mountain be misty. Actually the sky was cloudless and the sun shone brightly all day. One party made for the summit of Cairngorm (4084 ft.) and the other set off for the Coire an Lochain, passing *Chamaepericlymenum suecicum*, *Tofeldia pusilla*, *Rubus chamaemorus*, *Saussurea alpina*, etc. The lochan was reached about 1 p.m. and we were soon upon a wet grassy slope with *Cerastium cerastoides*, *Saxifraga stellaris* and *Luzula arcuata*. Above were patches of snow, and towering over us the vertical granite cliff. *Cerastium arcticum* was found growing in crevices and *Saxifraga rivularis*, in beautiful flower, was abundant where water trickled over the rock. *Veronica alpina*, *Empetrum hermaphroditum* and the viviparous form of *Deschampsia cespitosa* were seen, but the best find was *Poa flexuosa*. The other party, led by Mr. George Mackenzie of Forres, reached the summit plateau and found *Cardaminopsis petraea*, *Loiseleuria procumbens* and *Juncus trifidus*. After a late dinner at Grantown-on-Spey, the party visited a nearby pinewood to see *Linnaea borealis* and *Pyrola media*.

The morning of July 2nd was spent by the lower reaches of the Muckle Burn and on flat sandy ground near the Binsness entrance to Culbin Forest where *Blysmus rufus* and *Juncus balticus* were seen. After lunch, several of the "winter lochs" were explored. One was full of *Drosera rotundifolia* and *Lycopodium inundatum*, while in another were quantities of fine *Carex serotina* with *Littorella uniflora*, *Eleocharis multicaulis*, *E. quinqueflora* (*E. pauciflora*) and *Deschampsia setacea*; in a third was *Orthilia secunda*. *Hottonia palustris* was seen in its only known station in Moray. Mrs. Murray again entertained us to tea at Moy House, after which we walked down the Muckle Burn to the Findhorn River, where *Heracleum mantegazzianum* formed a thicket along the bank.

On Friday, July 3rd, the coach set off for Garmouth near the eastern extremity of the county. Near Elgin we noticed the great damage done in the woods by the January gales. At Lossiemouth a short stop was made to see *Corynephorus canescens*, first recorded here over fifty years ago as a casual and now well established. At Garmouth the party divided; some walked along the shore in a vain search for *Carex maritima*, while others made for the old bed of the river Spey, called "The Leen", now marshy meadows interspersed with *Phragmites* swamp. Between "The Leen" and the sea, *Jasione montana* was seen on the

shingle bank; its only known station in the north-east of Scotland. After lunch the Spey shingles were visited. Here the flora included alpine species brought down by the floods (*Cardaminopsis petraea* and *Alchemilla alpina* were seen), and escaped garden plants. *Mimulus guttatus*, *Impatiens glandulifera*, *I. parviflora*, *Silene maritima* and *Galium boreale* were common. That evening the final meeting took place at the Cluny Hill Hotel, when Mr. N. D. Simpson thanked the leader and all who had helped to make the week so enjoyable. The weather had been fine and warm throughout.

In the list that follows plants marked * are additions to the *Flora of Moray* (1935). Alien species are indicated by †.

(B.M.) indicates a specimen in Herb. Mus. Brit., det. by Dr. A. Melderis.
(M.Mc.W.) indicates a specimen in the herbarium of Miss M. McC. Webster.

(N.D.S.) indicates a specimen in the herbarium of Mr. N. D. Simpson.
(U.K.D.) indicates a specimen in the herbarium of Miss U. K. Duncan

CULBIN FOREST

RANUNCULUS FLAMMULA subsp. SCOTICUS (E. S. Marshall) Clapham. Buckie Loch (N.D.S.).

PARNASSIA PALUSTRIS L. Near Buckie Loch.

CENTAURIUM LITORALE (Turner) Gilm. Buckie Loch (B.M.), and near Binsness.

EUPHRASIA BREVIPILA Burnat & Gremli. Buckie Loch (B.M. and M.Mc.W., det. E. F. WARBURG).

E. OCCIDENTALIS Wettst. Near Binsness (M.Mc.W., "not typical", det. E. F. WARBURG).

*RHINANTHUS STENOPHYLLUS (Schur) Druce. Buckie Loch (B.M.).

*R. SPADICEUS Wilmott. Buckie Loch (U.K.D., det. E. F. WARBURG).

ORCHIS INCARNATA L. Buckie Loch.

*O. PRAETERMISSA Druce. Buckie Loch (N.D.S.).

O. MACULATA L. Binsness.

PLATANThERA BIFOLIA (L.) Rich. Buckie Loch (B.M.).

ELEOCHARIS MULTICAULIS (Sm.) Sm. Binsness (B.M.).

E. QUINQUEFLORUS (F. X. Hartm.) Schwarz. (*E. pauciflora* (Lightf.) Link., Binsness (B.M.).

CAREX SEROTINA M érat. Binsness (B.M.).

*C. SCANDINAVICA E. W. Davies. Winter Lochs, Binsness (M.Mc.W., det. E. W. DAVIES).

C. DIANDRA Schrank. Buckie Loch.

DESCHAMPSIA SETACEA (Huds.) Hack. Binsness (B.M.).

AGROSTIS STOLONIFERA L. subsp. STOLONIFERA Binsness (B.M.).

A. TENUIS Sibth. Binsness (B.M.).

POA SUBCAERULEA Sm. Binsness (B.M.).

FESTUCA ARUNDINACEA Schreb. Binsness (B.M.).

F. RUBRA var. ARENARIA (Osb.) Koch. Buckie Loch (B.M.).

F. RUBRA f. LITORALIS Hack. Buckie Loch (B.M.).

AGROPYRON JUNCIFORME A. & D. Löve. Buckie Loch (B.M.).

PLANTS RECORDED IN OTHER PARTS OF MORAY

*RANUNCULUS AQUATILIS subsp. PELTATUS (Schrank) Syme. "The Leen", Garmouth (B.M. and M.Mc.W.).

*RORIPPA MICROPHYLLA (Boenn.) Hylander. The common form in v.c. 95.

SISYMBRIUM OFFICINALE var. LEIOCARPUM DC. Findhorn, rubbish-heap (B.M. and U.K.D.).

†CAMELINA SATIVA subsp. PILOSA (DC.) Zinger. Casual at Moy House (B.M.).

- †*CARDARIA DRABA* (L.) Desv. Findhorn; Spey shingle and roadside near Garmouth.
- POLYGALA OXYPTERA* Reichb. Garmouth golf course, flowers white and crimson (B.M.); Findhorn (M.Mc.W.).
- SAGINA SUBULATA* (Sw.) C. Presl. Findhorn Shingle, near Greshop (B.M.).
- **SPERGULA SATIVA* Boenn. Findhorn (N.D.S.).
- **HYPERICUM MACULATUM* Crantz (*H. dubium* Leers). Spey shingle (N.D.S.).
- **GERANIUM COLUMBINUM* L. Near Moy House (M.Mc.W.).
- *†*IMPATIENS PARVIFLORA* DC. Spey shingle.
- *†*I. GLANDULIFERA* Royle. Spey shingle.
- **APHANES MICROCARPA* (Boiss. & Reut.) Rothm. Near Moy House (B.M. and N.D.S.).
- **ALCHEMILLA XANTHOCHLORA* Rothm. Spey shingle.
- A. GLABRA* Neygenf. Darnaway (B.M.); Spey shingle.
- *†*COTONEASTER SIMONSII* Baker. Spey shingle, J. SOUSTER.
- CHRYSOSPLENIUM OPPOSITIFOLIUM* L. Darnaway.
- *†*EPILOBIUM PEDUNCULARE* A. Cunn. Findhorn shingle, near Greshop (B.M.); Cothall (M.Mc.W.).
- CIRCAEA INTERMEDIA* Ehrh. Darnaway (M.Mc.W.); Spey shingle.
- *†*HERACLEUM MANTEGAZZIANUM* Somm. & Levier. Banks of Findhorn river near Greshop; Darnaway; Moy; Spey shingle (B.M.).
- *†*VALERIANELLA ERIOCARPA* Desv. Garden of Greshop House (B.M. and M.Mc.W.).
- *†*ANTHEMIS TINCTORIA* L. Spey shingle (M.Mc.W.).
- *†*CREFIS VESICARIA* subsp. *TARAXACIFOLIA* (Thuill.) Thell. Findhorn shingle, near Greshop (B.M.).
- HYPOCHOERIS GLABRA* L. Lossiemouth (B.M.).
- MYCELIS MURALIS* (L.) Reichb. Darnaway; Moy House.
- MONOTROPA HYPOPITYS* L. agg. Cothall quarry.
- *†*SYMPHYTUM PEREGRINUM* Ledeb. Spey shingle (N.D.S.).
- MYOSOTIS DISCOLOR* var. *DUBIA* (Arrond.) Wade. "The Leen" (N.D.S.).
- LITHOSPERMUM OFFICINALE* L. Cothall.
- *†*LINARIA PURPUREA* (L.) Mill. Spey shingle (N.D.S.).
- EUPHRASIA BREVIPILA* Burnat & Gremli. Darnaway (B.M.); near Moy House; Spey shingle.
- E. OCCIDENTALIS* Wettst. Spey shingle (M.Mc.W., det. E. F. WARBURG).
- E. OCCIDENTALIS* var. *CALVESENS* Pugsl. Near Moy House (M.Mc.W., det. E. F. WARBURG).
- **E. FOULAENSIS* Towns. ex Wettst. Findhorn (U.K.D., det. E. F. WARBURG).
- E. CONFUSA* forma *ALBIDA* Pugsl. Near Moy House (M.Mc.W., det. E. F. WARBURG).
- *†*MENTHA* × *NILIACA* var. *SAPIDA* (Tausch) Briq. Findhorn, rubbish-tip; near Moy House (B.M., det. R. A. GRAHAM).
- **M.* × *VERTICILLATA* var. *PALUDOSA* (Sole) Druce. Near Moy (M.Mc.W., det. R. A. GRAHAM).
- **THYMUS DRUCEI* Ronn. Greshop Wood (B.M.); Darnaway (U.K.D.).
- PLANTAGO MEDIA* L. Lawn at Moy House.
- P. LANCEOLATA* var. *ANTHOVIRIDIS* W. Wats. Findhorn (B.M. and N.D.S.).
- *†*CHENOPODIUM FICIFOLIUM* Sm. Arable, Darnaway; Moy House Gardens (B.M. and U.K.D.).
- **RUMEX TENUIFOLIUS* (Wallr.) Löve. Findhorn shingle near Greshop (U.K.D., det. J. E. LOUSLEY).
- SALIX PHYLICIFOLIA* L. Darnaway (B.M.).
- **ORCHIS PURPURELLA* T. & T. A. Stephenson. Darnaway; "The Leen" (B.M.).
- **O. FUCHSI* Druce. "The Leen" (N.D.S.).
- **ZOSTERA NANA* Roth. Findhorn estuary, R. D. GRAHAM.
- ELEOCHARIS UNIGLUMIS* (Link) Schultes. Garmouth golf course (B.M.).
- SCHOENUS NIGRICANS* L. Garmouth (B.M.).
- CAREX LAEVIGATA* Sm. Greshop Wood.
- **PHLEUM NODOSUM* L. Garmouth (B.M.).

- * *FESTUCA ARUNDINACEA* × *GIGANTEA*. Greshop Wood. B. M. C. MORGAN and U. K. DUNCAN (B.M.).
F. RUBRA var. *GLAUDESCENS* (Heg. & Heer) Nym. "The Leen" (B.M.); Findhorn (N.D.S.).
F. RUBRA var. *ARENARIA* (Osb.) Koch. Findhorn (B.M.).
F. RUBRA var. *PLANIFOLIA* Hack. Darnaway (B.M.).
F. RUBRA forma *LITORALIS* Hack. Spey Shingle (B.M.).
F. TENUIFOLIA Sibth. Darnaway (B.M.); Findhorn (N.D.S.).
F. VIVIPARA (L.) Sm. Findhorn shingle, near Greshop. Darnaway (B.M.).
VULPIA BROMOIDES (L.) S. F. Gray. Near Moy House; Spey shingle (B.M.).
 * *BROMUS LEPIDUS* Holmb. Arable at Cothall; near Forres station (B.M.); Findhorn, det. A. MELDERIS.

JULY 12th, 1953. SOUTH LANCs. LOCAL FIELD MEETING

Thirteen South Lancs. members met at Ainsdale, near Southport on July 12th, 1953, for what we hope will be the first of a series of local field meetings in the vice-county.

Miss V. Gordon led the party over the dunes and dune-slacks, concentrating mainly on the rich flora of the slacks. Among the species seen were *Parnassia palustris* var. *condensata*, *Centaureium erythraea* and *C. littorale*, *Parentucellia viscosa*, *Epipactis palustris* and *E. dunensis*, *Scirpus americanus*, *Botrychium lunaria* and *Ophioglossum vulgatum*. After tea those members who were able to remain saw *Antennaria dioica*, recently found in the area by Miss Gordon, growing at the side of a drainage channel on fixed dune sand colonized by *Rubus caesius*. The meeting was concluded by a visit to a damp thicket to see *Osmunda regalis* and the members then dispersed after thanking Miss Gordon for her leadership of an extremely pleasant excursion.

E. M. ROSSER.

JULY 24th to 26th, 1953. MALDON, ESSEX

Leaders: Mr. B. T. WARD and Mr. S. T. JERMYS

On Friday evening 27 members and friends assembled at Headquarters, The Blue Boar Hotel, for the usual briefing, and then went for a short walk along the towpath of the River Blackwater to Beeleigh Weir and back. Many interesting riverside plants were seen including *Thalictrum flavum*, *Brassica nigra* and *Acorus calamus*. We also found *Ranunculus sardous*, *Sison amomum* and *Trifolium fragiferum* in very great quantity. The alien *Thlaspi alliaceum* has been known at the Weir for some years, and it was just possible to identify some withered remains. Members will remember the excursion to Rippers Cross in April 1952 to see this plant in its original 1923 site. In Essex it was associated with *Lepidium ruderale* and *Cardaria draba*. Later in the evening *Hypochaeris niger*, *Phalaris canariensis* and *Euphorbia lathyris* were seen on Maldon rubbish dump.

On Saturday the party left by coach for the Blackwater Estuary at Stansgate Abbey. In February 1953 the sea wall broke all along this part of the coast, and here and there the effect of salt water on former

arable land was very evident. In many ditches behind shingle banks maritime plants, especially grasses, had survived the effect of sea water but had assumed extraordinary and monstrous forms of growth while they were submerged. The odd looking forms of *Parapholis strigosa* were especially remarkable. Other plants seen here were *Suaeda fruticosa*, *Carum segetum*, *Chenopodium ficifolium*, *Carduus tenuiflorus*, *Senecio squalidus*, and *Bupleurum tenuissimum*. Interesting grasses included *Agropyron pungens*, *Parapholis strigosa*, *Puccinellia fasciculata*, *P. distans* and *Hordeum marinum*.

After lunch the party continued to Bradwell juxta Mare, and had the opportunity of examining the very famous old chapel of St. Peter by the Wall. The shore here is dominated by *Spartina townsendii*, which appears to be steadily smothering other plants. *Limonium vulgare* and *L. humile* with *Salicornia perennis* appeared to be able to exist with *Spartina townsendii* quite well, but many other maritime species such as *Artemisia maritima*, *Suaeda maritima* and *Halimione portulacoides* had been banished to the extreme edge of the *Spartina* area. It was interesting to see large quantities of *Lathyrus nissolia* in seed. This was a lovely warm and windless day, and ideal for sea coast botany.

Sunday morning was cooler and showery, and the party was fortunate in having woodland to explore instead of open country. Woodham Walter Common and Blake's Wood were examined and a new vice-county record was made. This was *Rubus moylei* Barton and Riddelsdell (det. W. Watson) from Blake's Wood. Other plants observed during the day were *Aphanes arvensis* and *A. microcarpa*, *Agrostis tenuis*, *Symphytum peregrinum*, *Convallaria majalis*, *Carpinus betulus*, *Quercus petraea*, *Thelypteris palustris*, *Epilobium lanceolatum*, *E. parviflorum* and *E. adenocaulon*. Both *Lactuca serriola* and *L. virosa* were seen in the lane leading to Woodham Walter Common.

This was an interesting week-end in country new to many members present, and the delightful little town of Maldon provided an ideal headquarters. The Society's thanks are due to Mr. Ward and Mr. Jermyn for organising the excursion. Thanks are also due to Dr. Melderis for identifying the various grasses.

O. BUCKLE.

AUGUST 28th to 30th, 1953. PULBOROUGH

Leader: Mr. O. BUCKLE

This week-end was planned to show typical south coast salt marsh and the peat brooks at Amberley and North Stoke. In West Sussex salt marsh is being reclaimed very rapidly, and there is now little left in the vice-county.

Thirty-six members and friends attended, and after the usual meeting on Friday evening at which details of the excursions were given, together with a few general remarks on the botany, geology and local history of the district, the party met on Saturday morning in the rain to go by coach to West Wittering in the Selsey peninsula. On arrival

there, the weather became very much worse and the party set off across the salt-marsh to the dune fringe in a heavy downpour. It was too wet to consider a detailed examination of the flora of the marsh, but a trudge round the sandy edge revealed many interesting plants including *Althaea officinalis*, *Frankenia laevis*, *Bupleurum tenuissimum*, *Inula crithmoides*, *Oenothera ammophila*, *Euphorbia paralias*, *E. portlandica* (first seen in West Sussex in 1951), *Limonium humile*, *Salicornia perennis*, *S. prostrata*, *S. appressa*, *S. stricta*, *S. disarticulata* and *Elymus arenarius*. In addition, some interesting forms of *Spartina townsendii* were seen and Dr. Melderis has been good enough to make some observations on them.*

Lunch was taken at Wittering and the party continued by coach to Pagham Harbour on the east side of Selsey. Here, an examination of the steady growth of *Spartina townsendii* had been planned. The water-way is now almost silted up. The leader had also hoped to make a thorough search for *Spartina maritima* which has not been seen there for some time. He had taken the precaution of walking over the area at high tide, but unfortunately had not exercised sufficient forethought to make allowance for the effect of the full moon, and the selected area was under water. Consequently the afternoon was rather disappointing although the following plants were seen, *Chenopodium rubrum* var. *pseudo-botryodes*, *Stachys arvensis* and *Carex extensa*.

On Sunday morning in heavy rain the party left by coach for Amberley Wild Brooks. The rain ceased during the morning and these famous Sussex brooks were seen at their best. Many interesting plants were seen including *Thelypteris palustris*, *Stellaria palustris*, *Impatiens capensis* (always a cleistogamous form here), *Elodea canadensis* in full bloom, *Anthemis nobilis*, *Mentha* × *verticillata*, *Leersia oryzoides* and *Sium latifolium*.

After lunch at Amberley, a short halt was made at Houghton Bridge to see *Wolffia arrhiza*, *Scirpus tabernaemontani* × *triqueter* and *Carex acuta*. The party then proceeded to North Stoke where another range of peat brooks was shown. Here nine pondweeds were seen:—*Potamogeton acutifolius*, *P. obtusifolius*, *P. lucens*, *P. perfoliatus*, *P. trichoides*, *P. natans*, *P. pusillus*, *P. crispus* and *Groenlandia densa* (*Potamogeton densus*). In addition there were seen in the brooks other interesting plants including *Myriophyllum verticillatum*, *M. alterniflorum*, *Utricularia neglecta* and *triglochin palustris*. All these plants are comparatively scarce in West Sussex. Two other splendid finds were *Chara delicatula* and *Tolypella prolifera*, both named by G. O. Allen.

This completed the work of the week-end and the party returned by coach to Pulborough.

Dr. Young thanked the leader who replied briefly regretting that rain had to some extent restricted the programme.

O. BUCKLE.

*See **Plant Notes**. —Ed

SEPTEMBER 26th, 1953. PETERBOROUGH

Leaders: Mr. J. E. DANDY and Dr. G. TAYLOR

This was primarily a *Potamogeton* excursion, and a large number of members gathered at Peterborough. The morning was spent at the London Brick Company's pits at Fletton (v.c. 31). Almost at once the rare *P. × cooperi* (*P. crispus* × *perfoliatus*), a new record for Hunts., was discovered. Both parents were subsequently seen although *P. crispus* was in small quantity. Another interesting find here was *P. coloratus*. Other Pondweeds seen in the various pits examined were *P. pectinatus*, *P. natans*, *P. lucens* and *P. pusillus*. *Artemisia absinthium* was abundant in the brick-yards.

After lunch the party went to a dyke near Ramsey where *Potamogeton* × *sparganifolius* (*P. gramineus* × *natans*) was seen with both parents. It was interesting to see *P. gramineus* in such good quantity.

On the walk to the dyke some splendid *Galeopsis speciosa* was seen in a field of carrots. *Sonchus palustris* grew in quantity along a ditch at the edge of Wood Walton Fen, and here also was seen *Galium* × *ochroleucum* (*G. mollugo* × *verum*).

The Society's thanks are due to the leaders for their enthusiastic leadership, and for the patience they displayed in helping members in the identification of the various Pondweeds.

O. BUCKLE.

NORTHERN REGIONAL MEETING, 1953

The first Northern Regional Meeting, attended by 78 members and guests, was held in the Department of Botany, University of Manchester, on October 31st, 1953, by kind permission of the Vice-Chancellor and Professor S. C. Harland.

When the meeting opened at 11.15 a.m. Professor S. C. Harland, F.R.S., welcomed members of the Society and their guests to Manchester, commenting on the great taxonomic advances which had been made since the days of Mr. Charles Bailey, who was so closely associated both with the Society in its early days and with the University which has benefited so much from his presentation of his fine herbarium. He then took the chair at the opening session, introducing the speakers, Mr. P. C. Sylvester-Bradley, Miss C. M. Rob and Mr. J. E. Lousley.

At the afternoon session Professor Tutin, the chairman, introduced Professor Harland's talk on the experimental work which is in progress on the genus *Senecio*, which was followed by an interesting and informative discussion.

After tea all adjourned to the laboratories to examine a large selection of exhibits and discuss points of interest. The meeting ended at 6 p.m., when Dr. Dony and Mr. Lousley thanked all who had contributed to the success of the meeting. I should like to take this opportunity of supplementing my inadequate thanks on the day of the meeting by recording here my indebtedness to Dr. Dony, Mr. Lousley, the local secretaries for Lancs. and Yorks and Dr. W. O. Howarth for their patience in replying to my numerous enquiries and appeals for advice both before and during the meeting, and to the exhibitors and others not only for their contributions on the day of the meeting but also for their help in compiling the report of the lectures and exhibits which follows.

E. M. ROSSER.

Lectures

THE TAXONOMIC IMPLICATIONS OF THE BRITISH ROSE SURVEY

P. C. SYLVESTER-BRADLEY

Mr. P. C. Sylvester-Bradley, in his interesting lecture, gave a brief account of the native roses and indicated what kind of information he hoped would emerge from the British Rose Survey.

The native roses can be divided into two sharply distinct groups on the basis of their cytological behaviour. On the one hand there are the two species with orthodox behaviour at meiosis: *Rosa arvensis* (diploid) and *R. spinosissima* (tetraploid). On the other there is the multitude of micro-species belonging to the section *Caninae*, with their aberrant

type of meiosis, leading to the production of gametes of unlike chromosome number, the pollen grains always being haploid. On fertilisation the parent number is restored. Tetraploids, pentaploids and hexaploids are known here, the pentaploids being the most frequent.

Unlike most plants, the principal species (as recognised by Warburg in the new British Flora) in each subsection show reasonably well-defined geographical replacement.

Local populations of roses would appear to show rather different types of variation. There are the densely populated areas with sometimes a very wide range of variation—it is on these, naturally, that field botanists have tended to concentrate in the past. But there are also areas where exactly the same microspecies is encountered over and over again to the exclusion of any other. Such areas would appear to be more sparsely populated than the “good” rose areas. But a great deal more information on these lines is required and this, it is hoped, will emerge as the results of the Survey are analysed.

SOME ALIEN PLANTS OF YORKSHIRE

Miss C. M. Rob

It is impossible to reproduce adequately here the humour and enthusiasm with which Miss Rob put forward her plea for more interest in the alien plants occurring in Yorkshire, but it is to be hoped that they had a lasting effect on her audience, and that any present who retain any vestige of what she believes to be distrust of “foreigners” will soon lose it and join in the recording of interesting aliens.

Reasons for devoting more serious study to alien plants were further stressed by Mr. Lousley in the discussion which followed. Firstly, he said, it was important to obtain early records of species which may subsequently spread (early records of *Senecio squalidus* and *Epilobium adenocaulon* are inadequate). Secondly, closer study of the introduction, spread and taxonomy of present aliens is likely to give information which will throw light on the status of many plants already in our flora and, thirdly, by compelling the use of characters of families and genera it leads to knowledge of the distribution and variation of genera and species and encourages the use of floras and monographs dealing with most temperate areas of the world. For these and other reasons the study of aliens is to be encouraged provided it does not detract from the investigation of native plants.

SOME RECENT DISCOVERIES AND RE-DISCOVERIES

J. E. LOUSLEY

The purpose of this lecture was to discuss some of the more important additions to the British flora and re-discoveries which have been shown at the London meetings of the Society or described in *Watsonia*.

The additions to our flora were reviewed under two headings. First, those which resulted from the investigation of little-known areas and

were very easily recognised as different from previously known British plants. Of these *Diapensia lapponica* and *Artemisia norvegica* are excellent examples and were found on Scottish mountains in places which may not previously have been visited by botanists. *Koenigia islandica* is equally easily recognised but as at least one place where it grows in Skye is frequented by tourists it seems that its small size must explain why it was not detected earlier. These important discoveries suggest that there is still scope for further major additions to our flora from the more remote parts of the British Isles.

The second category of additions arises from the close study of critical groups. These are more numerous, and examples of species added to the British list recently were selected from the work of Dr. S. M. Walters on *Alchemilla* and *Aphanes*, of Dr. E. F. Warburg on *Sorbus*, and of Dr. J. Heslop-Harrison on *Dactylorhiza*.

Roegneria doniana was selected as one of the most interesting examples of a species recently re-discovered. It was suggested that a similar careful examination of the records of some other species might result in them being re-found in old localities.

THE GENUS *SENECIO* AS A SUBJECT FOR CYTOGENETICAL INVESTIGATION

S. C. HARLAND

Professor Harland said that *Senecio vulgaris* was chosen for study because it was possible to obtain three or more generations in one year.

With the object of getting a number of clear-cut Mendelian differences to use as markers in interspecific hybrids 250 different geographical strains of groundsel from all parts of Europe, from Iceland, South America and the United States were grown in 1950 at the Manchester University Experimental Ground; but curiously there was little variation.

Attempts are being made to take the radiate gene from *Senecio squalidus* and, by repeated back-crossing to *S. vulgaris*, to put it in a groundsel background and discover whether it is the same gene. If it is this would indicate that *S. vulgaris* and *S. squalidus* had a common ancestry.

A groundsel variant called 'strap' which has been obtained is very weak, has narrow leaves and is male sterile but female fertile. This plant was pollinated extensively by *S. squalidus* pollen and a hybrid obtained which is a sterile triploid. 'Strap' provides the possibility of obtaining other hybrids with *S. vulgaris*. It hybridises readily with the alien described in Druce and Hayward's *Adventive Flora of Tweed-side* as *Senecio lautus* Sol.*

*See J. E. Lousley, 1953, *Year Book, B.S.B.I.*, p. 107, for comments concerning the identity of this plant. It is there suggested that the plant is *S. inaequidens* DC., which has since been confirmed by the National Herbarium, Pretoria.—J. E. Lousley.

Excised roots of different geographical strains grown by Dr. H. E. Street and co-workers under artificial conditions have shown different growth rates. Lantern slides illustrating these differences of growth-rate were shown.

Exhibits

1. AN INTERESTING MINT FROM THE SHEFFIELD DISTRICT

The exhibit showed a peculiar mint form from the Rivelin Valley near Sheffield, v.c. 63, which bears a strong affinity to *Mentha smithiana* R. Graham and has perhaps arisen from this taxon by a somatic gene mutation. R. A. Graham identifies it as *M. smithiana* R. Graham var. *angustifolia* R. Graham forma. The Rivelin mint differs from *M. smithiana* and its variety *angustifolia* in having the pedicels and the bases of the calyces more or less hirsute instead of glabrous.

The leaf shape is very variable, some being lanceolate and deeply serrate and others approaching 'typical' *M. smithiana*.

F. W. ADAMS.

Mr. Adams also exhibited interesting sheets from

2. THE HERBARIUM OF JONATHAN SALT

3. *LOTUS HISPIDUS* IN WALES

See report of the London Meeting (*Proc. B.S.B.I.*, 1, 83, 1954).

4. SPECIES PAIRS AND THEIR HYBRIDS IN THE ISLE OF MAN

Maps were exhibited showing the distribution in the island of 5 pairs of species: *Stachys sylvatica* L., *S. palustris* L. and *S. × ambigua* Sm.; *Glyceria fluitans* (L.) R.Br., *G. plicata* (L.) R.Br. and *G. × pedicellata* Townsend; *Rorippa nasturtium-aquaticum* (L.) Hayek, *R. microphylla* (Boenn.) Hylander and *R. × sterilis* Airy Shaw; *Veronica anagallis-aquatica* L., *V. catenata* Pennell and their hybrid; and *Potentilla reptans* L., *P. mixta* auct. angl. and their hybrid.

These were all selected as instances where the hybrids (usually quite sterile) occur plentifully in areas from which one or both parents are apparently absent. In the case of the *Veronica* the sterile hybrid is much more abundant in the island than either parent. The remarkable prevalence of hybrids in the Manx flora is perhaps partly explicable by the absence or excessive rarity of many species that are more plentiful in Great Britain, thus permitting the hybrids to occupy ecological niches from which they would normally be excluded by the much greater competition prevailing on the mainland.

D. E. ALLEN.

5. *ALCHEMILLA VULGARIS* (AGG.) IN NORTH ENGLAND

Eleven of the twelve micro-species of *Alchemilla vulgaris* occur in North England; pressed specimens of these species were shown, together with notes on their distribution. *A. monticola* Opiz, *A. acutiloba* Opiz and *A. subcrenata* Buser are localized in Teesdale and Weardale, *A. minima* S. M. Walters and *A. minor* Huds. in the Craven district (the latter occurs in Scotland and Ireland) and the other species are more widespread. Specimens, and/or records of "difficult" *A. vestita* (Buser) Raunk. and *A. filicaulis* Buser would be welcomed by Dr. S. M. Walters and myself.

Miss M. E. BRADSHAW.

6. *CALAMAGROSTIS NEGLECTA* IN SOUTH-EAST YORKSHIRE AND A PUTATIVE HYBRID WITH *CALAMAGROSTIS CANESCENS*

Calamagrostis neglecta and *C. canescens* were shown, together with the suspected hybrid and drawings of the floral structure of the parents, leaf positions and flowering spikes of *C. neglecta* and the hybrid.

Miss F. E. CRACKLES.

7. SOME INTERESTING PLANTS FROM YORKSHIRE, ETC.

Herbarium sheets of the following species were shown:—

Orchis traunsteinerioides (Pugsl.) Pugsl. A recently gathered Yorks. specimen.

Orchis fuchsii × *purpurella*.

Adiantum capillus-veneris L. Kent estuary, 1953.

Polystichum lonchitis (L.) Roth. Near Settle, Yorks., 1953.

Orobanche alba Steph. ex Willd. West Yorks., v.c. 64, 1953.

Veronica spicata subsp. *hybrida* (L.) E. F. Warburg. A plant from the exact Westmorland station where it was recorded as *V. spicata* type and so got into the *Comital Flora* for v.c. 69.

Myosotis brevifolia C. E. Salmon. Upper Wharfedale.

Gagea lutea (L.) Ker-Gawl. Upper Ribblesdale, its highest known altitude in Britain, where it very rarely flowers.

Mertensia maritima (L.) S. F. Gray. V.c. 60. First record for West Lanes. Shingle near Morecambe, August 1941.

Epilobium alsinifolium Vill. V.c. 64. Upper Wharfedale, Yorks.

Linum catharticum var. *dunense* Druce from an inland station.

Brachypodium pinnatum (L.) Beauv. from the scar limestone, Yorks.

All previous records are doubtful.

J. N. FRANKLAND.

8. *EGERIA DENSE* IN BRITAIN

This new and interesting addition to the alien flora of Britain was recently found by Miss Frost in a South Lanes. canal. Fresh material, drawings and herbarium specimens were shown, together with a map

illustrating the temperature gradients in the canal and the distribution of *Egeria* and associated species.

MISS L. W. FROST.

9. FLORA OF ISRAEL

Two volumes of 50 illustrations each, the second having five plates in colour.

MRS. A. N. GIBBY.

10. BRITISH *POLYGALA* SPECIES

The demonstration consisted of:—

- (a) A specimen of *Polygala amara* seemingly from Jersey, collected by Babington, differing slightly from known British stocks of *P. amara* and *P. austriaca*. This is thought to justify a queried record for that locality.

P. calcarea (misidentified as *P. depressa* = *P. serpyllifolia*) from Thirsk. It seems most unlikely that suitable localities for the species occur in this neighbourhood, and as the species is not rare in the south of England it is thought that the locality on the sheet is an error. (5/58 e. coll. Fletcher).

- (b) A demonstration of capsules of *Polygala* species to draw attention to useful characters of wing venation, capsule shape and capsule rim. See report of the London Meeting (*Proc. B.S.B.I.*, 1, 93, 1954) for further details.
- (c) Herbarium material of the species, differences in habit, leaf shape and corolla proportions being pointed out. *P. vulgaris*, *P. amara* and *P. austriaca* tend to grow from the base, *P. serpyllifolia* and *P. calcarea* tend to continue the growth of a stem by shoots arising from the upper axils of overwintering stems, and in *P. serpyllifolia* from the axils beneath a spike. The leaves of *P. calcarea*, *P. amara* and *P. austriaca* are broadly spatulate below, narrowly above. (In *P. austriaca* the leaves are blunt, in *P. amara* pointed). Those of *P. serpyllifolia* are usually elliptic, broadest about the middle, and blunter than in *P. vulgaris*, where the broadest point is usually below the middle, and the leaves longer. The corolla is usually short-tubed with long petals and comb in *P. calcarea*, *P. amara* and *P. austriaca*, longer-tubed in *P. serpyllifolia* and *P. vulgaris*, the comb and petals being short in *P. serpyllifolia* and longer in *P. vulgaris*.

The similarity of *P. amara* and *P. austriaca* was pointed out and emphasized by the display of a sheet of *P. austriaca* from Shoreham, Kent, which has the habit of *P. amara*, and can only be distinguished with difficulty. The intergradation of *P. vulgaris* and "*P. oxyptera*" was again shown by the display of a collection from Wye, Kent, where "*P. oxyptera*" can be obtained on the top of the Down and *P. vulgaris*

below. The forms grade into one another, the series being visible in several flower colours, and leaf and wing shape seem constant throughout (the wing being greatly reduced in the "*P. oxyptera*"). It appears as one population, the "*P. oxyptera*" form being brought about by the exposed conditions.

The intergradation of *P. vulgaris* and "*P. oxyptera*" was emphasised throughout, the point being stressed that they do not differ in qualitative characters as do the other species, e.g., characters of wing venation, capsule shape and rim, corolla proportions, leaf shape or habit other than in size. It was also pointed out that there are various ideas as to what is meant by "*P. oxyptera*", various people employing habit, small size and few flowers, or wing shape, or the proportions of wing to capsule, to define it. It is felt that the non-significance of habit is shown by the population mentioned above, which also varies in wing-to-capsule proportions. Wing shape commonly varies in one population, as was shown in the demonstration of capsules, and is generally independent of plant size. It seems that all *P. vulgaris* in Britain has the wing narrower than the fully ripe capsule.

The similarities of *P. amara* and *P. austriaca* were also brought out, showing that they did not differ more than isolated populations of the other species.

D. R. GLENDINNING.

11. *EPILOBIUM LINNAEOIDES* HOOK. F. IN BRITAIN

See report of the London Meeting (*Proc. B.S.B.I.*, 1, 93, 1954) for details.

MISS V. GORDON.

12. WATER COLOUR DRAWINGS OF SEEDS OF BRITISH PLANTS

A selection of water colours of seeds and fruits of British plants.

H. E. GREEN.

13. AN INTERESTING *SENECIO* FROM NORTH WALES

A specimen was exhibited of a large radiate *Senecio* which could not be named by any of those present. Seed of this plant, supplied by the exhibitor, is in cultivation at the Manchester University Experimental Ground and it is hoped that further information about this "giant groundsel" can be given soon.

H. E. GREEN.

14. Two *SENECIO* HYBRIDS

The weak, narrow-leaved groundsel variant called "strap", which is male-sterile, was exhibited. This plant has been used as a female parent to obtain an inter-specific cross between *Senecio vulgaris* and *S. squalidus*, the hybrid being a sterile triploid. Interspecific hybrid seedlings were shown from the crossing of "strap" with an alien species thought at first to be *S. lautus* Sol., but now thought to be probably *S. inaequidens* DC. (See earlier reference.)

S. C. HARLAND and A. R. HAYGARTH JACKSON.

15. EXCISED ROOTS OF *SENECIO* SPECIES GROWING IN STERILE CULTURE

The first part of the demonstration showed the methods of maintaining excised roots in sterile culture, and of increasing them for experiment.

The second part consisted of excised roots of the species *Senecio vulgaris*, *S. squalidus* and *S. jacobaea*, to show the striking differences in morphology between roots of these species.

Roots of strains of *S. vulgaris* from Norway, Iceland, Czechoslovakia and Peru demonstrated intraspecific differences in morphology and particularly in growth rate.

Finally there were roots of the Czechoslovakian strain growing on Arginine and Yeast media, showing the differential effect on growth rate exercised by these two substances which is not found with the Icelandic strain.

H. E. STREET, H. P. CHARLES and B. CHOLERTON.

16. SOME BRITISH VARIETIES OF *FESTUCA*

A series of forms of *Festuca ovina* and *F. rubra* showing parallel divergences was exhibited, as, for example:—

A. Hairiness of spikelets illustrated by:—

F. ovina (*mutica*) and var. *hirtula*

F. ovina (type) and var. *hispidula*

F. rubra (type) and var. *dumetorum*

B. Pruinose (waxy) surface illustrated by:—

F. ovina var. *glauca*

F. rubra var. *pruinosa*

Forms of *F. elatior* were also shown and the natural hybrid \times *Festulolium loliaceum* (Huds.) P. Fourn.

W. O. HOWARTH.

17. SOME INTERSPECIFIC HYBRIDS IN *POTENTILLA*

The demonstration included the preliminary results of a cytogenetical investigation of the relationships of *Potentilla erecta* (L.) Räsch. ($2n=28$), and *P. anglica* Laich. ($2n=56$). Natural hybrids between these species are frequently recorded in British floras under the names *P. \times suberecta* Zimm., *P. \times italica* Lehm. and *P. \times mixta* Nolte. Crossing experiments, including all combinations, were successful in producing *P. erecta* \times *anglica* and the reciprocal hybrid. All other combinations failed. The hybrids, $2n=42$, are female fertile, and slightly male fertile. Backcrosses to both parents produced viable seed, and the back-cross derivatives are mainly vigorous. Chromosome numbers already determined include $2n=28, 33, 35, 36, 49$ and 51 .

An investigation of the possibility of intergeneric hybridisation between species of *Fragaria* and *Potentilla* has shown that the most promising combination is *F. vesca* L. \varnothing \times *P. reptans* L. σ . The two species cross easily, but the seedlings die after one or two months.

J. K. JONES.

18. EXHIBITS BY MEMBERS OF LIVERPOOL UNIVERSITY

(1) BRITISH *HIERACIA* OF HISTORIC INTEREST FROM THE HERBARIUM OF W. R. LINTON

The exhibit showed specimens of historic interest extracted from Herb. W. R. Linton, now in the possession of the University of Liverpool.

The Linton herbarium includes an extensive collection of British *Hieracia*, mainly collected by W. R. Linton, with many additional specimens contributed by E. F. Linton and other British and Continental *Hieracium* specialists.

The sheets exhibited showed only those species or varieties which appear to have been first described by W. R. or E. F. Linton. The interest of these sheets is considerably enhanced by the abundant critical comments or extracts from correspondence with other contemporary specialists. The names most frequently occurring are those of Dahlstedt, E. S. Marshall, F. J. Hanbury and Augustine Ley.

C. L. HARE.

(2) *DRYOPTERIS DILATATA*

Herbarium material of *Dryopteris dilatata* (Hoffm.) A. Gray was exhibited. Work on this species was carried out whilst the exhibitor was a member of Leeds University.

A wide range of form was shown to be present in tetraploid *Dryopteris dilatata*. A diploid form, collected on Ben Lawers, Perthshire, Scotland, by Mr. A. H. G. Alston of the British Museum, is considered worthy of specific separation owing to its morphological and cytological distinction. Hybrids between the diploid and tetraploid forms have been shown to be triploid and sterile, with approximately 'n' bivalents and 'n' univalents at meiosis ($n=41$ in *Dryopteris*).

S. WALKER.

19. Two *ERICA* FORMS

Erica tetralix L. Herbarium specimens of this plant were shown in which the leaves were devoid of cilia. Similar plants were found in blanket bog in several localities in Connemara. Search in Herb. Bailey showed no similar plant among sheets of English material, but similar forms were found in material collected in Connemara.

The plants shown were growing among *E. mackaiana*, and typical *Erica tetralix* was rare here.

Erica cinerea L. A dwarf form with restricted inflorescence, a 'pinched' appearance to the corolla, and the corolla usually salmon pink, occasionally white. An unmistakable form in the field, scattered over the blanket bog behind Roundstone, Connemara, between Errisbeg and the Clifden road.

No similar plant was found in the English material in Herb. Bailey, but an exactly similar form (white-flowered) was found, collected in exactly the same locality in 1868, labelled 'nana fl. albo'.

J. N. MILLS.

20. A PUZZLING *GALIUM* FROM CONNEMARA

A small number of plants, all dwarfed like the specimen exhibited, were found on rocks at Connemara just above the highest tide-mark. Typical well-grown *Galium aparine* was growing nearby.

Professor D. A. Webb, who saw fresh material, commented, "A very odd plant; seems intermediate between the two (*G. aparine* and *G. tricornes*) in most respects, especially curvature of and length of peduncles and surface of fruit. Leaves are more like *G. aparine*; colour of fruit and frequent abortion more like *G. tricornes*".

The corolla, when fresh, was dirty yellow, like *G. tricornes*. Petals were usually 3 and leaves in whorls of 4, unlike either species, resembling *G. aparine* both in shape and in the direction of the marginal bristles near the apex.

Hybrid origin is improbable, as *G. tricornes* has never been recorded from Ireland.

J. N. MILLS.

21. A METHOD FOR THE ANALYSIS OF A SUSPECTED HYBRID POPULATION BETWEEN *CENTAURIUM MINUS* AND *CENTAURIUM LITTO-RALE*

See report of the London Meeting (*Proc. B.S.B.I.*, 1, 98, 1954) for details.

MISS W. T. M. O'CONNOR.

22. A NATURAL HYBRID BETWEEN *VACCINIUM MYRTILLUS* AND *V. VITIS-IDAEA*, *V. × INTERMEDIUM* RUTHE

This hybrid was discovered in Germany in 1826, and *Vaccinium myrtillus* and *V. vitis-idaea* were suggested as parental species. The distribution of the putative hybrid and its supposed parents in N.W. Europe was presented on maps.

The results of artificial pollination experiments showed that *V. × intermedium* is formed from *V. myrtillus* × *V. vitis-idaea* of which the former is the maternal parent. Backcrossing of this hybrid by pollinating it from *V. vitis-idaea* yielded a progeny which showed more variability than any of the progeny of parental selfings or hybrid first generation progeny. Individuals of the backcross progeny provide strong evidence of introgression to the recurrent parent.

Using a pictorialized scatter diagram technique, the results of a field analysis of *V. × intermedium* were summarized and it was shown that the population (in the British Isles) is homogeneous, in that it shows no more variability than either parent.

Low pollen viability of the hybrid and the negative results of self-pollination experiment indicate that the production of a second generation is unlikely. Back-crossing experiments provide evidence for introgression to the recurrent parent, *V. vitis-idaea*. With one exception, in Sweden, the absence of evidence of natural introgression indicates that gene-flow between these two ecospecies has scarcely begun, being limited by the selective effects of environment. Further, the longevity of individual clones and their mode of reproduction—almost entirely vegetative—retards potential gene-exchange and convergence.

J. C. RITCHIE.

23. A SUCTION APPARATUS FOR THE EMASCULATION OF SMALL FLOWERS

The emasculation of the small flowers of *Trifolium* species for use in experimental crosses is achieved by the exhibitor by means of fine glass jets attached to a water pump which provides sufficiently strong suction to remove the anthers. He gave a number of demonstrations of his technique during the meeting.

A. SMITH.

24. SOME MEMBERS OF *CAREX* SECTION *ACUTAE*

Carex nigra (L.) Reichard is a common, variable and widely distributed species which in *Dansk Ekskursions-Flora* (7th edition by K. Wiinstedt) is divided into three species. It is probable that all three of these can be recognized in Britain, but one, *C. stolonifera* Hoppe, needs further investigation. *C. subcaespitosa* (Kükenthal) Wiinstedt is, however, a distinct plant in its densely tufted habit and fruit shape. It is known to occur near Edale and Malham and may well be found elsewhere. It appears almost certain that records of *C. juncella* (E.Fr.) Th.Fr. from this country refer to *C. subcaespitosa*.

The exhibit consisted of specimens of *C. subcaespitosa* together with sheets of *C. bigelowii*, *C. nigra* and what may be *C. stolonifera*. Specimens of *C. juncella* and *C. cespitosa*, neither of which appear to be British, were included for comparison.

T. G. TUTIN.

25. A DWARF ECOTYPE OF *GEUM RIVALE* FROM TEESDALE

Specimens were shown of a dwarf form of *Geum rivale* L. collected at a height of 1700 ft. from the grazed limestone grassland of Cronkley Fell, Upper Teesdale, and of the common lowland form.

These and other forms of *G. rivale* have been recently studied by Miss A. C. Tallantire at Durham. She has found that, in general, plants from montane habitats are significantly smaller than those from lowland habitats. Experiments on plants from Durham populations have shown that the forms retain their distinguishing characters in cultivation, breed true, and are perfectly interfertile.

The differences between the lowland and montane populations (which may be regarded as ecotypes) appear to be purely quantitative; no qualitative differences have been found.

Populations intermediate in size characters between the extreme forms demonstrated here have been found in sub-montane habitats in other parts of the British Isles; but the extreme dwarfness of the Teesdale population appears to be unique.

D. H. VALENTINE.

26. *RUBUS SPECTABILIS* PURSH FROM THE ISLE OF MAN

This attractive North American alien was recently recorded by the exhibitor near Port Soderick in the Isle of Man, where it appears to be naturalised. Herbarium sheets were shown.

J. T. WILLIAMS.

27. THE STATUS OF *ROSA WILSONI*

The demonstration included drawings and microphotos of different stages in meiosis of *Rosa* \times *wilsoni* Borr. and data on the breeding behaviour of this hexaploid hybrid between *R. tomentosa* and *R. spinosissima*. This new information suggests that *R. wilsoni* arose from a cross of the type:—*R. tomentosa* (female) \times *R. spinosissima* (male), giving a hexaploid in one step, rather than from the reciprocal, followed by chromosome doubling to produce an allohexaploid as had previously been suggested. The observed breakdown of the meiotic system characteristic of the *Caninae* themselves, agrees with the results of Scandinavian and American workers on artificial hybrids between members of the *Caninae* and species from other sections of the genus.

A. P. WYLIE.

REPORT OF THE COUNCIL

This report and the audited accounts printed below cover the period January 1st to December 31st, 1953.

MEMBERSHIP. During the year 92 new members joined the Society; of these 14 (15%) were introduced through the activities of the Advertising Committee. We lost 31 members through death, resignation, and the operation of Rule 6 (e), giving a net increase of 61. This may be compared with 12, 104, 79 and 97 respectively for the years 1949, 1950, 1951 and 1952. The total membership at the end of the year was 839.

FINANCE. Receipts from subscriptions amounted to £823 compared with £719, £641 and £590 for the preceding three years. Income Tax recovered was £44, compared with £32 for 1952. The Council are grateful to those members who have made this possible by entering into Deeds of Covenant but think there must be many more who could assist us in this way without cost to themselves.

During the year the Society has expended no less than £1.062 on publications (£428 in 1952), and it is expected that our expenditure on periodicals and books in 1954 will be even greater. For this reason it has been thought prudent to make as much provision as possible towards future commitments. The balance of the Publications Fund has been built up towards the cost of the books it is hoped to publish in 1954 and 1955 (see below). A new *Proceedings* Fund has been opened in the books with an initial balance of £200 for the periodical which will replace the *Year Book*. The cost of the latter has in the past been charged to the General Fund which would have shown a credit balance of some £175 if this transfer had not been made.

Our total assets at the end of the year were about £156 less than at the same date last year. This is regarded as not unsatisfactory since the expenditure on publications included £250 earmarked in 1952 for the Conference Report. The Society's financial position remains sound.

We wish to express our appreciation to the Royal Society for a grant of £50 towards the cost of our periodicals from the Scientific Publications Grant-in-aid Fund, and to Mr. J. H. G. Peterken for acting as Honorary Auditor.

DEVELOPMENT AND RULES COMMITTEE. Secretary: Mr. D. E. Allen.

During the year various proposals for providing improved facilities for Junior Members and for members living at a distance from London, which were contained in the recommendations to Council mentioned in the last report, have been implemented but no new developments have been referred to this Committee for consideration. They have carried out the usual revisions of the lists of Local Secretaries, Recorders, Vice-county and Regional Referees, and Panel of Specialists.

MEETINGS COMMITTEE. Secretary: Dr. J. G. Dony.

Arrangements were made for three papers to be read on the day of the Annual General Meeting. The published programme of field meetings was carried out as arranged. The meeting at Forres lasted a week, the one at Bangor three days and there were week-end visits to Maldon and Pulborough districts. In addition members were able to attend the Centenary Exhibition of the Herbarium and Library, Royal Botanic Gardens, Kew, by kind invitation of the Director, and a day visit was made to the vicinity of Peterborough for the study of Potamogetons. Attendance was as follows:—Kew 80, Bangor 48, Forres 42, Maldon 27, Pulborough 36, and Peterborough 34. A special meeting for younger members, lasting a week, was arranged in the Lake District and was attended by 13 (accommodation was restricted).

The Annual Exhibition Meeting arranged in the Lecture Hall of the British Museum (Natural History) by kind permission of the Trustees, on November 28th was attended by about 250 members and guests. The meeting was followed by a *Conversazione* at the Glendower Hotel attended by 55 members. A Northern Regional Meeting was held at Manchester University on October 31st. We are grateful to the Vice-Chancellor of the University and to Professor S. C. Harland for the facilities they provided, and to Dr. E. M. Rosser for the very efficient manner in which she made the local arrangements for this most successful meeting. It was attended by 70 members and guests, five papers were read, and 28 exhibits displayed. A similar meeting is being arranged at Durham for October 1954. During the year the Committee have also been engaged in making preliminary arrangements for the Conference on "The Species Concept in its relation to the British flora" to be held at Church House, Westminster, on April 9th and 10th 1954.

In view of the increasing work attached to the organisation of the Society's meetings it has become necessary to relieve the Meetings Secretary by appointing an Honorary Field Secretary responsible for the arrangements for field meetings. The Council took advantage of the powers arising from the alterations of the Rules at the last Annual General Meeting to appoint Mr. O. Buckle to this office as from March 14th. The Meetings Secretary, Dr. J. G. Dony, completed the arrangements for the 1953 field meetings, but in future he will be responsible only for indoor meetings.

PUBLICATIONS COMMITTEE. Secretary: Dr. J. Heslop-Harrison.

During the year steps have been taken with a view to improving the Society's periodicals and facilitating regular publication. *Watsonia*, Volume II, Parts V and VI were issued in the old format in January and April respectively, and Volume III, Part I, with a page size increasing to $6\frac{1}{2} \times 10$ ", was published in December. The larger format will provide improved facilities for the publication of original papers, and *Watsonia* will in future appear twice a year, edited by Dr. Warburg as before.

The *Year Book 1953*, edited by Mr. D. H. Kent, was published in September. This will be superseded by a new periodical, the *Proceedings of the Botanical Society of the British Isles*, in the same page size, and to include some matter previously appearing in *Watsonia* as well as reports of the Society's activities. The *Proceedings* will be edited by Mr. D. H. Kent, and two parts will be issued each year.

Arrangements were made with our printers for the supply of standard binding cases for *Watsonia*, Volume II. and for binding members' own parts. *The Changing Flora of Britain*, being the report of the 1952 Conference, was published in July. 245 members took advantage of the offer to purchase copies at half the published price, and sales to non-members have been satisfactory. The total cost of the book was £434, and £153 has been recovered from sales. It is expected that with the aid of the generous grant received from the Royal Society in 1952. the balance of the cost should eventually be covered by sales.

Work on the revised and shortened edition of the *British Plant List* has been continued and a draft prepared by Mr. J. E. Dandy has been circulated to members of the Committee. It is expected that this will be published next year. In March the Council agreed to a proposal that an *Index of British Herbaria* should be prepared with a view to publication. Collection of the necessary information has been undertaken by E. B. Bangerter, D. H. Kent and J. E. Lousley and a circular letter has been sent to a large number of universities, museums and institutions requesting details of the herbaria preserved in their collections. The Council has also agreed to publication of *A Flora of the Isles of Scilly* by J. E. Lousley. It is hoped that this will be ready for the printers in 1954.

CONSERVATION COMMITTEE. Secretary: Mr. J. E. Lousley.

The number of "threats" under consideration was fortunately somewhat lower than in recent years. The more important included a threat to the magnificent colonies of *Aconitum anglicum* by the Ely River, Glamorgan, a proposal to exploit the peat resources of Flanders Moss, Stirlingshire, and the projected hydro-electric scheme at Lough Nacung, Co. Donegal, where *Erica mackaiana* has recently been discovered. Reasonable safeguards to the flora and access by scientists have been offered by the War Department in connection with the threats to the Teesdale plants from the Warcop A.F.V. Range. Following our representations at the Public Enquiry on the proposed use of Newborough Warren, Anglesey, as a firing range, the Air Ministry has undertaken to supply us with advance notification of the times of firing practices. We have nominated Professor P. W. Richards as our representative to receive these notices, and members wishing to visit Newborough Warren should communicate with him in advance.

We are grateful to members living in Cheshire who prepared reports on areas in that county already scheduled as of special scientific interest. The information they supplied enabled us to make recommendations to the Cheshire County Council regarding sites considered as of sufficient importance to warrant management as local nature reserves.

The usual meetings at intervals of six months between members of our Conservation Committee and representatives of the Nature Conservancy have been continued, and many matters of mutual interest have been discussed. In response to a request from the Conservancy the Society has undertaken the preparation of reports on areas in which they are especially interested. For 1953 it was necessary to restrict this scheme to a relatively small number of members and the work could not be commenced until May. Reports on a total of 37 areas (some of which were large) were received from H. J. M. Bowen, Lt.-Col. C. J. F. Bensley, C. P. Castell, F. M. Day, Dr. J. G. Dony, E. S. Edees, R. A. Graham, J. D. Grose, Ian Hepburn, J. E. Lousley, E. Milne-Redhead, Dr. C. P. Petch, Dr. F. Rose, P. J. Wanstall, B. T. Ward, and G. Wilson. Under the terms of the agreement we have entered into with the Nature Conservancy, members undertaking this work will be reimbursed for expenses they incur. During 1954 it is hoped to extend this scheme with a view to surveying as many areas as possible, and giving more members an opportunity of assisting.

MAPS COMMITTEE. Secretary: Prof. A. R. Clapham.

Since 1950 this Committee has been considering methods of recording data on the distribution of British vascular plants. Trial maps have been prepared and much valuable experience has been gained on problems concerning the collection of available information. By the beginning of 1953, it was felt that, provided the necessary finance could be made available, a satisfactory atlas showing the distribution of British vascular plants could be prepared in a period of five years. Detailed proposals were placed before the Council in February and, in view of the great importance of this project to workers in many branches of botany and allied sciences, it was agreed that application should be made to the Nuffield Foundation for a grant towards the funds required. The Society has now been notified that the Trustees of the Nuffield Foundation have offered a grant of £10,000 provided that the Society is able to find the balance of the money required. With the support confidently expected from other bodies, the Council felt justified in giving this assurance, and we are most grateful to the Nuffield Trust for making it possible for us to undertake this major project.

Collection of the data and preparation of the atlas will be supervised by Dr. S. M. Walters, with a full-time staff at Cambridge under the direction of an Executive Committee. Some of the preliminary work will be decentralised and all members of the Society will be invited to co-operate in the investigation of little known areas. Work will commence early in 1954.

ADVERTISING COMMITTEE.

During 1953 circulars have been sent to 136 individuals and 104 institutions, and 10 new members and 4 subscribers are believed to have joined as a result of the Committee's activities. At a meeting on December 15th Mr. Graham tendered his resignation as Secretary of the Committee and it was decided not to appoint his successor in view

of proposals for reallocating the advertising work which would be put before the Council at their next meeting.

JUNIOR MEMBERSHIP COMMITTEE. Secretary: Mr. A. W. Westrup.

This Committee has been appointed to consider how the Society can make known its activities to, and cater for, botanists of school age. Three meetings have been held during the year and many methods have been explored of interesting young people and their teachers in field-work. Arrangements have been made for two special field meetings for young botanists in 1954 in the vicinity of London and it is hoped to extend these later to other centres. A junior prospectus has been drawn up and other developments are under consideration.

APPOINTMENTS MADE BY THE COUNCIL.

Mr. D. H. Kent was appointed Honorary Assistant Secretary on February 6th on the resignation of Mr. W. R. Price, and Mrs. B. Welch was appointed an additional Honorary Assistant Secretary on November 27th. Mr. O. Buckle was appointed Hon. Field Secretary on March 14th.

EXCHANGE SECTION.

To the 1952-53 Distribution, 14 members contributed 985 sheets of specimens. Dr. D. P. Young acted as Distributor and made a special effort to encourage interest in the work of the Section. His report printed in the *Year Book*, 1953, pages 100-102, includes a valuable statement of the functions of this branch of our activities and the service it offers to botanists and institutions. Professor T. G. Tutin is acting as Distributor for 1953/54 and is now dealing with the plants contributed.

STOCK OF PUBLICATIONS.

Since the death of Dr. G. Claridge Druce in 1932 the Society's stock of publications has been stored on the property of the University of Oxford and during the last five years orders have been attended to by Dr. J. H. Burnett. He has now left Oxford to take up another appointment and we are grateful to the Trustees of the British Museum (Natural History), and to Dr. George Taylor, for kindly granting us facilities for storage in one of the towers at the Natural History Museum. The stock was transported from Oxford to London by Mr. G. M. Ash in December, and orders will in future be executed by Mr. E. B. Bangerter.

The Council would like to express its appreciation of the services of members who have represented the Society at meetings of other organisations during the year.

C. E. RAVEN, President.

J. E. LOUSLEY, Hon. General Secretary.

By Order of the Council.

February 5th, 1954.

ACCOUNTS FOR 1953.

GENERAL FUND.

To Balance from 1952	£226	2	2	By Transfers to Journal Fund	£250	0	0
.. Subscriptions received during the year	823	8	10	.. Transfers to Publications Fund	250	0	0
.. Receipts from Advertisements	13	4	0	.. Transfers to Proceedings Fund	200	0	0
.. Income Tax Recovered	44	13	0	.. Transfers to Meetings Committee's Fund	8	9	9
.. Interest for 1952 on Post Office Savings Bank Deposit	25	4	6	.. Notional Interest to Publications Fund	24	15	6
.. Balance (debit)	24	19	8	.. Year Book, 1953, and postages thereon	168	8	0
				.. Hire of Rooms for Council and Committee Meetings	9	5	0
				.. Cheque Book	0	10	0
				.. Duplicating Minutes of Meetings	9	3	3
				.. Officers' Expenses	11	16	0
				.. Fire Insurance on publications at London and portrait	1	2	6
				.. Telephones	1	16	7
				.. Advertising Expenses	6	1	2
				.. General Printing and Stationery	127	4	3
				.. Preliminary Expenses of Index of British Herbaria"	25	0	0
				.. Removal Expenses on transfer of publications from Oxford to London ..	15	0	0
				.. Curator Luton Museum for share of postages re Rose Survey	2	6	8
				.. Postages and Petty Expenses :—			
				Hon. General Secretary	£17	7	10
				Hon. Treasurer	13	2	6
				Hon. Assistant Secretary	10	18	4
				Hon. Distributor	2	16	3
				Hon. Secretary, Rules Committee	1	0	0
				Hon Secretary, Publications Committee	1	8	7
					46	13	6
<hr/> £1157 12 2 <hr/>				<hr/> £1157 12 2 <hr/>			

JOURNAL FUND.

To Balance from 1952	... £573 2 6	By Printing <i>Watsonia</i> and postages thereon:	
„ Transfers from General Fund	... 250 0 0	Vol. II, Part V	... £136 5 7
„ Scientific Publications, Grant-in-aid Fund	... 50 0 0	Vol. II, Part VI	... 160 18 8
„ Sales of Reports and Reprints	... 61 4 6	Vol. III, Part I (part cost)	... 162 15 8
		„ Balance	... 474 7 1
	<u>£934 7 0</u>		<u>£934 7 0</u>

PUBLICATIONS FUND.

To Balance from 1952	... £990 18 2	By Cost of 1952 Conference Report, "Changing Flora of Britain", and postages thereon	... £433 14 0
„ Transfers from General Fund:— "Index of British Herbaria" £125 0 0 "Flora of Scilly" 125 0 0	... 250 0 0	„ Balance	... 1016 7 11
„ Interest for year on initial balance at $2\frac{1}{2}\%$ (per General Fund)	... 24 15 6		
„ Sales of <i>C.F.</i> and <i>B.P.L.</i>	... 14 5 2		
„ Sales of 1948 Conference Report	... 10 6 9		
„ Sales of 1950 Conference Report	... 6 2 6		
„ Sales of 1952 Conference Report	... 153 13 10		
	<u>£1450 1 11</u>		<u>£1450 1 11</u>

MEETINGS COMMITTEE'S FUND.

To Transfer from General Fund being cost of 1952 Exhibition	... £8 9 9	By Balance from 1952	... £7 9 4
„ Profit on Field Meetings and Conversazione	... 6 1 5	„ Northern Regional Meeting Expenses	... 3 18 10
„ Balance (debit)	... 28 9 11	„ Advance Payment, being half-cost of hire of hall for 1954 Conference	... 22 1 0
		„ Exhibition Meeting Expenses	... 9 11 11
	<u>£43 1 1</u>		<u>£43 1 1</u>

BENEVOLENT FUND.

To Balance from 1952	... £41 3 6	By Payments made	... £1 12 6
		„ Balance	... 39 11 0
	<u>£41 3 6</u>		<u>£41 3 6</u>

By reason of the change in form of the Society's publications a new Proceedings Fund has been opened with an initial sum of £200 transferred from General Fund; the balance on Life Members' Fund remains at £145 12s 0d, and there have been no entries on this account during the year.

ANNUAL GENERAL MEETING, 8th APRIL 1954

The Annual General Meeting was held in the rooms of the Linnean Society, Burlington House, Piccadilly, London, on Thursday, April 8th, 1954, at 6.15 p.m.

Mr. J. S. L. Gilmour (Vice-President) was in the chair and 60 members were present. The Chairman said that he felt sure that members would wish for a letter of sympathy to be sent to the President offering condolences on his recent bereavement. This was agreed unanimously.

The Minutes of the last Annual General Meeting as printed in the 1953 *Year Book* were adopted.

COUNCIL'S REPORT.—The Report of the Council for the year 1953, having been printed and circulated, was then considered, the Hon. General Secretary further outlining the work of the Society in 1953.

Mr. S. T. Jermyn enquired why a fee was charged when booking for Field Meetings. Dr. Dony said that this was essential to obtain accurate details of the number of people attending. Many members joined in the lengthy discussion which followed and the following resolution was put to the meeting:—"That fees charged for Field Meetings be abolished" (Tutin/Ash); an amendment was immediately proposed:—"That fees charged for Field Meetings be considered as an advance contribution to payment of expenses on the said Meetings" (Ounsted/Ribbons). The amendment and the resolution were then put to the meeting in turn, and were defeated by 24 votes to 17 and 34 votes to 13 respectively. It was finally decided to refer the matter to the Meetings Committee for their consideration.

The Report was adopted, and Mr. Lousley was thanked for drawing it up.

ELECTION OF VICE-PRESIDENTS.—There was one retiring Vice-President, who under Rule 3(d) was eligible for re-election, and there was one other vacancy. Council had nominated Prof. T. G. Tutin for re-election, and had nominated Mr. N. D. Simpson to fill the other vacancy. The proposal was then put to the meeting and Prof. Tutin and Mr. Simpson were declared elected.

ELECTION OF HONORARY GENERAL SECRETARY, HONORARY TREASURER, HONORARY EDITOR AND HONORARY FIELD (MEETINGS) SECRETARY.—Council had nominated Mr. J. E. Lousley, Mr. E. L. Swann, Dr. E. F. Warburg and Dr. J. G. Dony respectively. These were unanimously re-elected. Mr. R. A. Graham then expressed the gratitude of all to the Executive Officers of the Society for their work during 1953.

Mr. Gilmour left the meeting at 7.15 p.m., the Chair then being taken by Mr. G. M. Ash.

ELECTION OF MEMBERS OF COUNCIL.—There were four vacancies on Council provided by the retirement of Mr. J. E. Raven, Mr. G. M. Ash, Mr. R. D. Meikle and Prof. D. H. Valentine in accordance with Rule 3(e). Dr. H. G. Baker, Mr. O. Buckle, Mr. D. McClintock, Dr. C. T. Prime and Dr. E. M. Rosser had been nominated by members. Ballot papers were distributed, and Mr. Graham and Dr. J. Heslop-Harrison were appointed scrutineers. The following were declared elected:—Mr. O. Buckle, Dr. H. G. Baker and Mr. D. McClintock. Dr. Prime and Dr. Rosser having received an equal number of votes for the fourth vacancy, the Chairman drew lots and Dr. Rosser was declared elected. The order of seniority for retirement, as decided by lots drawn by the Chairman, is in the sequence given.

MAPS COMMITTEE.—The Hon. General Secretary explained that the work of the Maps Committee necessitates closer collaboration with other Societies and bodies over a wider field than normally arises, but the Rules restrict membership of Committees to persons who are members of the Society. The Council consider it desirable that the Committee should have exceptional powers but that the Rules should remain unaltered.

The following resolution was then put forward:—"That the Maps Committee be authorised to co-opt as members of that Committee persons who are not members of the Society, provided that the number of non-members of the Society on the Committee shall not at any time exceed one-third of the membership of the Committee." This was agreed.

ANY OTHER BUSINESS.—Mr. Sandwith drew attention to the fact that a full report of the Society's Glen Affric Field Meeting held in 1947 had not yet been published, and proposed the following resolution:—"That a letter from the Hon. Secretary of the Publications Committee be sent to Prof. A. R. Clapham requesting him to complete the report of the Glen Affric Field Meeting for publication". This was seconded by Mr. E. C. Wallace, put to the meeting, and agreed. Mr. W. E. Warren also drew attention to the fact that no report had been published of the Society's Field Meeting to Cliveden in 1951, and proposed the following resolution:—"That a similar letter be sent to Mr. C. E. Hubbard requesting him to complete the report of the Cliveden Field Meeting for publication." This was seconded by Mr. E. Milne-Redhead, put to the meeting, and agreed.

The Chairman then thanked members for their attendance and proposed that the thanks of the meeting be accorded to the Council of the Linnean Society for the use of their rooms. This was agreed.

J.E.L.
D.H.K.

ASSISTANT SECRETARY'S REPORT FOR 1953

During 1953, 92* new members joined the Society, this being 22 fewer than in 1952, and 14 fewer than in 1951. Of the new members 69* were Ordinary members, 5 Subscriber members, 16 Junior members and 2 Family members. Losses were 31, this being 14 more than in 1952, and 4 more than in 1951. Of these 7 members resigned, 16 ceased to be members under rule 6 (e), and we regret having to record the deaths of the following 8 members:—C. M. Baker, Major R. Mackenzie, Rt. Hon. the Earl of Morley, Dr. R. L. Praeger (Honorary Member), F. Rilstone, Lady Victoria Russell, K. Starcs, and Mrs M. L. Wedgwood.

New Ordinary members are:—Dr. G. J. H. Amshoff, Miss J. Andrews, Miss R. M. Barnes, Miss J. E. Bartle, P. M. Benoit, F. C. Best, E. Q. Bitton, Dr. T. E. T. Bond, Miss E. M. Booth, B. N. Bowden, Miss E. A. Bruce, Mrs. C. M. A. Cadell, Dr. B. Campbell, Miss H. Child, Mrs. H. N. Clokie, G. W. Collett, Mrs. M. E. Cotton, Mrs. M. Cowling, A. Currie, O. Davis, Miss D. E. De Vesian, Miss O. R. Dewey, T. W. J. D. Dupree, P. B. Gahan, D. R. Glendinning, F. D. Hanson, R. E. Hardy, Dr. J. G. Hawkes, Mrs. H. V. Hawkins, Miss M. B. Hinton, Miss E. M. Howard, I. Jones, Miss V. E. Jones, M. N. S. Khash, W. S. Lacey, J. Latham, W. N. Lawfield, Miss J. R. Lawrie, D. V. Le Mare, Lady Lennard, Dr. J. Liger, Major J. G. MacGeorge, A. P. Major, W. F. C. Marwood, F. C. Minns, Miss D. E. North, Dr. H. O'Reilly, Mrs. V. N. Paul, G. J. Paxman, O. Ranson, I. H. Rorison, Mrs. K. N. Sanecki (re-joined), W. H. Somers, P. S. L. Southall (re-joined), B. Sowerby, Col. C. E. H. Sparrow, A. W. Stelfox, Dr. T. D. V. Swinscow, Mrs. A. E. Swinton, Mrs. M. E. Tanner, Mrs. N. Teacher, I. H. Welsh, A. K. Wilson, D. Wilson, E. V. Wray, Miss A. P. Wylie, and Mrs. H. J. Younger.

New Junior members are:—J. A. Adcock, Miss J. Davis, H. J. Fletcher, R. Harley, B. S. Kear, M. McFarlane, Miss S. Maxwell, R. Maycock, N. R. Morrison, B. J. Perry, G. S. Perryman, G. R. Sagar, A. V. Simpson, Miss P. M. Tuckett, J. T. Williams, and P. J. Wood.

New Subscriber members are:—Haslemere Natural History Society, Institut de Botanique, Grenoble, Lloyd Library and Museum, Nature Conservancy, Merlewood Research Station, and Texas Research Foundation.

New Family members are:—D. W. M. Cowling and Mrs. A. H. Gurney.

D. H. KENT.

January 1954.

*These figures include an adjustment of 2 brought forward from the 1952 figures. see *Year Book, B.S.B.I.*, 1953. 33.

REVIEW

Flora of Bedfordshire. By J. G. DONY. Pp. 532, 25 plates, 22 figs. and a map. Luton Museum, 1953. Price 2 guineas.

In an age in which many forces are at work tending to favour large-scale national organisations at the expense of regional or more local ones, it is a particular pleasure to welcome a work of this type; written, printed and published within one of the smaller English counties, by a native of that county, about the county flora, and reflecting on every page the great care which has been taken in its preparation and final production. This new *Flora of Bedfordshire* is indeed a model of what a modern local Flora should seek to do. Whilst in no way ignoring or breaking with the long tradition established by his eighteenth and nineteenth century predecessors—indeed, we find an excellent historical introduction to Bedfordshire field botany provided—Dr. Dony has rightly chosen to incorporate features which most older County Floras conspicuously lack. Chief among these is an attempt to give some picture of the vegetation of the county based upon 86 'habitat studies' (all accurately localised by National Grid References) in selected localities on all the main soil types. This section, occupying some 75 pages, enormously enhances the value of the book to the field botanist, amateur and professional; it is preceded by a section on topography, climate, geology and soils, and followed by a discussion of the composition of the flora from the point of view of the status of species and of their distribution. Of special interest is the author's critical reassessment of the status of many species in the flora, by which, for example, he accords unquestionably native status to *Carum carvi* in some of its Bedfordshire habitats.

Together these sections make an admirable introduction to the main body of the Flora, which then follows traditional lines; although it should be pointed out that its scope is rather larger than that of most works of this type, for (in addition to the vascular plants and the traditionally-hallowed *Characeae*) Bryophytes and Fungi, each contributed by specialists, are included.

Naturally the type of treatment accorded to individual species varies. Local patriotism and botanical interest alike would agree in welcoming the excellent account, with frontispiece photograph and dot distribution map, of the great earth-nut (*Bunium bulbocastanum*), which the author considers 'the most interesting Bedfordshire species'; or, to take another example, the historical detail accompanying the account of *Ornithogalum pyrenaicum*, whose history as a local Bedfordshire plant can be traced back to Abbot's *Flora Bedfordiensis* and the illustration in Sowerby's *English Botany*, at the end of the eighteenth century. Yet,

interesting as these may be, the botanical worth of the book may well rest more on the author's substantiated claim to have given some better idea of the distribution of the *commoner* species that is normally provided by the 'traditional' County Flora. This is achieved by listing, under each species, all the 'habitat studies' in which that species was recorded; thus, *Holcus lanatus* is recorded in 47 of these surveys, and *Lotus corniculatus* in 21, out of the total 86. Such data go to support generalisations made about the occurrence and frequency of each species, which are all too often glibly made on little or no evidence.

Particular mention should be made of the excellent treatment of non-native species in the Flora. Dr. Dony has made a special study of the alien flora of the county, and has rightly decided to include in the main body of the Flora all plants, whatever their origin, which are reasonably well established; he has also provided a separate list of all recorded casuals or garden escapes.

The nomenclature of the vascular plants differs slightly from that of Clapham, Tutin and Warburg (the general arrangement of whose *Flora of the British Isles* is followed), but I have been unable to discover any statement as to the nomenclatural policy adopted. This is, however, no serious drawback, as a rather full synonymy is given, with references to Clapham, Tutin and Warburg. In all the more difficult groups, the author has enlisted specialist help. The degree to which this has enhanced the value of the Flora above that of some, at least, of its kind can be gained by a comparison of the excellent account of *Carex* (for which E. Nelmes' valuable assistance is acknowledged) with that of the same genus in A. H. Evans' *Flora of Cambridgeshire*, although this is admittedly a somewhat extreme contrast!

In a detailed work of this kind, some errors are unavoidable, but Dr. Dony's care and scholarship seems to have reduced them to a minimum. Some, indeed, are clearly not to be laid at his door, but rather reflect the inadequacy of the records published for adjoining counties; in this category, for example, is the incorrect statement that the red campion is absent from Cambridgeshire. It is less easy to see the basis for the equally incorrect statement that *Dianthus deltoides* is extinct in Cambridgeshire. Minor errors undetected in proof seem to be very commendably few; page 134 provides two examples in 'Cantoneuron' and 'Climaceum' (sic).

The twenty-five photographs, mainly of the habitats studied in detail, are of a high standard and very well reproduced; indeed the printers are to be congratulated on a neat, pleasing, well-bound volume. An appreciative foreword by Sir Edward Salisbury and a triple index (to botanists, localities with Grid Reference, and plant names) form an admirable start and finish to a book worthy of the highest praise.

S. M. WALTERS.

OBITUARIES

SIR ROGER CURTIS (1886-1954).—Sir Roger Colin Molyneux Curtis, 4th Baronet, of Gatcombe, was born September 12, 1886, and succeeded to the Baronetcy in 1898. He was educated at Keble College, Oxford, where he graduated B.A. in 1910, and he became one of H.M. Inspectors of Schools, Board of Education, first in Surrey, and subsequently in Staffordshire and Derbyshire.

He joined the Botanical Society and Exchange Club of the British Isles in 1915 and was a member for 25 years. For a period he was keenly interested in the alien plants which appeared in the vicinity of the breweries at Burton-on-Trent from the use of foreign grain. He was joined in some of his visits there by Dr. G. Claridge Druce, and this work culminated in a useful paper (*Rep. B.E.C.*, 9, 465-9, 1931). At that time Dr. Druce, who had been the sole officer of the Society for many years, was making arrangements for the continuance of the work after his death and he named Sir Roger as a member of the "Advisory Committee" charged with making appropriate arrangements. Following preliminary work by this Committee it was decided to place the affairs of the Society on a democratic basis, and at the Annual General Meeting called in May 1932, Sir Roger became a member of our first elected Committee. In 1934 he was elected Honorary Treasurer, and he served in this capacity until 1937 when he resigned on being asked to make a long visit to South Africa to study education methods there.

In his last years he lived in a delightful cottage overlooking the lake at Melbourne, a locality well known to Derbyshire botanists. There he always had a warm welcome for his friends, and particularly for those of botanical inclination. Botany to him was a recreation and, although he knew his plants well, he never had the opportunity, nor perhaps the taste, for intensive work. He threw himself with great energy and enthusiasm into many things. During the war he greatly assisted in the collection of material from our hedgerows for wartime needs, emphasising always its educational value in helping children to appreciate better the interests in the countryside. Later he helped in the organisation of field investigations for the new Flora of Derbyshire. He was also greatly interested in boys' clubs and annually took a large number of boys on a camping tour on the continent. He was a governor of Trent College.

Sir Roger was a genial companion on a botanical ramble and found delight and much of interest in even the commonest flowers. He had a great sense of humour. He resigned from the Society in 1940 and died on January 11th, 1954.

R. W. BUTCHER and J. E. LOUSLEY.

RALPH HOWARTH (1889-1954), who passed away on February 8, 1954, after a long illness, will be remembered by those members who attended the Isle of Man meeting in June, 1950. His eagerness on that occasion to show the party the most interesting parts of the island, and to take members in his car to areas that would otherwise have been inaccessible was characteristic of his kindly nature.

Born in Yorkshire, and engaged in the textile trade all his life, he first came to the Isle of Man in 1916 in connection with the manufacture of airship fabric. After the war he made his home in the island, living first at Peel, and later at Sulby. After his retirement he acted as wool valuer for the Manx Government. He was a member of the island's Education Authority and of Lezayre Parish Commissioners, a Steward of Sulby Methodist Chapel, an ardent freemason and rotarian, a Trustee and valued helper of the Manx Museum, and an ex-President of the Isle of Man Natural History and Antiquarian Society, whose natural history activities he had fostered over many years.

A life-long lover of the country, he was first drawn to the study of ornithology, but latterly his enthusiasm had been directed more and more towards botany. He joined the Botanical Society of the British Isles at the end of the 1950 meeting and shortly afterwards became Local Secretary for Man, in which capacity he established contact with all the island's botanists, enlisting their help in the preparation of the Flora which had been commenced in 1949. As Recorder I found in him a perfect collaborator, ever ready to search for any plant that he could persuade me to mention. He never pretended to be an expert botanist, but his hospitality to botanical visitors was unfailing, and I shall never forget the days that we spent together exploring the northern half of the island—especially the pond near Jurby where we found four plants new to the Manx flora in as many minutes.

He leaves a widow and two sons, to whom we extend our deepest sympathy.

D. E. ALLEN.

KARL RONNIGER (1871-1954) was born at Gmunden, Upper Austria, on 13th August 1871, and died in Vienna on 5th February 1954. His father, Ferdinand Ronniger, was Manager of the publishing house Hölder in Vienna, and a member of the Zoologisch-Botanische Gesellschaft, and his love of nature was evidently inherited by his son who showed a keen interest in plants from early childhood. Ronniger was educated at the lower and middle schools in Vienna, and in 1889 joined the staff of the Finanz-Landes-Direktion. Later he was transferred to the Finanzministerium, where he remained until he retired as the head of the Rechnungsdepartment IV in 1925. He married Gabriele Haas in 1902; there were no children.

Ronniger was one of the most distinguished Viennese amateur botanists of the older generation, and made many excursions through all the former Austrian-Hungarian Monarchy. He also travelled extensively

in the Mediterranean, southern Europe and the Balkans. He was of a cheerful disposition, and a keen and extremely careful collector. His herbarium contains about 60,000 sheets, mostly of plants collected by himself, including more than 80 large parcels of *Thymus*; certainly the most complete collection of this genus ever assembled.

Ronniger's later years were devoted to the study of *Thymus*, his favourite genus, though unfortunately he did not publish a monograph. In recognition of his papers on British Thymes he was elected an Honorary Member of the Botanical Society and Exchange Club of the British Isles in 1924.

The following is a list of Ronniger's most important publications:—

- 1924 : Beiträge zur Kenntnis der Gattung *Thymus*, 1. Die britischen Arten und Formen, *Fedde Repert.*, **20**, 321-332.
Contributions to the Knowledge of the genus *Thymus*. The British species and forms, *Rep. Bot. Soc. & E.C.*, **1923**, 226-239.
- 1928 : The Distribution of *Thymus* in Britain, *Rep. Bot. Soc. & E.C.*, **1927**, 509-517.
- 1930 : *Thymus*, in Hayek *Prodr. Fl. Penins. Balcan.*, **2**, 337-382.
- 1932 : Die *Thymus*-Arten des Kaukasus und der südlich angrenzenden Gebiete, *Fedde Repert.*, **31**, 135-157.
Thymus, in Grossheim *Flora Kawkasa*, vol. **3**, 334-347.

A complete list of Ronniger's botanical papers and notes will be published in *Verh. Zool.-Bot. Gesellschaft Wien*, together with a longer obituary notice.

K. H. RECHINGER.

PERSONALIA AND NOTICES TO MEMBERS

CARDAMINE PRATENSIS L. agg.

Mr D. E. Allen is carrying out a revision of the *Cardamine pratensis* complex in the British Isles and would be glad to examine material from all parts, especially from Scotland and Ireland. Care should be taken to gather the radical leaves.

JUNCUS BULBOSUS L. agg.

Messrs. D. E. Allen and P. M. Benoit are co-operating in a study of the variation and distribution of *Juncus bulbosus* L. and *J. kochii* F. W. Schultz in the British Isles. They would be grateful for material (preferably fresh) of both species, which may be sent to either of them. It would be helpful if the number of stamens could be noted in each gathering.

CYPERACEAE

Dr. T. Koyama, 1341 Ryoke, Urawa-City, Japan, wishes to obtain material of any British species of *Cyperaceae*; in exchange he offers material from Japan.

CAREX

Mr. J. A. Calder, Department of Agriculture, Science Service Building, Ottawa, Canada, is anxious to obtain material of British *Carexes* for the Divisional Collections, in exchange for Canadian material. Interested members should write direct to Mr. Calder giving details of the specimens they have for exchange.

STEEP HOLM TRUST

The island of Steep Holm in the Bristol Channel has been acquired on a twenty-one years lease by a Trust, representing four local societies: —Somerset Archaeological and Natural History Society, Bristol Naturalists' Society, Mid-Somerset Naturalists and Bristol Folk House Archaeological Club.

One of the aims of the Trust is to preserve the flora of the island. Steep Holm is the only habitat in Britain of *Paeonia mascula*; *Allium ampeloprasum* and *Inula crithmoides* are also well established.

The annual rent of the island is guaranteed by the four societies, but the development of the Trust's aims is entirely dependent on a small income from landing dues and voluntary effort. Much work has already been carried out by the Trust, including clearing the path round the whole perimeter of the island, overgrown to such an extent as to be, in places, impassable; cleaning the well which supplies the only drinking water; clearing the guttering of the Barracks roof; fixing wire netting over all its broken windows, etc.

During the coming year the Trust feels that it should endeavour to provide the following:—

1. Improved landing facilities.
2. Repair and maintenance of the fresh water supply.
3. Conversion of one of the smaller buildings into a Bird-Ringing Station.
4. Provision of camp-beds, blankets, stores and cooking facilities for working parties.
5. Purchase of an adequate supply and selection of tools for clearance work and repair of buildings.

Ample voluntary labour by members is assured, but it is estimated that between £200 and £300 will be required for purchase of materials and equipment.

Donations to assist the work of the Trust will be gratefully received by the Hon. Secretary, Mr. J. H. Savory, 61 Lower Redland Road, Bristol 6.

FLORA OF HUNTINGDONSHIRE

Mr. J. L. Gilbert, "Riverside", Wansford, Peterborough, is compiling a Flora of Huntingdonshire and would be glad to receive notes and records of plants in that county.

PERMITS FOR VISITING NATURE RESERVES

The Nature Conservancy have now acquired and declared the following Nature Reserves:—Cavenham Heath, Suffolk; Yarner Wood, Devon; Moor House, Westmorland; Holme Fen, Huntingdonshire; Kingley Vale, Sussex; Ham Street, Kent; Beinn Eighe, Ross-shire; Morton Lochs, Fifeshire; Monk's Wood, Huntingdonshire; Blean Woods, Kent; Orfordness-Havergate, Suffolk; Woodwalton Fen, Huntingdonshire; Old Winchester Hill, Hampshire; Bridgwater Bay, Somerset; Castor Hanglands, Soke of Peterborough; Scolt Head, Norfolk; and Tentsmuir Point, Fifeshire. Permits to collect are required for all reserves; permits to visit are required for all reserves except Cavenham Heath, Kingley Vale, Old Winchester Hill, Scolt Head, and Castor Hanglands (except for "Blacklands").

A small pamphlet, "Visiting Nature Reserves", setting out the considerations which govern the Nature Conservancy's policy in permitting visits, may be obtained from the Conservancy's headquarters at 19 Belgrave Square, London, S.W.1. Applications for permits may be sent to this address for the English Reserves, or to The Nature Conservancy, 12 Hope Terrace, Edinburgh, 9, for those in Scotland, or to the Regional Officers of the Conservancy concerned. Visitors who wish their permits to include the right to collect and take away specimens should say so in making application and should specify what it is they wish to collect.

NEWBOROUGH WARREN, ANGLESEY

The Air Ministry propose to establish a range at Newborough Warren but following representations made at a Public Local Inquiry by this Society and others, have agreed to make advance notices of firing practices available to research workers and students. These notices will be sent to our Local Secretary, Prof. P. W. Richards, Coed Menai, Upper Bangor, Caernarvonshire, and members wishing to visit the Warren are advised to make arrangements with him well in advance of the time of their visits.

THREATS TO BRITISH FLORA

Members are urged to report to the Hon. General Secretary any threats to the British flora. The Council has appointed a Conservation Committee to deal with such matters and every effort will be made "to promote in every way possible the conservation of the British flora".

TOXIC SPRAYS

The Society is collecting information about the effect on native vegetation of toxic chemicals used for spraying crops. The increasing use of weed-killing chemicals on arable land implies a threat to neighbouring uncultivated land or woods since the spray can be carried a considerable distance under suitable conditions. Members who observe damage from this cause are asked to send full details to the Hon. General Secretary, 7 Penistone Road, London, S.W.16.

SYSTEMATICS ASSOCIATION

A card index of autecological and/or cytogenetic-taxonomic researches that are being carried out on British flowering plants is maintained by the Association. Copies of the index may be consulted at the Royal Botanic Gardens, Kew, or at the Royal Botanic Garden,

Edinburgh. Its purpose is to obviate overlapping between different workers. Members taking up research of this nature are asked to send particulars either to Mr. R. D. Meikle, Royal Botanic Gardens, Kew, Surrey, or to Mr. B. L. Burtt, Royal Botanic Garden, Edinburgh, 4.

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OF THE BOTANICAL SOCIETY OF THE BRITISH ISLES

Editor : D. H. KENT

Vol. 1

JULY 1955

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Continued on inside of back cover

THE DISTRIBUTION AND ECOLOGY OF *ARUM NEGLECTUM* IN SOUTHERN ENGLAND

By C. T. PRIME, O. BUCKLE AND J. D. LOVIS

PART I. KENT, SUSSEX, HANTS. AND DORSET

Arum neglectum (Townsend.) Ridley was first recorded in the British Isles by A. Hambrough in 1854 when it was identified as *A. italicum* Miller. Subsequently Townsend (1883) distinguished it from *A. italicum* as var. *neglectum* and as recently as 1938 it was re-described by Ridley as a separate species. The plant is present as a native in southern and western England and northern France but its status and distribution on the Continent are very inadequately known. *A. italicum* (*sensu stricto*) probably does not occur in England as a native, but it has been cultivated, particularly in the south west and it is found occasionally as an escape.

THE DISTRIBUTION OF *ARUM NEGLECTUM*

A. neglectum has been recorded with certainty from ten vice-counties and the records from the more easterly of these will be treated in detail.

EAST AND WEST KENT (Vice-counties 15 and 16)

Hanbury and Marshall (1899) give six localities for Kent, but it is very doubtful if the plant has ever occurred in the county [see Prime (1954), also Melvill (1888) and Briggs (1888)]. *A. italicum* (*sensu stricto*) has been recorded from Westwell near Ashford (v.c. 15) but in this locality it is an undoubted garden escape.

SUSSEX (Vice-counties 13 and 14)

Eight records were published by Wolley-Dod (1937); one (Arundel, 1920) is a duplication and another (Park Bottom) is now known to be an error. The following additional information has been collected from the labels of herbarium specimens at the British Museum and at Kew.

- (a) Offington near Worthing, May 1858, W. W. Saunders; with a note that he tried for the plant between Broadwater and Sompting without success, and that he knew the plant only at Goring and Arundel.
- (b) Lane leading to the Downs at Sompting, 1881, Oakeshott.
- (c) Goring, 1921, C. E. Salmon.

One of us (O. Buckle) has searched the county systematically for this plant and has added many localities. The complete list for *A. neglectum* now reads:

- | | |
|--------------------------------------|----------------------------------|
| 1. Southwick | 22. Holt Farm, Clapham |
| 2. Lancing Manor | 23. Clapham Church |
| 3. Bramber Castle | 24. Clapham Village |
| †4. Bramber | 25. Nr. Patching Pond |
| 5. Steyning | 26. East Preston |
| 6. Cokeham Road | 27. West Preston |
| 7. Sompting Village | 28. Rustington |
| 8. Sompting Church | 29. Brookpits, nr. Littlehampton |
| 9. Nr. Sompting Abbots | 30. Clymping |
| 10. Upper Brighton Road,
Sompting | 31. Cross Bush, Arundel |
| 11. Lambley Lane | 32. Arundel Bridge |
| 12. Tarring | †33. Swanbourne Lake |
| 13. High Salvington | †34. Black Rabbit |
| 14. Ham Farm, Goring | †35. Cocking Village |
| 15. Old Forge, Goring | 36. Roadside north of Cocking |
| *16. Sea Lane, Goring | 37. Treyford |
| 17. Titmore Lane | 38. South Harting |
| 18. Sea Lane, Ferring | 39. Bury Hill |
| 19. Hangleton Lane | 40. Bignor |
| 20. Nr. Kingston Copse | 41. Barlavington |
| 21. Copse nr. Ferring | 42. Offham |
| | 43. South Stoke |

The plant has been seen recently in all these stations except the first, and until its rediscovery, Lancing Manor (v.c. 13) remains the eastern limit of the species in Great Britain. It is absent from E. Sussex (v.c. 14). Sites 35-41 serve as a link with the Petersfield localities in Hants. The chromosome number of two plants of *A. neglectum* from Steyning has been determined as $2n = 83$ (J. D. Lovis).

The cultivated form of *A. italicum* with marked cream veins in the leaves occurs in the following localities:

1. Newtimber
- †2. Offington Lane
- †3. Offington Hall
- †4. Offington Corner
5. Sutton by Bignor
6. Bognor

The Offington plants were possibly planted by the owners of Offington Hall who were enthusiastic gardeners. One or two plants from the Tarring Colony of *A. neglectum* have the appear-

†A record given in Wolley-Dod (1937).

*Now destroyed by building.

ance of hybrids. All the plants from the first list are quite clearly *A. neglectum*, and all have unspotted leaves.

The Newtimber record based on a leaf specimen in the Druce herbarium at Oxford was refound in 1953 growing in cultivated ground. The localities at Sutton by Bignor and Bognor are similar.

The history of the plant in Sussex is puzzling. The earliest notice was in 1858 at Offington and a specimen is in the British Museum. As already mentioned, it now seems certain that this plant was *A. italicum*. It appears from notes with the specimen that Saunders was at that time aware of the plant at Goring and at Arundel, and neither of these localities is under suspicion of producing *A. italicum*. Another specimen at the British Museum is labelled 'Near Sompting, June 30th, 1881', and is from C. Oakeshott. This locality is also under no suspicion of producing other than *A. neglectum* and is the first dated specimen for the species in Sussex. Other reliable dates are:

Arundel (Swanbourne lake), 1920

Goring, 1923

Southwick, 1931

Cocking, 1933

A. neglectum (as *A. italicum*) is boldly claimed as a native of the county in the *Flora of Sussex* (Wolley-Dod, 1937). Arnold's earlier *Flora of Sussex* (revised in 1907) gives only the Offington localities, but the plant has certainly been in the county since 1881, and very probably at Goring and Arundel (where it still grows) since at least 1858.

HAMPSHIRE (Vice-counties 11 and 12)

The following localities from Hampshire have been recorded:

1. Bordean Hangar, 1919, *E. H. White*; but not visited after 1923 (*Rayner*, 1929), v.c. 12.
2. Hockham coppice, East Meon, 1933, *F. Escombe*, Hb. Kew.
3. Compton, nr. Winchester, *F. Escombe* (*Ridley*, 1938).
4. Lyth Hanger, Steep, Petersfield, 1946, *Mrs. O. G. Seward* (*in litt.*)

The first record is supported by a specimen in the Kew herbarium and a small colony still persists (1953). Hockham coppice is the locality from which *F. Escombe* made extensive collections in 1933. These are now at Kew. Compton, nr. Winchester, given by *Ridley* (1938), was inferred from the extensive *Escombe* correspondence at Kew, but search of all likely spots in the area has failed.

To these may be added the following:—

- | | |
|--------------------------|---------------------|
| 1. Buriton v.c. 11 | 7. Hawkley Hanger |
| 2. Ramsdean | 8. Goleigh Farm |
| 3. Froxfield v.c. 12 | 9. Noar Hill |
| 4. Stonor Hill | 10. Selborne Hangar |
| 5. Wheatham Hill | 11. South Hay |
| 6. Roadside near Hawkley | |

In Hampshire the plant may be considered abundant where it occurs; in fact, it is found in every suitable locality along the whole of the Chalk escarpment, where the Chalk and Gault meet, between Cocking in Sussex and Selborne. It is most noticeable that the plant always grows along the lower slopes of steep woodland where the soil over the Chalk is relatively deep and rich as well as moist. South Hay is the northernmost locality in southern England and is 25 miles from the open sea. The chromosome number of two plants from Lyth Hanger has been determined as $2n = 84$ (J. D. Lovis).

ISLE OF WIGHT (Vice-county 10)

A. neglectum was first recorded from Steephill, near Ventnor, by Hambrough (1854), but in his account he says that he had seen the plant there previously. Subsequently it was recorded from Bonchurch on the other northern side of Ventnor. At the present time the plant is common at the base of the Undercliff all the way from Niton to Bonchurch, being more frequent than *A. maculatum*. It shows some variation, for plants with a few round spots are frequent as are plants with a slight white venation, but they do not show the full development of this character which is so marked a feature of *A. italicum*. The chromosome number of one plant from Ventnor was found to be $2n = 84$ (J. D. Lovis).

DORSET (Vice-county 9)

A. neglectum (as *A. italicum*) was found in this county in 1874 by H. N. Ridley "at Swanage" and "in thickets near the sea between Durlstone and Arish Mell" (Ridley, 1938). The first locality has now been built over, but recent search by one of us (J. D. Lovis) has located ten colonies in the second area. All the habitats are more exposed than those further east and the plants are slightly different, the leaves tending to a more pointed apex and showing a slightly wider divergence of the lobes. *A. neglectum* from other parts is sufficiently variable as to make it impossible to distinguish the Dorset plants from some plants of *A. neglectum* from elsewhere. Several plants from Dorset were found to have chromosome numbers $2n = 84$. Two other determinations of $2n = 70$ are probably hybrids between *A. neglectum* and *A. maculatum*.

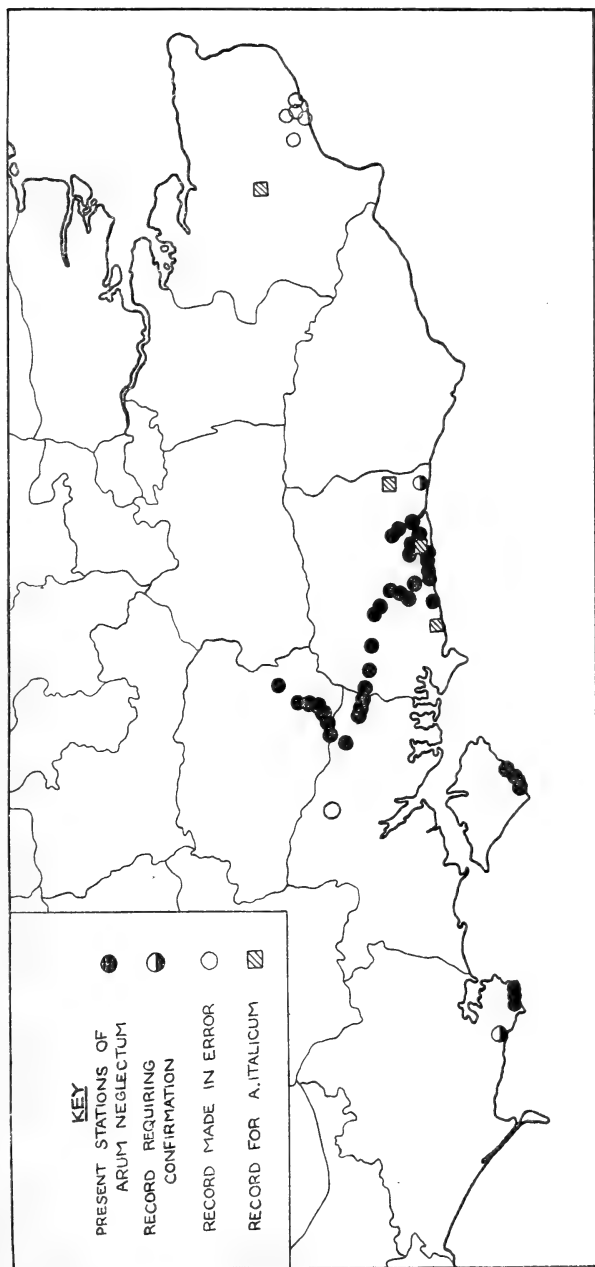


Fig. 1. The distribution of *Arum neglectum* in Britain
1. Dorset, Hampshire, Isle of Wight and Sussex

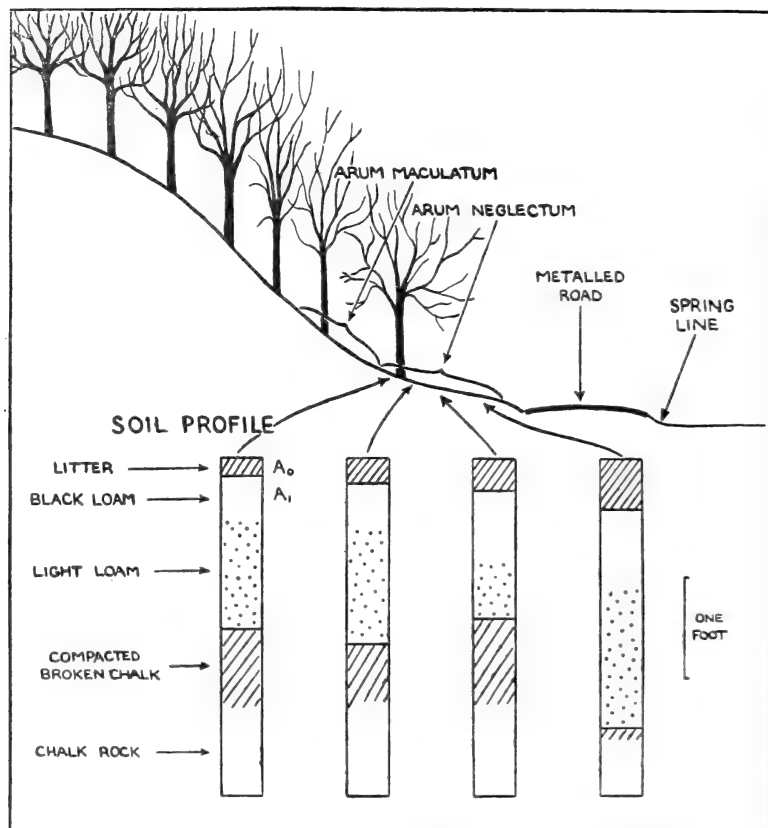
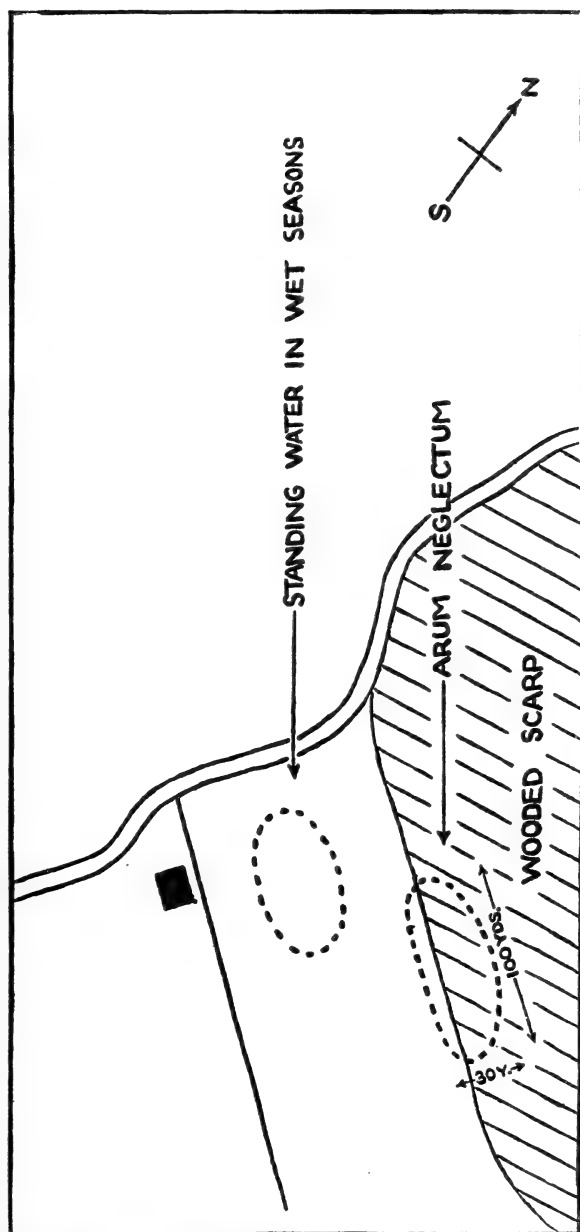


Fig. 2. *Arum neglectum* near Swanbourne Lake, Arundel

THE ECOLOGY OF *ARUM NEGLECTUM*

The present distribution is shown on the map (Fig. 1). The northern limit may be correlated with a susceptibility to severe frost during the winter (Prime, 1954). Within its range the plant shows distinct ecological preferences. Although it occupies rather varied habitats in different parts, these show similarity and careful study of them suggests that the first requirement of the species is a deep well drained soil.

The plant often occurs on shady banks above or near water. In Sussex the usual station is on Brick Earth, Coombe rock, Valley gravel or Gault near the junction with the Chalk so that there will be a fairly continuous calcareous wash over the deeper and richer soil. Though it occurs near the Chalk, the plant is not found on the typical hot shallow rendzina soils; the nearest to

Fig. 3. *Arum neglectum* at Hockham Coppice, East Meon

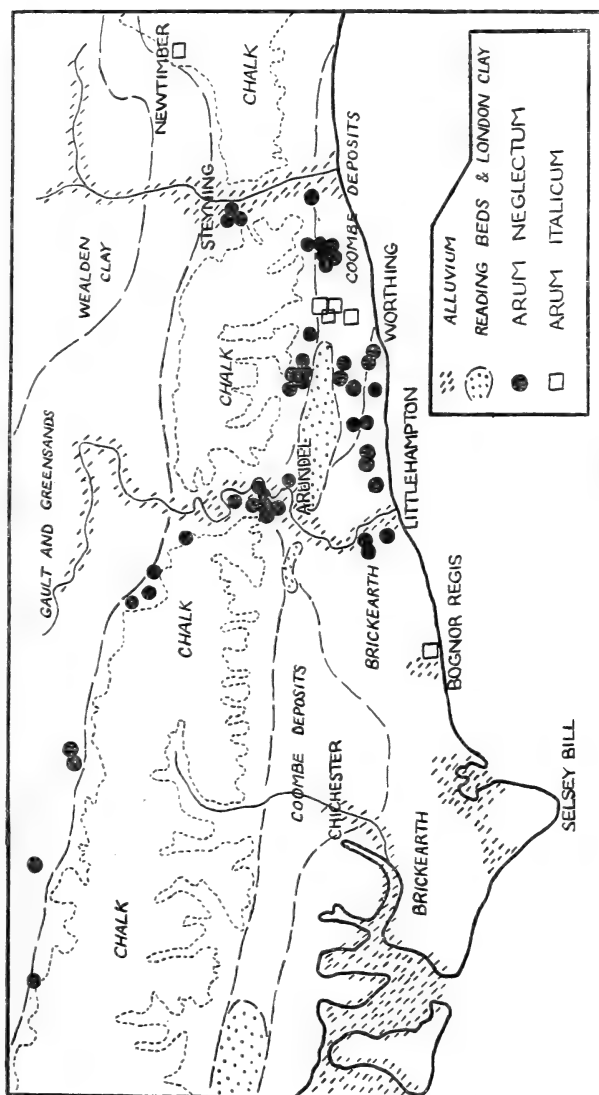
this type is the soil of the Lyth Hanger escarpment near Petersfield. The rendzina soils are probably far too dry. A possible exception to the deep soil requirement is Purbeck, Dorset, where the soil is shallow, but the underlying rock is fissured and this allows a deep root penetration. At Arundel in Sussex (locality 36) where there is one of the largest colonies, the plant grows at the base of a steep chalk escarpment abutting on a road margin. Here there are springs which lead away into a stream running parallel with the base of the scarp. Fig. 2 is a rough diagram of this locality. The soil is alkaline with a pH of 8.0 and some drawings of the soil profile are given in figure 2. At this site, light intensity appeared to be far less important than water supply (Prime, 1954).

In other Sussex localities the association of the plant with water is most marked. Examples are sites 4, 19, 27 and 35. Hockham coppice, East Meon, Hants., is another locality where the plant is to be found on a good soil at the base of a chalk escarpment and near water (Fig. 3). The Isle of Wight sites show a similar well defined habitat, the plant occurring at the base of the Undercliff formed from Upper Greensand overlying the Gault. The soil is consequently derived from the downwash, and it is deep and moist and similar to those already mentioned.

The Dorset habitats are slightly different, for the parent material is of heavy grey clay and limestone, which forms a soil of a rich red-brown type (Robinson, 1948). The plant grows on the cliff tops which are, in places, obviously moist with springs issuing. There does not appear to be any correlation between the presence of *Arum neglectum* and these springs, but there are, no doubt, very many places where water is passing up in the soil, but not in sufficient quantity to show an outflow.

Although as shown above, a moist soil is required, *Arum neglectum* cannot tolerate anything in the nature of a water-logged soil. In Sussex it is very striking that, as soon as soil and water conditions permit *Phyllitis scolopendrium* and *Polystichum lobatum* to appear, *Arum neglectum* disappears. A favourite position for the plant is a well drained sloping shady bank, where the angle is steep, often exceeding 75°.

The reason for the plant requiring such a soil is most probably associated with the presence of exchangeable bases, particularly calcium. In Sussex the plant is never far from the Chalk, and it is worthy of note that deposits of Reading Beds lying across the area appear to be quite unsuitable for the plant, which has stations all round the perimeter of the clay but no station actually on it (Fig. 4). The Hampshire localities are all on or near the base of chalk escarpments. The Upper Greensand in the Isle of Wight is calcareous. In Dorset, the records are on the Purbeck series or the Portland stone.

Fig. 4. Distribution of *Arum neglectum* in Sussex, with relation to Geology

Light shade is a second important factor, and shelter from the danger of drying out in hot summers is as important as winter protection. In Sussex, Hants., and the Isle of Wight many plants grow in the shade of deciduous trees, e.g., *Ulmus* spp. and *Corylus avellana*. Sites where shade is now absent can usually be proved to have had suitable shade in the not very distant past. *Hedera helix* is present on the ground in many localities, and this evergreen may give winter shelter.

In Dorset the sites are more exposed and of two kinds. One, very local, is in open grassland and dominated by *Brachypodium pinnatum*. Here *Arum neglectum* is not luxuriant but gains protection from the Tor grass which is very persistent in winter. The second is in scrub on the east side of limestone walls, and more rarely on the western sides where there is less scrub.

From a consideration of the foregoing, it will be seen that few situations having all the requirements of the plant occur on the south coast. Many possible habitats are too far from the sea, too bleak and exposed (the Chalk west of Brighton), the soils too heavy (London Clay of the Selsey peninsula), or lacking in calcium (Reading beds). There would appear to be suitable localities in the more eastern strip of Kent. Most of the Sussex sites occur in the sheltered valleys of the Arun and Adur. The Hants. localities are also well defined, while the optimum development seen in the Isle of Wight is associated with the added mildness of climate and shelter found in the south-east part of the island.

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ORCHIS TRAUNSTEINERI SAUT. IN WALES

By WILLIAM S. LACEY

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INTRODUCTION

While collecting bryophytes from the Rhyd-y-clafdy district of the Llyn peninsula, Caernarvonshire, on June 8th, 1953, I discovered amongst a colony of marsh orchids several unusual individuals. At first I believed them to be a form of *Orchis praetermissa* Druce or a hybrid between that species and *Orchis ericetorum* (Linton) E. S. Marshall, which also occurred nearby. Accordingly, I sent herbarium sheets of the new orchid to Mr. V. S. Summerhayes for his opinion. Mr. Summerhayes informed me that they strongly resembled specimens of *Orchis traunsteineri* Saut. from both Irish and English localities. In order to confirm the record of this species, which is new to Wales, I visited the locality again this year (June 22nd, 1954), allowing about a fortnight for the lateness of the season. A gathering of fresh material was sent to Mr. Summerhayes, who confirmed the identification as *Orchis traunsteineri* Saut., commenting "quite typical, and agreeing well with specimens I have seen from the other British localities".

Specimens have been deposited in the herbaria of the Royal Botanic Gardens, Kew, the National Museum of Wales, Cardiff, and the University College of North Wales, Bangor.

DESCRIPTION OF THE LOCALITY AND HABITAT

LOCALITY

Cors Geirch, about 3 miles north west of Rhyd-y-clafdy, between Pwllheli and Nevin, Caernarvonshire, v.c. 49. (This area is scheduled by the Nature Conservancy as a Site of Scientific Importance and a report on it has been submitted by the writer.)

HABITAT

The immediate vicinity of the *O. traunsteineri* locality is of the nature of semi-fen with calcareous ground water. A list of associated plants in the same area, made on the second visit (22/6/54), is given below (Table 1), with some indication of their frequency.

TABLE 1.

<i>Ranunculus flammula</i> L. f	<i>Eriophorum angustifolium</i>
<i>Caltha palustris</i> L. o	Honck. 1 f
<i>Cardamine pratensis</i> L. o	<i>Schoenus nigricans</i> L. 1d
<i>Lychnis flos-cuculi</i> L. f	<i>Cladium mariscus</i> (L.) Pohl 1a
<i>Lotus uliginosus</i> Schkuhr a	<i>Carex rostrata</i> Stokes 1a
<i>Filipendula ulmaria</i> (L.) Maxim. o	<i>C. lasiocarpa</i> Ehrh. o
<i>Potentilla palustris</i> (L.) Scop. 1a	<i>C. diandra</i> Schrank o
<i>Epilobium hirsutum</i> L. o	<i>C. panicea</i> L. f
<i>Angelica sylvestris</i> L. o	<i>C. lepidocarpa</i> Tausch f
<i>Galium uliginosum</i> L. f	<i>C. stellulata</i> Good. o
<i>Eupatorium cannabinum</i> L. f	<i>Holcus lanatus</i> L. o
<i>Cirsium palustre</i> (L.) Scop. o	<i>Festuca rubra</i> L. o
<i>Menyanthes trifoliata</i> L. a	<i>Equisetum palustre</i> L. f
<i>Solanum dulcamara</i> L. o	<i>E. fluviatile</i> L. f
<i>Pedicularis palustris</i> L. f	<i>Aulacomnium palustre</i> (Hedw.)
<i>Utricularia intermedia</i> Hayne a	Schwaegr. o
<i>Mentha aquatica</i> L. o	<i>Mnium pseudopunctatum</i> B. & S.
<i>Salix aurita</i> L. o	1 f
<i>Myrica gale</i> L. o	<i>Campylium stellatum</i> (Hedw.)
<i>Orchis ericetorum</i> (Linton) E. S.	Lange & C. Jens. a
Marshall f	<i>Acrocladium giganteum</i> (Schp.)
<i>O. incarnata</i> L. f	Richards & Wallace a
<i>O. purpurella</i> T. & T. A. Steph. f	<i>Acrocladium cordifolium</i> (Hedw.)
<i>Iris pseudacorus</i> L. o	Richards & Wallace a
<i>Juncus subnodulosus</i> Schrank 1a	<i>Sphagnum</i> spp. (not determined) o
<i>J. effusus</i> L. o	

Of the plants listed above, *Orchis ericetorum*, *Carex stellulata* and *Aulacomnium palustre* occur in rather drier raised parts and round the margin of the semi-fen.

A close similarity is apparent between this Welsh habitat and those described by Heslop Harrison (1953) for *O. traunsteineri* in Ireland and in Berkshire. In Cors Geirch, as in other localities, *O. traunsteineri* is very loosely rooted in a carpet formed of mosses and occurs in areas where *Schoenus nigricans* is locally dominant. The pH of the ground water, determined colorimetrically (B.D.H.), is about 7.0, four determinations giving a range of 6.5 to 7.5.

DESCRIPTION OF THE WELSH SPECIMENS

Vegetative and flower characters have been examined in the manner described by Heslop Harrison (1953), but as the colony is a small one only six individuals were collected for study. This number is admittedly small, but permits some of the results to be given in full (Table 2).

TABLE 2.

Specimen	Stature	Leaf number	Leaf length	Leaf width	Inflorescence (no. of flowers)
A	28.8 cm.	5	10.2 cm.	1.1 cm.	10
B	37.0 cm.	5	9.1 cm.	1.5 cm.	23
C	38.0 cm.	5	11.5 cm.	1.2 cm.	28
D	36.5 cm.	5	13.4 cm.	1.3 cm.	21
E	31.3 cm.	5	10.3 cm.	1.1 cm.	18
F	44.5 cm.	5	14.0 cm.	1.1 cm.	24
Averages	36 cm.	5	11.4 cm.	1.2 cm.	21

These measurements agree well with the data provided by Heslop Harrison (1953) and emphasize the important vegetative characters of the small number and narrowness of the leaves. They also show a similar range of flower numbers in the inflorescence, and the occasional occurrence of curious lax specimens with few flowers.

Other features of the Welsh specimens may be summarised as follows: stem with or without small cavity, leaves widely spaced, narrow-lanceolate, mid- to yellow-green, unspotted or with light transversely arranged spots, slightly hooded at apex. Flowers pale red-purple to magenta, labellum flat or slightly reflexed, with obscure dashes or irregular loop markings, wedge-shaped, divided into three lobes, with central lobe bluntly triangular. Spur stout, much longer than in *O. incarnata*.

SUMMARY AND CONCLUSION

Orchis traunsteineri Saut. is recorded for the first time from Wales. The record helps to fill a gap in the "remarkably discontinuous range in the British Isles" commented on by Heslop Harrison (1953).

It also provides another indication of the preference of this species for fen or fen-like habitats with a pH near neutrality. Since a number of such habitats are known in various parts of the British Isles, it seems probable that, when carefully sought, *O. traunsteineri* will be found to be quite widely distributed.

In Anglesey (v.c. 52), for example, there are two areas known as Cors Goch and Cors Bodeilio, both of the nature of semi-fen, with *Juncus subnodulosus*, *Cladium mariscus*, and *Schoenus nigricans*, and pH ranging from about 6.5-8.0. Though not yet fully explored, the former has yielded *Orchis fuchsii*, *O. incarnata*, *O. purpurella*, with *Gymnadenia conopsea*, *Platanthera bifolia* and *Coeloglossum viride* in drier parts, while the latter has provided the same species and, in addition, *O. ericetorum*, *Ophrys muscifera* and *Listera ovata*. *O. traunsteineri* may well be found in these localities.

The Welsh specimens of *O. traunsteineri* corroborate Heslop Harrison's evaluation of leaf and labellum characters as a ready means of separating this species from other British marsh orchids. They provide further evidence of its homogeneity and support for its recognition as a distinct unit.

I am indebted to Mr. V. S. Summerhayes for much help in confirming the identifications of all the orchids mentioned above, in addition to *Orchis traunsteineri*.

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NOTES ON STAFFORDSHIRE BRAMBLES

By E. S. EDEES

The object of this paper is to record or to criticise the records of certain species of the Staffordshire *Rubus* flora which are now well known to the writer. There are many others, some of them resting on good recent authority, which are not yet understood. We have at least a hundred constant and well marked species. The Bunter Sandstone which is well developed in Staffordshire, especially in the west of the county, yields many species. Others are found on the Keuper marl of central Staffordshire, the carboniferous limestone of the north-east and the millstone grit and peat of the moorlands, though these areas are less rich. There is a remarkable contrast between the *Rubi* of the Bunter Sandstone in the south of the county and the *Rubi* of the same formation in the north. This can be studied in two localities which have a rich concentration of species, *viz.* Whitmore Common in the north (Grid Ref. 795410) and Kinver Edge in the south (Grid Ref. 830830). Other good bramble areas are Hillswood, near Leek (Grid Ref. 985590), Hand Leasow Wood between Uttoxeter and Stafford (Grid Ref. 025305) and Cranmere Wood near Wolverhampton (Grid Ref. 850005). Seckley Wood (Grid Ref. 765785), now in Worcestershire, was once part of Staffordshire and for that reason is included in this survey.

My interest in Staffordshire brambles was inspired by the late F. Rilstone about twelve years ago and my indebtedness to him is very great. More recently the late W. C. R. Watson named several of my gatherings, and in 1950 spent a week with me in the north of the county. In addition to my own herbarium, which contains about 2,000 sheets of *Rubi*, the following collections have been consulted:

1. *The Bailey Herbarium.* The extensive herbarium of C. Bailey in the Manchester University Museum contains thousands of *Rubus* sheets, including the principal British and European sets.

2. *The Bagnall Herbarium.* The plants of J. E. Bagnall are preserved in the Natural History Museum, Birmingham. The collection is particularly rich in *Rubi*, of which there are about 100 Staffordshire specimens, in addition to many from Warwickshire and elsewhere. Unfortunately many of them are incomplete, stem leaves being often missing.

3. *The Daltry Herbarium.* This is in the private possession of Mr. H. W. Daltry. It contains very complete specimens of about twenty Staffordshire species, of which all but one (a sheet

of *R. ulmifolius*) were determined by H. J. Riddelsdell and some also by W. M. Rogers. The specimens were collected between 1914 and 1922 chiefly from Madeley in the north of the county.

4. *The Reader Herbarium*. The Staffordshire specimens of H. P. Reader are in the Hanley Museum, Stoke-on-Trent. They include beautifully preserved specimens of a dozen *Rubus* species illustrating the flora of Rugeley and collected about the same time as Mr. Daltry's.

I am very grateful to Mr. Daltry and to those in charge of the public collections for much generous help.

RUBUS CAESIUS L. There are many old records for this species, but the true plant is very local. I have seen it only in the Manifold Valley, a short distance below Thor's Cave.

[**R. NESSENSIS** W. Hall (*R. suberectus* Anders.). There is so far no proof that this species occurs in Staffordshire. Rogers (1900) recorded it within square brackets. There is a specimen in Hb. Bagnall labelled *R. suberectus* ("wild lane by Streetly railway", August 18, 1898), but this can hardly be correct. A Warwickshire specimen from Handsworth Wood (said to be in Staffs. but really in Warwickshire—between West Bromwich and Birmingham) seems to be correctly named. There is a large 7-nate leaf, the petiole is apparently not channelled, the leaf-toothing is nearly simple and the prickles on stem and panicle are small, curved, few and remote. The specimen is dated 1869 and bears the following note: "Abundant in lower part of wood in 1869, but since then has been destroyed, 8/69, J. E. Bagnall. This was considered typical by Rev. Moyle Rogers."]

R. SCISSUS W. Wats. (*R. fissus* auct.). This is the commonest suberect bramble in Staffordshire. It is found on sand or peat in exposed or shaded habitats throughout the county, ascending to well over 1,000 ft. near Ramshaw Rocks between Leek and Buxton.

R. PLICATUS W. & N. Apparently a rare species in Staffordshire. Sparingly on Whitmore Common, but not quite typical.

R. BERTRAMII G. Braun ex Focke. Hand Leasow Wood and Shaw Wood in the parish of Stowe (between Stafford and Uttoxeter) and Craddock's Moss and Black Bank near New-castle. A specimen from Hand Leasow Wood was named by Watson and appears to match one collected by Ley at Llanwrtyd, Breconshire, in 1902 and distributed through the B.E.C. Ley considered *R. bertramii* commoner than *R. plicatus* in south and central Wales and this may be true of Staffordshire also. Riddelsdell (1948) doubted the occurrence of *R. bertramii* in

England and would probably have called my plants luxuriant forms of *R. plicatus*. They differ from typical *R. plicatus* in having rather broader leaves with finer toothings, shortly stalked basal leaflets, strong falcate prickles on the rhachis and long stamens.

R. SPRENGELII Weihe. This beautiful bramble, which Focke called "*decus dumetorum*", is widely distributed in moist woods and shady hedgerows, but is particularly common in the hilly parts of north Staffordshire, as about Leek and in the Dane Valley.

R. ARRHENII J. Lange var. *POLYADENES* Gravet ap. Focke. In July 1950 Watson found a bramble in a roadside hedge on Bailey's Hill, Biddulph, which he later determined as above. It had a glandular stem and rhachis, narrow elliptic leaflets, small rose-pink petals and short stamens only half as long as the styles. There was only one rather weak bush and no flowers were produced in 1951 and 1952 when it was last visited. Apart from the narrow leaflets and the glandular development of the inflorescence, which are marks of the variety, my specimen compares well with one of the typical plant sent to me recently from Holland.

[*R. AXILLARIS* Lejeune. Growing with other brambles opposite Belmont Hall, Ipstones. Discovered and determined by Watson. Few flowers ever opened and no barren stem was seen. In 1951 and 1952 no trace of the plant could be found. The panicle appears to match that of a Scandinavian specimen in my collection, but in view of the fact that no stem leaves were seen the record cannot be accepted without doubt.]

R. CALVATUS Ed. Lees ex Blox. Widely distributed in thickets and by roadsides and easily recognised by the erratic toothings of the terminal leaflets which are characteristically oblong and hard to the touch. There are many fine examples in Shaw Wood.

R. CARPINIFOLIUS W. & N. A frequent species of sandy heaths throughout Staffordshire. There are six sheets in Hb. Bagnall. One of these was determined by Rogers as "good *R. carpinifolius*". The others are incomplete specimens lacking stem leaves, but seem to be correct. I have collected specimens from a dozen widely separated stations. These plants are uniform and typical, having oval-acuminate terminal leaflets with emarginate base, white petals, spreading sepals and pedicels with crowded subulate yellowish prickles, and compare well with the *R. carpinifolius* of the London commons. But in the north of

Staffordshire we have an abundant bramble which differs from typical *R. carpinifolius* in that the terminal leaflet is plane, cordate, often ovate and only thinly pubescent beneath. The prickles on stem and rhachis are weaker and fewer and the characteristic armature of the pedicels is wanting. Rogers' description of *R. carpinifolius* would cover these plants and several of them have been determined as *R. carpinifolius* by Watson. It may be that growth in the shade or semi-shade of woods and hedgerows is a sufficient explanation, but the plant is not confined to woods. It is an attractive feature of Hanchurch Hills (Grid Ref. 840400) where it flowers early and produces good fruit. Rilstone thought it might be *R. plicatus* \times *carpinifolius*.

R. LINDLEIANUS Ed. Lees. A well marked and widely distributed species, one of the commonest Staffordshire brambles.

R. NEMORALIS P. J. Muell. (*R. selmeri* Lindeb.). This is another well defined and common species generally distributed throughout the county.

R. LACINIATUS Willd. Occurs here and there, usually near gardens, and is considered an escape from cultivation.

R. MACROPHYLLUS W. & N. Betley, Madeley, Mucklestone and Whitmore, all in the Newcastle district of north Staffordshire. I have five gatherings which are quite unmistakable. The earliest was determined years ago by Rilstone as "exactly Weihe's plant".

R. SCHLECHTENDALII Wheihe var. *ANGLICUS* Sudre. Mr. Daltry has an undated specimen collected by himself at Madeley which both Rogers and Riddelsdell determined as *R. schlechtendalii*. A note with the specimen states that the flowers were very large and showy, the petals bright pink, and that the anthers had long hairs.

R. PYRAMIDALIS Kalt. Hand Leasow Wood. This seems to be the true plant. It has pinkish petals, short stamens, long-tipped loosely reflexed sepals, a glandular rhachis and felted leaflets, though the toothing of the leaflets is somewhat finer than usual.

R. INCURVATUS Bab. Typical *R. incurvatus* is rare in Staffordshire, if indeed it occurs at all. There are specimens in Hb. Bagnall from Hopton and Fradley which were approved by Rogers. In the same part of Staffordshire I have seen a plant on the edge of Hand Leasow Wood which is nearly identical with

a specimen from Bangor except for its looser panicle. The floral organs are deep rose, the carpels densely pilose, the sepals loosely reflexed and the leaflets strongly incurved and in shape and texture quite characteristic of true *R. incurvatus*. Near Lichfield there is a flourishing and uniform colony of bushes which suggest *R. incurvatus* with a strain of *R. vestitus*. Rilstone and Watson both agreed with this judgment. In the north of the county we have a bramble widespread and constant over a large area (I have gatherings from Ashley, Bradnop, Cheddleton, Endon, Heathylee, Hollinsclough, Ipstones, Maer and Whitmore), which has obvious affinities with *R. incurvatus*, but which is probably an unnamed species. Some of these bushes were called *R. incurvatus* by Watson and they all agree with the typical species from North Wales in possessing thick lobate terminal leaflets and strong triangular-based prickles on the barren stem. But the leaflets, though sometimes slightly incurved at the edge, are usually quite plane, the petals are nearly always pure white and the panicle is markedly pyramidal without the compact cylindrical upper part of *R. incurvatus*. There is an identical specimen in Hb. Bailey, gathered by Bailey in 1896 between Hawes Water and Bampton in Westmorland, which Rogers determined as *R. pyramidalis* Kalt. and which was recorded by Wilson (1938) under that name.

R. POLYANTHEMOS Lindeb. In hedgerows, disused gravel pits and on heaths throughout the county. Living bushes are easily determined. The dull green foliage with here and there a 6-nate or 7-nate leaf, convex leaflets, long panicle and pink flowers are characteristic features.

R. CARDIOPHYLLUS L. & M. Rather thinly distributed, rare in the north, more frequent in the south of the county. Ashley; Church Eaton; Hatherton; Kinver; Maer; Newcastle; Norbury; Penkridge; Trysull and Seisdon; Whitmore. These plants differ from many I have seen in the south of England in that the terminal leaflet has a truncate instead of a cordate base.

R. LINDEBERGII P. J. Muell. Locally common in north Staffordshire, especially in the Manifold Valley, but rare in the south. A specimen in Hb. Bagnall (Lane from Blockley, Trysull, 1897, J. E. Bagnall), though labelled *R. lindebergii*, has a glandular rhachis and is *R. polyanthemos*.

R. ULMIFOLIUS Schott. f. A lowland species abundant on the Keuper marl of central and southern Staffordshire, less common on sandstone and apparently quite absent from large areas of north Staffordshire, though it occurs on limestone in the Manifold Valley.

R. PROCERUS P. J. Muell. Whitmore Common. Said to be an escape from cultivation.

R. SCIOCHARIS (Sud.) W. Wats. Watson gave this name to a bramble which occurs in local abundance at Codsall, on Kinver Edge and near Stourbridge, Worcestershire, along a sandy lane which is only a few yards from the Staffordshire boundary. It has yellowish green foliage with a cordate terminal leaflet, rather small prickles, spreading sepals, white petals and hairy anthers. There are many sessile and subsessile glands in the upper part of the inflorescence, but few stalked glands.

R. EIFELIENSIS Wirtg. Watson has so named bushes at Meerbrook near Leek and Black Bank near Newcastle, which he saw in the field in 1950. I have other specimens of the same species from Rushton (coll. W. D. Graddon), Biddulph Grange and High Shutt, Cheadle. Mr. B. T. Ward sent me a specimen, collected by W. H. Painter from Norton-in-the-Moors in 1890, which was originally labelled *R. danicus* Focke, but which had been corrected to *R. macrothyrsus* Lange by Watson in 1950. In my judgment it is *R. eifeliensis*. *R. macrothyrsus* has not yet been found in Staffordshire, but *R. eifeliensis* is widespread in the north of the county. Two specimens in Hb. Bailey, collected by Painter from Biddulph in 1889 and 1890 and named *R. pyramidalis* with Focke's approval, are also in my opinion *R. eifeliensis*.

R. VESTITUS W. & N. One of the most frequent Staffordshire brambles, recorded from every part of the county on limestone, sandstone and Keuper marl. On the limestone of the Manifold Valley, where it is probably the commonest bramble, its flowers seem to be always white. Elsewhere forms with large showy red flowers are frequent, sometimes, as at Ashley, growing side by side with white-flowered plants. Staffordshire specimens gathered by earlier botanists and labelled *R. leucostachys* are all referable to this species. The hybrid *R. ulmifolius* × *vestitus* occurs with both parents on the road to Abbot's Castle Hill in the parish of Trysull & Seisdon. It is a handsome plant with broad deep red petals, red styles and filaments and hairy anthers. The leaflets show on their undersurface the white indumentum of *R. ulmifolius*, but they are flat and much broader than is usual in that species. The pubescent pruinose stem is armed with the long straight prickles characteristic of *R. vestitus*. There is little sign of developing fruit.

R. CRINIGER (E. F. Linton) Rog. Widely distributed and easily recognised. My plants exactly resemble W. R. Linton's gathering from Yeldersley Lane, near Shirley, Derbyshire, which was distributed through the B.E.C. in 1904. The plant is still

quite common at Yeldersley and also in Bradley Wood near Ashbourne. A good diagnostic character, not mentioned by Rogers, but pointed out to me by Watson, is furnished by the hairy anthers. I have examined 26 Staffordshire *exsiccata* and in 23 of these the anthers are conspicuously hairy. Great Barr, 1904, J. E. Bagnall in Hb. Bailey, det. W. M. Rogers ("exactly *R. criniger* Linton, as I understand it"). A specimen of the same gathering in Hb. Wedgwood was confirmed by Watson. Roadside between Weston-on-Trent and Uttoxeter, J. E. Woodhead, det. W. Watson. Camp Hills, Maer, 1920, H. W. Daltry in Hb. Daltry, det. H. J. Riddelsdell. Bank of lake, Hawkesyard, Rugeley, 1916, H. P. Reader in Hb. Reader. This gathering was named *R. villicaulis* Koehl. var. *calvatus* Blox., but is quite certainly *R. criniger*. In Hb. Bagnall there are nine gatherings, all made by J. E. Bagnall and all correctly named, though some sheets are without stem leaves.

R. MUCRONIFER Sudre (*R. mucronatus* Blox.). Very local. Abundant on the edge of Hand Leasow Wood. My sheets are a perfect match for a specimen in Hb. Bagnall from Twycross, Leicester, 1870, J. E. Bagnall, "gathered in company with Rev. A. Bloxam". A Staffordshire specimen in the same collection, gathered by Bagnall from Chartley Moss (which is in the same parish as Hand Leasow Wood) in 1896, is doubtless correct, but the panicle is poor and the anthers are not obviously hairy.

R. RADULA Weihe. I have not yet seen the true plant in Staffordshire, but the small form, var. *microphyllus* Lindeb., occurs in some quantity between Seisdon and Abbot's Castle Hill in the parish of Trysull & Seisdon.

R. DISCERPTUS P. J. Muell. (*R. echinatus* Lindl.). Widely distributed, but at present known chiefly from the south of the county. Audley; Eccleshall; Fisherwick; Kinver; Lichfield; Lower Penn; Saredon; Swindon; Trysull & Seisdon. Mr. Daltry has a specimen collected at Seighford in 1922 which Riddelsdell determined as "strong *R. echinatus*".

R. ECHINATOIDES (Rog.) Druce. A rather frequent species in north Staffordshire, easily distinguished from *R. radula* by the dark glabrous stem and white notched petals. There are good examples in the lanes at the foot of Hanchurch Hills and by the lake in the grounds of Biddulph Grange.

R. FLEXUOSUS Muell. & Lef. Shady roadside near the aqueduct at the southern end of Shelmore Wood, Norbury. An attractive species with a zig-zag rhachis and small flowers with elliptic pink petals.

R. RUBRISTYLUS W. Wats. (*R. newbouldii* Rog.). A frequent bramble of sandy soil all down the west side of Staffordshire from north to extreme south. An unlocalised specimen collected by Druce from the county was determined by Watson (1930) as *R. newbouldii*. Mr. Daltry has a specimen from Chebsey which Riddelsdell thought was probably a weak shade-grown form of the species. Riddelsdell's note contains the comment: "*R. newbouldii* occurs over a wide extent of Staffs.". There are three Staffordshire specimens labelled *R. newbouldii* in Hb. Bagnall, though two are without stem leaves. One of these was collected from Trysull Dingle by J. Fraser, the other two from Swindon and Hatherton by Bagnall himself. Bagnall states that near Hatherton *R. newbouldii* is the prevailing bramble. Rilstone had a specimen (now in my herbarium) collected by Bagnall from Gailey, which is not far from Hatherton, but he did not consider it quite the same as the Cheshire plant from Edge Green (Set No. 66) referred to in Rogers' *Handbook*. I have numerous specimens of my own gathering from these and other stations which seem to me to correspond quite well with Rogers' Set No. 66 and to answer Watson's description (1937) of *R. rubristylus*. A visit to Malpas and Edge Green in 1953, where *R. rubristylus* is a common bramble, has confirmed this opinion. The deep red styles, which are very conspicuous when the flower bud begins to open, are an attractive feature.

R. BLOXAMII Ed. Lees. Abundant in many places in south Staffordshire, less common in the north.

R. PALLIDUS Weihe. Near Gnosall, 1897, J. E. Bagnall in Hb. Bagnall, conf. Rogers ("I agree with you good *R. pallidus*"). A note with the specimen states that the petals were pale pink and the filaments longer than the pinkish-based styles. In the same year Bagnall collected another specimen "near Oulton very abundant" which was also confirmed by Rogers. There is no doubt that Bagnall understood *R. pallidus* very well. It is one of the commonest brambles in the Gnosall and Norbury district, being abundant in Shelmores Wood, Mill Haft, Coneygreave Haft and elsewhere. Mr. Daltry has a specimen collected near the reservoir on Hanchurch Hills in 1920 which was determined by Riddelsdell. Watson and I found it in the same locality in 1950. I have other gatherings from Ashley, Consall, Maer, Stowe (Hand Leasow Wood) and Tyrley (Burnt Wood). All agree in possessing diffuse rather pyramidal panicles, white petals, red styles and \pm erect sepals.

R. EURYANTHEMUS W. Wats. (*R. pallidus* var. *leptopetalus* Frid. ex Rog.). Widely distributed and locally very common. It is seen at its best in damp woods, being abundant in the shade

of trees round Betley Mere in north Staffordshire and Gailey Pools in the centre of the county. Mr. Daltry has a specimen from Madeley which Riddelsdell passed as "characteristic *R. leptopetalus*" and Rilstone made the same comment on some of my early gatherings. The short broad panicle, small, narrow, greenish-white petals and the "horrid" array of glands on the stem are remarkable features.

R. INSECTIFOLIUS L. & M. (*R. fuscus* var. *nutans* (Rog.). As *R. nuticeps* Bart. & Ridd. this is recorded for Staffordshire by W. C. Barton and H. J. Riddelsdell (1932). I have a specimen, labelled *R. fuscus* var. *nutans*, which was collected by Bagnall at Drayton Bassett in 1897 and distributed through the Watson Exchange Club. In north Staffordshire it grows in several places near Muckleston. Watson pointed it out to me in a disused gravel pit near Loggerheads and I have since found some fine bushes in a wood at Napely Heath.

R. LINTONI Focke ex Bab. In several places about Whitmore. First discovered by Watson near Whitmore Hall.

R. SCABER Weihe. A local species of south Staffordshire. Kingswood Common near Codsall.

R. RUFESCENS L. & M. (*R. rosaceus* subsp. *infecundus* Rog.). This is another bramble which is known at present only from the south of the county. It is abundant in parts of Seckley Wood and occurs also on Kingswood Common. Specimens from these localities are quite typical and answer Rogers' description of *R. rosaceus* subsp. *infecundus* in every detail. They have also discoid flower buds and red styles, which are additional characters, not mentioned in the *Handbook*. A third locality is Baggeridge Wood near Wolverhampton. My specimen is inconclusive, but a much earlier gathering in Hb. Bagnall (Sept. 1878) is probably correct, though it lacks a stem leaf.

R. TAENIARUM Lindeb. (*R. spurius* Neum.). Haughton; Maer; Muckleston; Swynnerton. This is a remarkable bramble with attractive cup-shaped flowers, pink or pinkish petals, pink filaments, which only slightly exceed the styles, and pilose carpels. On my specimens the armature of the barren stem varies in strength, being sometimes almost hystican. Focke (1914) equates *R. taeniarum* Lindeb. with *R. infestus* Weihe, but Watson considers them to be distinct species. There are several old Staffordshire records of *R. infestus* and four old specimens. These should probably be ascribed to *R. taeniarum*.

R. DALTRII Edees & Rilstone. This bramble, which was first described in 1945, is abundant about Whitmore Common and in many other localities in the Newcastle district of north Staffordshire, but I have never seen it anywhere else. It has large, showy, pure white flowers with long spreading stamens and is very distinct from any other species known to me.

R. PASCUORUM W. Wats. (*R. borrieri* Bell Salt. var. *virgultorum* Ley). Probably a frequent, if not common, species in the south west corner of Staffordshire. Specimens from Kinver Edge and from the parish of Trysull & Seisdon, which are clearly identical, were determined, the one by Rilstone, the other by Watson. They seem to compare well with a specimen of *R. borrieri* var. *virgultorum* collected by Ley from the Wyre Forest, Shropshire, in 1904.

R. DIVERSUS W. Wats. Farewell & Chorley (below the mill on the road to Lichfield). Det. F. Rilstone, conf. W. Watson.

R. LEIGHTONI Ed. Lees ex Leight. (*R. radula* Weihe var. *anglicanus* Rog.). This is a handsome bramble with showy pink flowers, long stamens and exceptionally long stalks to the terminal leaflets. It is a widely distributed and frequent species in Staffordshire. I have specimens of my own gathering from 16 scattered localities.

R. HYSTRIX Weihe. Cheddleton, on a piece of heathy ground not far from the station. Determined by Watson as "quite unambiguous".

R. HYLOCHARIS W. Wats. A frequent species of woods and hedgerows throughout Staffordshire, a very prickly bramble with handsome pink flowers and erect sepals. This is the plant which used to be called *R. rosaceus* in Staffordshire. Mr. Daltry has specimens so named by Riddelsdell.

R. DASYPHYLLUS Rog. One of our commonest glandular brambles, to be found in most parts of the county and abundant in the north.

R. MURRAYI Sudre. Rare. Discovered by Watson on Dab Green near Whitmore Common. As far as I know there is only one bush here, but it is quite unmistakable. More recently I have found the same species in the south of the county, between Swindon and Highgate Common, but again in small quantity. It also grows on the northern edge of Sutton Park in Warwickshire, just beyond the Staffordshire boundary. These are all typical plants with white petals, red styles, strongly deflexed panicle prickles and rather small ovate terminal leaflets.

R. BELLARDII Weihe. There are two Staffordshire specimens in Hb. Bagnall, one from the south of the county (Codsall, first railway bridge, 1887, J. E. Bagnall) and one from the north (Dimminsdale, Alton Towers, 1896, J. E. Bagnall, conf. W. M. Rogers). The plant still grows at the Codsall railway bridge and is quite common in parts of Dimminsdale. It also grows in Hawksmoor Wood, Oakamoor, and in Mud-dale Wood, Checkley. A specimen in Hb. Bailey (Biddulph, 1886, W. H. Painter), labelled *R. glandulosus* var. *bellardii*, is not *R. bellardii*. It matches exactly a plant gathered from Bailey's Hill, Biddulph, which has not yet been satisfactorily determined.

R. SUBLUSTRIS Ed. Lees. Generally distributed, though there are seldom many bushes in any one locality. A well defined species.

R. MYRIACANTHUS Focke. This species has large white flowers and strong uneven armature. It is common in north Staffordshire and probably common throughout the county.

R. SCABROSUS P. J. Muell. Rilstone (1935) states that every district seems to have its own special forms of *R. dumetorum*. The Staffordshire forms are complex and require much further study. Apart from *R. myriacanthus*, we have another widespread and constant species, easily recognised but not easily named. Watson examined several bushes and agreed to the name *R. scabrosus*, though not without hesitation.

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THE SCOTTISH RECORDS OF *SENECIO SQUALIDUS* L.

By DOUGLAS H. KENT

Clapham (1952) gives the British distribution of *Senecio squalidus* L. as "throughout S. England to Lancs. and Yorks., locally in S. Scotland".

The earliest evidence of the occurrence of the species in Scotland appears to be contained on two sheets in the herbarium of the Royal Botanical Garden, Edinburgh. The first sheet is labelled "Leith Walk, Edinburgh, 1833, J. H. Balfour", and bears the following annotation, "no doubt this was a relic of the Old Botanic Garden which was finally removed from Leith Walk about 1822", W. R. Evans, 1943. The second sheet is labelled "waste ground N.E. of Edinburgh, 1833", and Mr. B. L. Burt informs me that it probably refers to the same locality as that given on the first sheet. Mr. J. E. Lousley has recently located a third sheet at Edinburgh; this is labelled "near Leith, June, 1890" (Terras herbarium), and no doubt this refers to the same locality as the earlier sheets. In Herb. Bentham at Kew there is a further undated and unsigned specimen labelled "Nat'd., near Edinburgh". The plant appears no longer to occur in the Edinburgh area, nor is there any evidence to suggest that it has been seen there since 1890.

The earliest printed record of the plant in Scotland appears to be that given by Fraser (1911), viz. "*Senecio squalidus* L. forma. One at Galafoot in 1908". Apparently the plant, if correctly identified, was merely a casual wool-adventive. It seems probable, however, that the plant in question was the polymorphic *Senecio inaequidens* DC. which superficially resembles *S. squalidus*, and is now known to be introduced with "shoddy" (cf. *Year Book, B.S.B.I.*, 1953, 107, and *Proc., B.S.B.I.*, 1, 256 (1954)). Hayward and Druce (1919), in citing the record, add: "We have not seen Scottish specimens".

Druce (1932) gives the Scottish distribution of *S. squalidus* as v.cc. 78 and 79; there are no Scottish specimens in Herb. Druce and an exhaustive search of botanical literature has failed to produce confirmation that the plant was ever found in the first mentioned vice-county. The record for v.c. 79 appears to be based on the record given by Fraser (1911).

There appears to be only one recent printed record for Scotland—"Bonnybridge, Stirling", W. J. in *Country-side*, (N.S.), 14, 187 (1947); this has not been confirmed and was probably based on a misidentification.

Miss C. W. Muirhead has recently informed me that the plant was found "growing on a roadside bank near New Craighall Colliery, near Musselburgh (v.c. 83)" in May 1954 by Dr. J. Milne. This is the first definite evidence of the occurrence of *S. squalidus* in Scotland during this century.

In conclusion both Mr. J. R. Lee and Mr. R. Mackechnie inform me (*in litt.*) that they have never seen the plant growing in Scotland; nor do they know of any Scottish records other than those that I have given. I am indebted to Mr. B. L. Burtt and Mr. J. E. Lousley for information relating to the specimens at Herb. Royal Botanic Garden, Edinburgh.

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CAREX HOSTIANA IN BEDFORDSHIRE

By E. NELMES

The Hummocky Field, or, more officially, Cow Common, is now ploughed up and most of its age-long wealth of plant life gone. Cow Common, no longer appropriately named, lies near Totternhoe in Bedfordshire. I visited it in June 1952 because I suspected that *Carex hostiana* DC. grew there and it seemed desirable to record its presence—or absence—before the growing threat of ploughing became an actuality.

I went to find Cow Common with the help of a little pencil sketch made by a colleague. There were several meadows at the end of the route, a gate leading into the most likely looking one. I opened it, and my wife, who shared my day's exploration, stepped into the field. Before I could join her she tripped and fell, hurting her leg. This was certainly the Hummocky Field!

A tiny stream flowed through the middle of it, and by the water in its bed grew tufts of *Carex lepidocarpa* Tausch. Alongside the streamlet, clear of its banks, *C. distans* L. occurred plentifully. Still further from the stream my guess came true: I had found *C. hostiana* in the Hummocky Field! Not far from its somewhat larger relative, *C. distans*, this neat little sedge with the silvery-margined glumes occurred in patches for some distance parallel to the two other species.

At an earlier date Dr. John Dony, author of the *Flora of Bedfordshire*, had found somewhere here specimens of a sedge which were determined (not by me) as a hybrid between *C. distans* and *C. lepidocarpa*. As, however, this plant bears glumes which are awnless and often acute at the apex, as in *C. hostiana* but not characteristic of *C. distans*, it seems highly probable that *C. hostiana* is one of the parents. It is not in dispute that *C. lepidocarpa* is the other parent. Specimens have been placed in the Kew herbarium.

A description of the hybrid follows.

CAREX HOSTIANA × LEPIDOCARPA: *C. hornschurchiana* × *lepidocarpa* Hausskn. in *Mitt. Geogr. Ges. Thür.*, 2, 212 (1884): *C. × leutzii* Kneucker in Seub., *Kleine Excursfl. Baden*, Ed. 5, 68 (1891).

Plant loosely tufted. Stems curved-erect, 30-40 cm. tall, 0.75-1 mm. thick below, smooth below but scaberulous on the acute angles of the rhachis. Leaves much shorter than the stems, 2-3 mm. wide, flat or flattish, lower reduced to pale and almost bladeless sheaths. Spikes

3-4, usually 3, subdense-flowered, uppermost male, terminating the stem, slenderly cylindric, but somewhat tapering at each end, 2-2.5 cm. long, 2-2.75 mm. thick, lateral spikes female, more or less cylindric, base often slightly thicker, 1-1.6 cm. long, 4.5-5.5 mm. thick, upper subsessile or on shortly, lower on rather longly, exserted peduncles, upper at a node 2.5-4 cm. below the male spike, lower 4.5-13 cm. distant from the upper female spike. *Bracts* subfoliaceous, 4-8 cm. long, upper shortly lower longly sheathing; *sheaths* in front, at the mouth, prolonged into a short membranous tongue. *Female glumes* ovate, acuminate, flattish-cymbiform, apex acute to obtuse, 3-3.3 mm. long, 1.8-2 mm. wide, light castaneous, often whitish at the base and irregularly and widely so on the margins, midrib slender, from slightly failing to reach to forming a firm tip at the apex. *Utricles* shrunken and compressed, mostly broadly elliptic but a few obovate or ovate, 3.4-3.6 mm. long, 1.5-1.8 mm. broad, obscurely few-nerved to many-nerved, narrowly marginate, glabrous, straightish, slightly spreading, lowest few subpatent, greenish or yellowish-green above, white below or at the base, very shortly stipitate, mostly abruptly or subabruptly beaked; *beak* not or scarcely tapering, compressed, 1.4-1.6 mm. long, narrowly marginate, margins very sparsely to subdensely rough, pale below, castaneous above, bidentate; *teeth* somewhat diverging. *Achene* undeveloped.

V.c. 30, Bedfordshire; Totternhoe = The Litany = Hummocky Field, 1951, J. D. DONY, 1469 (Herb. Kew).

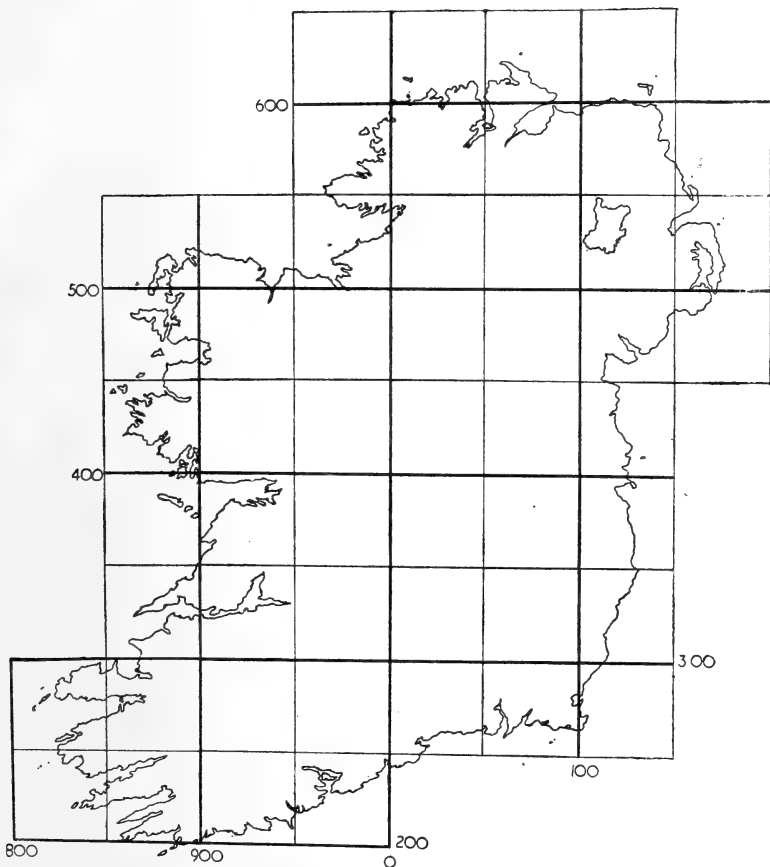
**THE DISTRIBUTION MAPS SCHEME:
A PROVISIONAL EXTENSION TO IRELAND OF THE BRITISH
NATIONAL GRID**

By D. A. WEBB

The decision to use the 10-km. squares of the National Grid as the basis of the Society's Atlas of the distribution of British plants necessitated the extension of the grid to cover the whole of Ireland. This presented a problem which was at once difficult and incapable of an elegant solution.

The zero vertical of the grid nearly bisects Ireland, running from Youghal to the Bloody Foreland, so that the eastern half is covered by the existing grid; but only small-scale maps are available to show this. Furthermore, a serious difficulty arises from the fact that, whereas the grid was chosen to suit the projection on which the Ordnance maps of Britain are drawn (transverse Mercator, with origin at 2° W., 49° N.), the Ordnance maps of Ireland are drawn on Bonne's projection, centred on the meridian of 8° W. It follows from this that the grid will appear on the Irish maps in a form that is neither rectangular nor rectilinear, and that it will be set skew both to the graticule (meridians and parallels) and to the margins of the sheets. In fact, the verticals appear as virtually straight lines running from west of north to east of south; while the horizontals appear as curved lines, dipping south of west at an angle which increases sensibly towards the west. In the eastern half of the country their deviation from a straight line is barely perceptible, but in the extreme west it becomes very marked.

To plot this grid accurately would require some fairly intricate spherical trigonometry and a very long and tedious series of calculations. Since the time for the latter was not available, I wasted no vain regrets on my lack of the former, and proceeded by a method which used approximation and extrapolation freely to an interim solution which is (if one remembers the scale on which the maps are ultimately to be printed) sufficiently accurate for the present purpose. The grid has been drawn on a series of $\frac{1}{2}''$ maps which are kept in the School of Botany, Trinity College, Dublin; duplicate sets are in the Departments of Botany at Cambridge and (northern sheets only) Belfast. It nevertheless seems worth while to put on permanent record the position of the principal fixed points in this grid which is being used for the atlas, so that any record which gives rise to queries in the future can be searched for if necessary, and so that those who have not access to the gridded maps can, by interpolation between these points, reconstruct the grid with sufficient accuracy for most purposes.



A PROVISIONAL EXTENSION TO IRELAND OF THE BRITISH NATIONAL GRID

In this connection, however, attention must be drawn to a totally unexpected obstacle which I encountered in transferring the grid to the Ordnance maps: the fact that a considerable number of the Irish sheets deviate perceptibly from their ostensible scale of $\frac{1}{2}$ " to a mile. Altogether ten sheets out of the twenty-five on which the grid was actually drawn show discrepancies of scale exceeding 0.2%. The most serious error is in sheet 9, where the scale in the north-south direction seems to be 1.8% below its nominal value; the most bizarre discrepancy is in sheets 4 and 8, where the north-south scale is 0.5% too large and the east-west scale 0.25% too small. How this state of affairs arose I cannot imagine, but it is a trap against which I would warn anybody who is attempting to reproduce a part of the grid.

The two tables here appended should suffice for fixing the grid within the limits of those errors which are inherent in the method by which it was plotted.

TABLE 1.
INCLINATION OF VERTICALS WITH RESPECT TO THE MERIDIANS

Grid line	Inclination
850	7° 10'
900	6° 40'
950	6°
0	5° 20'
50	4° 40'
100	4° 10'

TABLE 2.
LOCALISATION OF PRINCIPAL GRID INTERSECTIONS

Intersection (vertical is given first)	Locality
0/600	1·4 m. W. and 1·0 m. S. of the Bloody Foreland.
50/600	0·9 m. E. and 1·0 m. S. of the fort on Dunree Head, Lough Swilly.
100/600	3·1 m. W. and 0·4 m. N. of Ramore Head, Portrush, Co. Antrim.
900/500	0·4 m. E. and 0·3 m. N. of the 890 ft. summit N. of Bangor Erris, Co. Mayo.
950/500	1·6 m. E. and 0·3 m. S. of the bridge at Culleens, Co. Sligo.
0/500	1·9 m. E. and 0·1 m. N. of Lisgorman station, Co. Leitrim.
50/500	0·8 m. W. and 0·6 m. N. of the N.W. corner of L. Lea, near Lisnaskea, Co. Fermanagh.
100/500	0·1 m. E. and 0·9 m. N. of the church at Lisnadill, near Armagh.
150/500	1·0 m. E. and 0·3 m. S. of Edendarriff Mt. (553 ft.), S. of Ballynahinch, Co. Down.
900/400	0·7 m. W. and 0·4 m. S. of the Cashla River bridge, S.E. of Costelloe, Co. Galway.
950/400	1·9 m. W. and 0·9 m. N. of Athenry station, Co. Galway.
0/400	2·2 m. W. and 1·8 m. N. of the school at Clonmacnoise, Offaly.
50/400	0·6 m. E. and 2·0 m. S. of Rochfortbridge.
100/400	1·1 m. W. and 2·8 m. N. of Leixlip station, Co. Kildare.
850/300	2·1 m. W. and 0·3 m. N. of Gurry Island (N. of Castle- gregory, Co. Kerry).
900/300	0·1 m. E. and 2·3 m. S. of the church at Duagh, Co. Kerry.

Intersection (vertical is given first)	Locality
950/300	0·5 m. E. and 0·2 m. S. of Bruree station, Co. Limerick.
0/300	1·1 m. W. and 1·3 m. N. of Newinn, Co. Tipperary.
50/300	1·2 m. W. and 2·4 m. S. of Thomastown, Co. Kilkenny.
100/300	0·3 m. E. and 1·8 m. N. of Grania's cross-roads, E. of Enniscorthy, Co. Wexford.
850/200	5·9 m. W. and 2·1 m. S. of the 765 ft. summit above Mizen Head.
900/200	0·4 m. W. and 0·2 m. N. of Scullane Point, near Toe Head, Co. Cork.
950/200	1·6 m. E. and 5·3 m. S. of the Old Head of Kinsale.

PLANT NOTES

33/2. *MATTHIOLA SINUATA* (L.) R.Br. This is usually said to be a biennial. I had however a plant of it in my garden grown from seed from Saunton, Devon, and sown in 1949, which was still lusty until the frosts early this year (1954)—30° was recorded close by. It is perhaps relevant to record that in its first year it proved a prime favourite with rabbits and never managed to flower. This may have enabled the plant to form a stouter stock and last longer.—D. McCLINTOCK.

147(2)/1. *Genistella sagittalis* (L.) Gams, 1923, in *Hegi Illustr. Fl. Mittel-Eur.*, **4**, 196; *Genista sagittalis* L., 1753, *Sp. Pl.*, 710; *G. herbacea* Lam., 1786, *Encycl.*, **2**, 616; *Genistella racemosa* Moench, 1794, *Meth.*, 133; *Spartium sagittale* Roth, 1798, *Tent. Fl. Germ.*, **1**, 302; *Saltzwedelia sagittalis* Gaertn., *Mey. & Scherb.*, 1800, *Fl. Wetterau*, **2**, 498; *Cytisus sagittalis* Koch, 1837, *Syn.*, 147; *Syspene sagittalis* Griseb., 1843, *Spic. Fl. Rum. Bith.*, **1**, 5. 12, N. Hants.; a large patch on bank by roadside on the Basingstoke-Andover road between Whitchurch and Hurstbourne Priors, 1954, Miss C. PLUNKETT, comm. Miss D. E. DE VESIAN. Dwarf procumbent shrub less than 30 cm. high, with ascending or erect mostly simple broadly 2-winged branchlets: leaves ovate to oblong, 12-20 mm. long, villous; flowers yellow, each 10-12 mm. long, in terminal racemes 2.5-4 cm. long; calyx hairy; pods linear-oblong, 20 mm. long, silky, 3-6 seeded. Native of central and south east Europe.—D. H. KENT.

156/1. *ANTHYLLIS VULNERARIA* L. Sir Edward Salisbury's recent book *Downs and Dunes* more than once gives this species as a biennial. A mature red-flowered plant collected in early 1951 was still flourishing three years later in my rockery until destroyed by the activities of moles. Its seedlings I might add have also produced red flowers.—D. McCLINTOCK.

195/2. *PYRUS COMMUNIS* L. In view of doubt about the status of the pear-tree in Britain, it is interesting to note that the carbonised fruits of either this species or the related *P. cordata* Desv. have been found in the Tardenoisian midden on Tévéc island, off the coast of Morbihan, in Brittany (M. & S.-J. Péquart, et al., 1937, *Arch. Inst. Pal. Humaine, Mém.* **18**; J. G. D. Clark, 1952, *Prehist. Eur.*, **48**). Since this deposit is of Mesolithic age, before the advent of orchardry, it is reasonable to assume that the fruits came from wild trees growing in the vicinity. This increases the likelihood that at least one of the species of *Pyrus* is native in southern England.—D. E. ALLEN.

378/22. *ARTEMISIA NORVEGICA* var. **scotica** Hultén, 1954, *Nytt Mag. Bot.*, **3**, 67. In typical *A. norvegica* the basal leaves are sub-palmate and the primary lobes have long secondary lobes. The plant

recently found in Scotland has the primary lobes of the basal leaves merely deeply 3-5-dentate and is described by Hultén (1954) as a new variety. The full description of the new variety is as follows:—*Humilis* 1-2 capitulata albo-pilosa; foliis basalibus cuneatis, vel sub-palmatis laciniis tribus usque quinque profunde 3-5 dentatis. Capitula minora iis apud *Artemisiam norvegicam*, modo c. 1-2 cm. diam. Type specimen, 105, W. Ross; near Ullapool, Wester Ross, at about 2,400 feet on spur of mountain, 1953, J. E. LOUSLEY (Hb. Mus. Brit.).

610/2. ***Kochia densiflora*** Turcz. The treatment of the genus *Kochia* in Komarov *Fl. URSS.*, 6 (1936) by Iljin has drawn attention to *Kochia densiflora* Turcz. in Moquin, *Chenop. Enum.*, 91 (1840) (*K. sieversiana* Iljin, l.c., 134—non C. A. Meyer) a species which is closely related to *K. scoparia* (L.) Schrad. Whereas the flowers of *K. scoparia* do not show any, or only a few, hairs at their base, in *K. densiflora* they have a more or less dense ring of long hairs. The flowers are embedded in this ring of hairs so that the flowering branches have a general very hairy appearance. The intensity of this hairy development is found in a whole series of stages, so that very often difficulties arise in assigning individual plants to one or the other species.

It seems that the strongly hairy *K. densiflora*, which is found in steppes and deserts of Central and Eastern Asia, is the wild form of *K. scoparia*, which in Asia grows especially in cultivated ground such as cornfields, or in ground influenced by man.

In recent years *K. densiflora* has been observed as an introduced plant several times in Europe (Germany, Austria, Holland). In England it was collected by Miss C. M. Goodman on a track adjoining fields in which wool-aliens were abundant at Charlton, Worcs., v.c. 37, on October 11th, 1953, and a specimen was sent to me by Mr. J. E. Lousley.

An account of the Asiatic species of this genus by the writer will be found in *Mitt. Basler Bot. Gesellschaft.*, 2 Jahrg., No. 1, 4-16 (May 1954) which includes a description of *K. densiflora* and discussion of the nomenclature.—P. ALLEN.

656/2. ***Elodea callitrichoides*** (Rich.) Caspary, 1857, *Monatsb. Berl. Acad.*, 47; *Anacharis callitrichoides* Rich., 1814, *Mém. Inst. France*, 2: 7, 75, t.2. 20, Herts.; river Colne near Harefield, c. 1948, G. TAYLOR. 21, Middx.; Longford River, Stanwell, abundant, 1950, H. C. GRIGG; still plentiful, 1954, D. H. KENT. A dark green pellucid submerged plant. Stems up to 2 m. long, usually much less, brittle. Leaves 15-25 mm. long \times 1.5-2.5 mm. broad, opposite (or in whorls of 3), linear-lanceolate, acute, translucent, lightly toothed. Flowers dioecious, small, solitary, whitish. Male flowers carried on a pedicel 20-50 mm. long, sepals 5-6 mm. long; stamens 9. Female flowers submerged with very long stigmas which reach the surface of the water. Fruit with 7-8 seeds. Water-pollinated at the surface. Only female flowers have so far been noted in Britain (cf. *Year Book, B.S.B.I.*, 1951, 80). Native

of temperate South America, and believed to have been accidentally (or deliberately) introduced into British waters by aquarists.—D. H. KENT.

656(2)/1. **Egeria densa** Planch., 1849, *Ann. Sci. Nat. Ser. 3 Bot.* **11**, 80; *Elodea densa* (Planch.) Casp., 1857, *Monatsb. Berl. Acad.*, **49**, 59, *S. Lancs.*; Ashton Canal, Droylsden, 1953, L. W. Frost, det. J. E. DANDY. Plant resembling *Elodea canadensis*, but larger and coarser. Branches elongate with whorls of 4 (rarely 6) linear-lanceolate, acuminate, finely toothed leaves, 20-30 mm. long. \times 2-3.5 mm. broad. Flowers dioecious, large, whitish. Male flowers grouped 2-4 in a spathe and carried on long pedicels; corolla 18-20 mm.; sepals 3-4 mm.; petals showy; stamens 9. Female flowers solitary in a spathe, the corolla somewhat smaller. Fruits elongated with 1-2 seeds. Insect-pollinated, the showy flowers being raised above the water, whereas in *Elodea* pollination takes place at the surface of the water.

Plants have been observed for some years at Droylsden, growing in warm waste water from cotton-mills, but were thought to be luxuriant forms of *Elodea canadensis* until 1953 when the plant flowered profusely. The plant is frequently grown as an oxygenator in aquaria (often as *Elodea canadensis* var. *gigantea*), and it seems likely that the Lancashire plants have arisen from aquarium waste, and have established themselves in the warm water, multiplying by vegetative propagation, as only male flowers have been detected so far. *E. densa* is another native of temperate South America, and is naturalised and spreading vegetatively in the U.S.A., mainly in southern California and along the Atlantic coast; it has also been introduced into Kenya.—D. H. KENT.

658(2)/1. **Lagarosiphon major** (Ridley) C. E. Moss, 1928, *Trans. Ry. Soc. S. Afr.*, **16**, 193; *L. muscoides* var. *major* Ridl., 1886, *J. Linn. Soc. Bot.*, **22**, 233. 1. W. Cornwall; old quarry. Sennen. 1954. Miss B. M. STURDY, det. at Kew. 17, Surrey, gravel pit near Teddington Lock, 1948, J. P. M. BRENAN (Hb. Kew & Hb. Mus. Brit.). Distributed through B.S.B.I. Exchange Section (see *Year Book. B.S.B.I.*, 1950, 96); 1949, J. E. LOUSLEY; B. WELCH (Hb. Mus. Brit.): gravel pit now filled in. 30, Beds.; pond in chalkpit. Arlesey. 1944, J. G. DONY & E. MILNE-REDHEAD; 1945, J. G. DONY, det. J. E. DANDY (Hb. Kew, Hb. Mus. Brit., Hb. Luton Mus.); still there, 1954, J. G. DONY. 59, *S. Lancs.*; Ashton Canal, Droylsden, 1953, J. E. LOUSLEY. A large, strong, rigid, submerged aquatic species, resembling in the field luxuriant *Elodea canadensis*. Stems long, \pm branched, leafy throughout; leaves thick, dark green, translucent, whorled to alternate, linear-acute, 10-15 mm. long \times 2-3 mm. broad, with short blunt triangular-shaped teeth. Flowers dioecious, small, whitish, enclosed in long spathes. Male spathe ovate, bifid at the apex, many-flowered (up to 40). Female spathe ovate or oblong, 1-flowered. Male flowers float free on water on reaching the surface. Water-pollinated at the surface. Native of S. Africa. Frequently grown as an oxygenator of aquaria

(often under the name *Elodea crispa*), and believed to have been introduced into British waters by the action of aquarists.—D. H. KENT.

830/4 × 835/1. × **Agrohordeum langei** (Richt.) G. Camus ex A. Camus, 1927, *Bull. Mus. Hist. Nat. Paris*, **33**, 537 (**Agropyron repens** × **Hordeum secalinum**); *Agropyron repens* var. *hordeacea* Nielson, 1872; *Bot. Tidsskr.*, **5**, 202; *Agropyrum pratense* × *repens* Lange, 1886, *Haandb. Danske Fl.*, **4**, 49; × *Agropyron langei* Richt., 1890, *Plantae Europ.*, **1**, 126; × *Tritordeum langei* Aschers. & Graebn., 1901, *Syn.*, **2**, 748; × *Elytrordeum langei* Hylander, 1953, *Nord. Kärleväxtflora*, **1**, 369. 34, W. Glos.; brackish pasture by the river Avon. Shirehampton, 1945, Mrs. C. I. SANDWITH; 1954, Mrs. C. I. & N. Y. SANDWITH. Plant male-sterile; the slender yellow anthers remain closed and contain imperfect pollen only. This hybrid is intermediate in several respects between its putative parents, but its facies is that of an *Agropyron* due to the dominance of certain *A. repens* characteristics. It is possible that for this reason it has been passed over, being mistaken for slender *A. repens*. From that species it may be distinguished by the articulated spike-rhachis, the internodes of which fracture horizontally just above each spikelet as they do in *Hordeum secalinum*; by the narrower, more rigid, fewer(3-4)-nerved, awned glumes which are often placed slightly obliquely in relation to the florets; and by the fewer (2-4) florets. Occasionally there are two, rarely three, spikelets at each of the lower nodes of the spikes; usually, however, they are solitary and in this respect differ from *Hordeum secalinum*. The hybrid may also be separated from that species by the wider glumes and the shorter awns. The anthers (3-3.5 mm.) agree in length with those of *Hordeum secalinum*.—C. E. HUBBARD & N. Y. SANDWITH.

835/2(2). **Hordeum leporinum** Link, 1835, *Linnaea*, **9**, 133. 30, Beds.; railway sidings, Flitwick, 1950, J. G. DONY (J. G. Dony 1068, Herb. Luton Mus.): shoddy heap, Deepdale, Pottton, 1952, E. MILNE REDHEAD and J. G. DONY (J. G. Dony 1820, Herb. Kew): railway sidings, Willington, 1952, J. G. DONY (J. G. Dony 1985, Herb. Luton Mus.): railway sidings, Southill, 1952, J. G. DONY (J. G. Dony 1991, Herb. Kew): railway sidings, Shefford, 1954, J. G. DONY (J. G. Dony 2232): arable field, Maulden, 1954, J. G. DONY (J. G. Dony 2217). 37, Wores.; arable field, Pinvin, 1954, Miss C. M. GOODMAN. 63, S.W. Yorks.; waste-wool heap, Kirkheaton, 1952, J. G. DONY (J. G. Dony 1924, Herb. Kew): railway sidings, Eccleshill, 1953, J. G. DONY, J. E. LOUSLEY and D. McCLINTOCK (J. G. Dony 2107): railway sidings, City Road, Bradford, 1954, J. G. DONY (J. G. Dony 2136). 65, N.W. Yorks.; arable field, Catton, 1954, Miss C. M. ROB and J. G. DONY (J. G. Dony 2170).

835/2(3). **H. glaucum** Steud., 1854, *Syn. Pl. Glum.*, **1**, 352, *H. stebbinsii* Covas, 1949, *Madroño*, **10**, 17. 30, Beds.; railway sidings, Flitwick, 1953, J. G. DONY (J. G. Dony 2020, Herb. Kew, Herb. Luton Mus.); 1954, J. G. DONY (J. G. Dony 2148). 37, Wores.; arable field,

Pinvin, 1954, Miss C. M. GOODMAN and J. G. DONY (J. G. Dony 2263). 63, S.W. Yorks.; Valley Scouring and Cleaning Works, Shipley, 1952, J. G. DONY (J. G. Dony 1911, Herb. Kew): Minerva Works, Kirkheaton, 1953, J. G. DONY, J. E. LOUSLEY and D. McCLINTOCK (J. G. Dony 2108, Herb. Kew). 65, N.W. Yorks.; railway sidings, Baldersby, 1954, Miss C. M. ROB and J. G. DONY (J. G. Dony 2174).

835/2(4)b. *H. pusillum* var. *pubens* Hitchcock, 1933, *Journ. Wash. Acad. Sci.*, **23**, 453. 30, Beds.; arable field, Maulden, 1953, J. G. DONY (J. G. Dony 2058, Herb. Kew): railway sidings, Flitwick, 1954, J. G. DONY (J. G. Dony 2149).

Hordeum glaucum and *H. leporinum* are superficially alike, and closely allied to, *H. murinum* L. from which they differ in the floret of the central spikelet being borne on a "pedicel" (rhachilla-internode) usually as long as the "pedicels" of the lateral spikelets. In *H. murinum* the floret of the central spikelet is sessile or subsessile. The lemma, awn and palea of the central spikelets of *H. glaucum* and *H. leporinum* are shorter than those of the lateral spikelets: in *H. murinum* they are longer. In *H. glaucum* and *H. leporinum* the inner glumes of the lateral spikelets are as broad as those of the central spikelet, and the paleas of the lateral spikelets are pubescent. In *H. murinum* the inner glumes of the lateral spikelets are narrower than those of the central spikelet, and the paleas of the lateral spikelets are almost glabrous.

H. glaucum differs from *H. leporinum* in its spike being more dense. 6-8 spikelets per cm. of rhachis, and the stamens of the central floret being included at anthesis; the anthers are 0.2-0.5 mm. long, their upper filaments having no starch grains. In *H. leporinum* there are 3-5 spikelets per cm. of rhachis, and the stamens of the central floret are exerted at anthesis; the anthers are 0.8-1.5 mm. long, their filaments having conspicuous starch grains.

H. pusillum is closely allied to *H. marinum* Huds. It has a linear-oblong spike, usually over 4 cm. long, the glumes being suberect. In *H. marinum* the spike is ovate, usually less than 4 cm. long, the awns being strongly spreading.

H. leporinum is a native of the Mediterranean region, N. Africa and the Orient, and is now cosmopolitan in warm temperate regions. *H. glaucum* is also native in the Mediterranean region, N. Africa and the Orient, and is becoming cosmopolitan in warm temperate regions (N. & S. America, S. Africa, Australia). *H. pusillum* is probably native from the U.S.A. to central Argentine, and is appearing as an adventive in Europe.

I wish to thank Mr. C. E. Hubbard and Dr. A. Melderis for their assistance in naming my material.

REFERENCE

COVAS, G., 1949, Taxonomic observations on the North American species of *Hordeum*, *Madroño*, **10**, 1-21.

J. G. DONY.

PLANT RECORDS

Compiled by E. C. WALLACE

Records are for the year 1954 when no date is given.

The following signs are used:—

- § before the *B.P.L.* number: to indicate that the paragraph contains information necessitating a correction to an annotated copy of the *Comital Flora*.
- † before the *B.P.L.* number: to indicate that the plant is not a native species in the British Isles.
- † before the record: to indicate a species which, though native in some parts of the British Isles, is not so in the locality recorded.
- * before the record: to indicate a new vice-county record, not published previously to this issue of the *Proceedings*.
- ‡ before the record: to indicate a record additional to an annotated copy of *Comital Flora*, but published elsewhere prior to the issue of the *Proceedings* in which it appears.
- [] enclosing a record: to indicate doubt as to the validity of the record, either of identification or locality.

It will be useful if, in future, National Grid Co-ordinates, made as accurate as is thought advisable, are added to all records.

§2/5. *THALICTRUM ALPINUM* L. *79, Selkirk; basic flush at about 2,200 ft., east slope of Cramalt Craig, Meggat Water, D. A. RATCLIFFE.

5/1. *MYOSURUS MINIMUS* L. 22, Berks.; (5) farm land just outside Reading, plentiful, 1953, J. OUNSTED.

§6/28. *RANUNCULUS BAUDOTII* Godr. *101, Kintyre; coastal marsh near Tayinloan, W. Kintyre, M. H. CUNNINGHAM, det. R. W. BUTCHER.

21/6. *PAPAVER HYBRIDUM* L. 16, W. Kent; edge of field near Farningham, LONDON NATURAL HISTORY SOCIETY EXCURSION, comm. P. C. HALL, conf. E. B. BANGERTEK.

35/1(2). *RORIPPA MICROPHYLLA* (Boenn.) Hylander. 90, Forfar; Leysmill, U. K. DUNCAN, det. H. K. AIRY SHAW.

35/1(2)×35/1. *RORIPPA* × *STERILIS* Airy Shaw. 90, Forfar; Carlingheugh Bay, Arbroath, 1953: 96, Easternness; Allanfearn, 1943, U. K. DUNCAN, det. H. K. AIRY SHAW.

†35/5. *RORIPPA AUSTRIACA* (Crantz) Bess. 23, Oxon; (7) Wayside at Caversham, within the borough of Reading, a good patch, 1953, H. C. A. THOMAS, det. and comm. J. OUNSTED.

§44/1. *EROPHILA VERNA* (L.) Chevall. *89, E. Perth; railway bridge north of Dalnaspidal Station, A. A. SLACK.

54/14b. *SINAPIS ARVENSIS* var. *ORIENTALIS* (L.) Aschers. 36, Hereford; waste building ground, Colwall, F. M. DAY.

§54/22. *HIRSCHFELDIA INCANA* (L.) Lagrèze-Fossat. *†21, Middx.; rubbish tip, Hounslow Heath, in quantity, B. WELCH, comm. D. H. KENT.

§61/2. *LEPIDIUM LATIFOLIUM* L. ‡†26, W. Suffolk; near, and on the banks of, the river Lark at Tollgate Bridge, Bury St. Edmunds, ? a relic of cultivation, 1953, H. J. Boreham (1954, *Trans. Suffolk Nats. Soc.*, **8**, 188). *†31, Hunts.; dredgings of river Nene backwater near Yarwell Mill, Elton, T. PATSTON, comm. J. L. GILBERT.

§85/3. *RESEDA LUTEOLA* L. ‡74, Wigtown.; roadside banks near Lochlans village, Stranraer, 1952, A. M. STIRLING, but see A. C. McCandlish, *A List of Wigtownshire Plants*, 1931, for an earlier record.

§88/1. *VIOLA STAGNINA* Kit. ‡26, W. Suffolk; Lakenheath, 1953, R. G. Rutterford, conf. S. M. Walters (1954, *Proc. Suffolk Nats. Soc.*, **8**, 188).

88/34. *VIOLA TRICOLOR* subsp. *CURTISII* (E. Forst.) Syme. H.21, Dublin; North Bull Island, Dublin Bay, purple, yellow and parti-coloured forms, F. SLATER.

92/2. *DIANTHUS DELTOIDES* L. 34, W. Glos.; the possible occurrence of this species on St. Vincent's Rocks is discussed by C. I. and N. Y. Sandwith in "Bristol Botany in 1953" (*Proc. Bristol Nats. Soc.*, **28**, 1954), arising from a specimen now in their possession labelled "Clifton Rocks, July 22, 1910, W. Prowse".

96/1×2. *SILENE MARITIMA* × *VULGARIS*. 68, Cheviotland; just behind Bamburgh Castle, J. W. Heslop Harrison (1954, *Vasc. (Subst.)*, **39**, 9).

96/4. *MELANDRIUM NOCTIFLORUM* (L.) Fr. H.21, Dublin; Portrane, J. P. Brunker (1954, *Irish Nats. J.*, **11**, 206).

103/2. *SAGINA SUBULATA* (Sw.) C. Presl. 97, Westernness; frequent on stony scree (basaltic), An Coire, Morvern (Argyll), E. C. WALLACE.

104/2. *SPERGULA SATIVA* Boenn. 34, W. Glos.; on sandy soil, Yate Common, G. W. Garlick, C. I. and N. Y. Sandwith (1954, *Proc. Bristol Nats. Soc.*, **28**, 380).

105/2. *SPERGULARIA MEDIA* (L.) C. Presl. 101, Kintyre; salt-marsh, Davaar Point, near Campbelltown; salt-marsh by Smerby, E. Kintyre, 1951, M. H. CUNNINGHAM, det. A. MELDERIS.

§105/3. *SPERGULARIA MARINA* (L.) Griseb. *101, Kintyre; salt-marsh, Davaar Point, near Campbeltown; salt-marsh by Smerby, E. Kintyre, 1952, M. H. CUNNINGHAM, det. A. MELDERIS.

§†108/2. *CLAYTONIA PERFOLIATA* Donn ex Willd. *46, Card.; sand dunes south of Gwbert, W. M. CONDRY, comm. NAT. MUS. WALES.

109/2. *MONTIA FONTANA* subsp. *CHONDROSPERMA* (Fenzl) S. M. Walters. 48, Mer.; dune slack below Plas Mynach, Barmouth, P. M. BENOIT, det. S. M. WALTERS, comm. NAT. MUS. WALES.

116/2. *LAVATERA CRETICA* L. †19, N. Essex; Colchester, 1953, D. McCLINTOCK, H. CHILD and B. WELCH.

127/13. *GERANIUM LUCIDUM* L. 86, Stirling; shaded rocks near the Loup of Fintry on the Endrick, A. A. SLACK and A. M. STIRLING.

§132/2. *OXALIS CORNICULATA* L. 101, Kintyre; recorded in error in *Proceedings, B.S.B.I.*, 1, 166 (1954). Delete 101 from *C.F.*, M. H. CUNNINGHAM.

§†133/3. *IMPATIENS PARVIFLORA* DC. †59, S. Lancs.; Ashworth Valley, Heywood, in locality stated in the preface of E. Whittaker's *Birds of a Lancashire Cotton Town* (1932) to be the only station in S. Lancs., 1953, F. SLATER.

§149/2. *ULEX GALLII* Planch. *16, W. Kent; Kemsing, 1953, D. McCLINTOCK

176/1. *VICIA SYLVATICA* L. 97, Westernness; rocky slope by Sound of Mull, Aoineadh Mor, Morvern (Argyll), E. C. WALLACE.

176/4. *VICIA OROBUS* DC. 104, N. Ebudes; gullies near the sea, north west side of Loch Brittle, Skye, A. A. SLACK and A. M. STIRLING

§176/13. *VICIA ANGUSTIFOLIA* L. †101, Kintyre; roadside, Peninver, M. H. CUNNINGHAM—but see *Glasgow Nat.*, 17, 73 (1954).

§176/14. *VICIA LATHYROIDES* L. †101, Kintyre; coastal pasture by Killeen, W. Kintyre, 1953; Southend links, S. Kintyre, M. H. CUNNINGHAM, det. A. MELDERIS—but see *Glasgow Nat.*, 17, 73 (1954).

185/13. *RUBUS LATIFOLIUS* Bab. 90, Forfar; Auchmithie, U. K. DUNCAN, det. W. C. R. WATSON.

§185/155. *RUBUS CHAMAEMORUS* L. *99, Dunbarton; at 1,700 ft. near the summit of Creachan Hill, Glen Finlas, Luss, 1948, A. M. STIRLING.

§187/2×1. *GEUM* × *INTERMEDIUM* Ehrh. *48, Mer.; with putative parents, Torrent Walk, Dolgelly, Mrs. M. RICHARDS.

§189/6. *POTENTILLA TABERNAEMONTANI* Aschers. *86, Stirling; on a very limited area of rocks near the waterfall known as the Loup of Fintry on the Endrick; also on basalt crags a little to the north west at c. 900 ft. Remove record from brackets in *C.F.*, A. A. SLACK.

189/8. *POTENTILLA ANGLICA* Laichard. 101, Kintyre; banks of Corskies Burn: widespread in Kintyre, M. H. CUNNINGHAM.

190/2. *ALCHEMILLA XANTHOCHLORA* Rothm. 101, Kintyre; widespread—Tarbert Hills; Pennygown, S. Kintyre; Peninver, E. Kintyre, etc., M. H. CUNNINGHAM, det. S. M. WALTERS.

190/8. *ALCHEMILLA GLABRA* Neygenf. 101, Kintyre; widespread—Baraskomie pasture, Aros Moss. Tarbert Hills, etc., M. H. CUNNINGHAM, det. S. M. WALTERS.

§190(2)/2. *APHANES MICROCARPA* (Boiss. & Reut.) Rothm. *16, W. Kent; rides in wood, Bedgebury, N. Y. SANDWITH. *44, Carm.: old quarry, Cil-maen-llwyd, near Llandilo, A. E. WADE, comm. NAT. MUS. WALES. ‡61, S.E. Yorks.; Skipwith Common, R. Rose and C. M. Rob: 62, N.E. Yorks.; Gribdale Gate, Great Ayton, G. F. Willmot and C. M. Rob: ‡65, N.W. Yorks.; Cover Banks, Middleham, C. M. Rob (1955, *The Nat.*, 1955, 27).

†192/1. *ACAENA ANSERINIFOLIA* (J. R. & G. Forst.) Druce. 33, E. Glos.; (7a) Batsford Park, M. McCALLUM WEBSTER.

199/2. *SAXIFRAGA OPPOSITIFOLIA* L. 101, Kintyre; hillside rocks at Mull of Kintyre, elevation c. 1,000 ft., M. H. CUNNINGHAM, det. D. A. WEBB.

†200/1. *TELLIMA GRANDIFLORA* (Pursh) Dougl. ex Lindl. 4, N. Devon; banks of river Heddon, near Hunter's Inn, and elsewhere, S. PALMER.

203/1. *CHRYSOSPLENIUM ALTERNIFOLIUM* L. 88, Mid Perth: among scattered boulders below crags, Loch na Craige, Aberfeldy, A. M. STIRLING.

§211/7. *SEDUM ALBUM* L. *†68, Cheviotland: on a natural rock outcrop at the roadside, approaching Bamburgh from the west, 1953, A. M. STIRLING.

213/2. *DROSERA INTERMEDIA* Hayne. 101, Kintyre; Aros Moss by Campbeltown, in company with *D. anglica* and *D. rotundifolia*, 1951, M. H. CUNNINGHAM, det. A. MELDERIS.

†220/7(2). *EPILOBIUM ADENOCAULON* Hausskn. 37, Wores.: marshy ground by the lake, Westwood Park, Droitwich, J. W. GOUGH and N. Y. SANDWITH.

†220/17. *EPILOBIUM PEDUNCULARE* A. Cunn. 64, N.W. Yorks.; on a wall, Bentham railway station, J. F. and P. C. HALL. 88, Mid Perth; north side of Shiehallion, following a stream up to 2,000 ft., J. OUNSTED and C. J. CADBURY. 97, Westerness; abundant in stone gullies on An Coire, Morvern (Argyll), A. C. CRUNDWELL and E. C. WALLACE. 101, Kintyre; first found in 1948, Glenbreckerie, S. Kintyre, by burnside, since then in quarries and by roadside in many parts, M. H. CUNNINGHAM, det. G. TAYLOR.

242/1. *DANAA CORNUBIENSIS* (L.) Burnat. 24, Bucks.; the Dorney Wood locality, referred to as "a second Bucks. station" (*Proc. B.S.B.I.*, 1, 51 & 73 (1954), is in fact the well-known station near Burnham Beeches, J. E. LOUSLEY.

†244/2. *SMYRNIUM PERFOLIATUM* Mill. 21, Middx.; Newland's Copse, Harrow Park, three plants, R. M. HARLEY, det. and comm. D. H. KENT.

271/1. *LIGUSTICUM SCOTICUM* L. 103, Mid Ebudes; quite plentiful on Staffa, above the basalt, J. OUNSTED.

†277/1. *HERACLEUM MANTEGAZZIANUM* Somm. & Levier. 66, Durham; along the Wear banks in Lambton Park, J. W. Heslop Harrison (1954, *Vasc. (Subst.)*, 39, 18).

†287/1. *SAMBUCUS RACEMOSA* L. 66, Durham; common and fully naturalised in woods near Baybridge and Hunstantworth, J. W. Heslop Harrison (1954, *Vasc. (Subst.)*, 39, 18).

§304/1. *VALERIANELLA LOCUSTA* (L.) Betcke. *42, Brecon; on an old wall, Crickhowell, H. VERNALL, comm. NAT. MUS. WALES.

†320/7. *ERIGERON PHILADELPHICUS* L. 35, Mon.; Tutshill, 1953, D. McCLINTOCK.

328/3. *GNAPHALIUM SYLVATICUM* L. 15, E. Kent; Soles Wood, on chalk, west of Barfreton, D. McCLINTOCK.

†354/1. *GALINSOGA PARVIFLORA* Cav. 65, N.W. Yorks.; Hawkhills, Crayke, J. H. Evers, per K. G. Payne (1955, *The Nat.*, 1955, 28).

†354/2. *GALINSOGA CILIATA* (Raf.) Blake. 11, S. Hants.; (2) at the foot of a wall near the quay, Christchurch, J. OUNSTED. 26, W. Suffolk; cultivated fields, Great Cornard, Dr. G. Griffith (1954, *Proc. Suffolk Nats. Soc.*, 8, 190). 62, N.E. Yorks.; York, C. Brereton, per C. M. Rob: 64, Mid W. Yorks.; as a weed in a flower bed at the University, Leeds, G. A. Shaw (1955, *The Nat.*, 1955, 28).

§†378/21. *ARTEMISIA VERLATORUM* Lamotte. *16, W. Kent; waste ground, Erith, J. F. and P. C. HALL, conf. D. H. KENT.

†383/7. *SENECIO SQUALIDUS* L. 58, Cheshire; canal towpath, Sandbach, 1952, F. SLATER.

†387/1. *GAZANIA SPLENDENS* Lemaire. S, Guernsey; still by Fort Marchant, where I first saw it in 1947, then obviously of long standing. D. McCLINTOCK.

391/1. *CARLINA VULGARIS* L. 104, N. Ebudes; rock ledges in gully near the sea, north west side of Loch Brittle, Skye, A. A. SLACK and A. M. STIRLING.

†393/4. *ARCTIUM TOMENTOSUM* Mill. 90, Forfar; Monikie, U. K. DUNCAN, det. W. A. SLEDGE.

395/3. *CARDUUS TENUIFLORUS* Curt. †36, Hereford; waste ground near Hereford station, casual, F. M. DAY.

396/4. *CIRSIIUM ACAULON* (L.) Scop. 14, E. Sussex; clayey pasture by Beechdown Wood, Ashburnham, E. C. WALLACE.

396/5×9. *CIRSIIUM DISSECTUM* × *PALUSTRE*. 12, N. Hants.; marshy ground, Conford, near Liphook, N. Y. SANDWITH.

HIERACIUM, all det. by P. D. SELL and C. WEST.

419/92. *HIERACIUM CYMBIFOLIUM* Purchas. 64, Mid W. Yorks.; Ingleton; Oxenber Wood, Feizor, J. F. and P. C. HALL.

419/166. *HIERACIUM ANGLORUM* (Ley) Pugsl. 57, Derby.; Whitwell Wood, J. F. and P. C. HALL.

419/169. *HIERACIUM STRUMOSUM* Ley. *57, Derby.; Markland Grips, J. F. and P. C. HALL.

419/184. *HIERACIUM PRENANTHOIDES* Vill. 57, Derby.; Tideswell Dale, J. F. and P. C. HALL.

419/216. *HIERACIUM TRICHOCAULON* (Dahlst.) Roffey. 14, E. Sussex; Tilgate Forest, J. F. and P. C. HALL.

419/221. *HIERACIUM DRUMMONDII* Pugsl. 101, Kintyre; seaside rocks, Muasdale, W. Kintyre, 1953, M. H. CUNNINGHAM.

†425/8. *CICERBITA MACROPHYLLA* (Willd.) Wallr. 20, Herts; lane-side near Harpenden, Mrs. D. JONES, det. and comm. D. H. KENT.

§430/1. *SCORZONERA HUMILIS* L. †38, Warwick.; see *Proceedings B.S.B.I.*, 1, 152 (1954).

§432/1. *JASIONE MONTANA* L. *86, Stirling; in very small quantity on a rocky bank near the waterfall called the Loup of Fintry on the Endrick, A. A. SLACK and A. M. STIRLING.

†435/11. *CAMPANULA PYRAMIDALIS* L. 16, W. Kent; East Farleigh, 1953, D. McCLINTOCK and F. ROSE. S, Guernsey; St. Peter Port, 1953, D. McCLINTOCK.

†442/1. *PERNETTYA MUCRONATA* (L.f.) Lindl. 97, Westernness; well established near Corran Ferry, Mrs. B. H. S. RUSSELL and D. McCLINTOCK. 101, Kintyre; established on seashore rocks, and on the hills at Tarbert, Loch Fyne, 1953, M. H. CUNNINGHAM.

453/2. *PYROLA MEDIA* Sw. 97, Westernness; in ravine, Loch Aline, Morvern (Argyll), E. C. WALLACE.

467/3. *ANAGALLIS FOEMINA* Mill. 21, Middx.; Waste ground, Regents Park, about twelve plants, H. C. HOLME, conf. and comm. D. H. KENT.

469/1. *SAMOLUS VALERANDI* L. 104, N. Ebudes; salt-marsh at head of Loch Scavaig, Skye, A. A. SLACK and A. M. STIRLING.

†474/1. *BUDDLEJA DAVIDI* Franch. S, Guernsey; St. Peter Port, 1953, D. McCLINTOCK.

†497/5. *SYMPHYTUM ASPERUM* Lepech. 96, Easternness; Drumma-drochit, 1953, J. E. LOUSLEY and D. McCLINTOCK.

§506/9. *MYOSOTIS HISPIDA* Schlecht. *50, Denbigh.; above the limestone quarry, near Craig Farm, north-west of Denbigh, and Cefnmeiriadog Caves, three miles south-west of St. Asaph, M. MORRIS, comm. NAT. MUS. WALES.

527/4. *VERBASCUM VIRGATUM* Stokes. †65, N.W. Yorks.; near Skipton, 1953, D. McCLINTOCK and C. M. ROB.

†532/26. *CYMBALARIA MURALIS* Gaertn., Mey. & Scherb. 101, Kintyre; old wall by Maiden's Planting, near Campbeltown, M. H. CUNNINGHAM.

§543/9. *VERONICA CATENATA* Pennell. *101, Kintyre; coastal marsh near Tayinloan, W. Kintyre, M. H. CUNNINGHAM, det. J. H. BURNETT.

§†543/41. *VERONICA FILIFORMIS* Sm. *11, S. Hants.; garden weed, Butts Ash, near Hythe, 1953, F. E. W. VENNING, comm. E. B. BANGERTER: garden weed, New Milton, T. G. COLLETT. ‡18, S. Essex; side of main road near "The Nag's Head", Ramsden Heath, S. T. Jermyn (1954, *S. Essex Nat.*, 3, 12). *53, S. Lincs.; garden weed, Stragglethorpe: *56, Notts.; Farndon, 1940; Orston, 1953, both as garden weeds colonising lane sides, R. C. L. HOWITT, comm. E. B. BANGERTER. ‡64, Mid W. Yorks.; river bank above Tanfield, C. M. Rob (1955, *The Nat.*, 1955, 28). 66, Durham; in a dense mass along the Wear near Eastgate, J. W. Heslop Harrison (1954, *Vasc. (Subst.)*,

39, 18). *100, Clyde Isles; grassy verge near the pier, Brodick, Arran, G. C. LEWARNE, comm. E. B. BANGERTER.

545/10d. *EUPHRASIA OCCIDENTALIS* var. *CALVESCENS* Pugsl. 101, Kintyre; Clochkeil links, W. Kintyre, M. H. CUNNINGHAM, det. E. F. WARBURG.

§545/19. *EUPHRASIA ROSTKOVIANA* Hayne. *47, Montgomery; heathy hill slope between Llanidloes and Llandynam, C. I. and N. Y. SANDWITH, det. P. F. YEO.

§548/5. *RHINANTHUS STENOPHYLLUS* (Schur) Druce. *101, Kintyre; in pastures everywhere—Southend, Aros, Ardnacross, etc., M. H. CUNNINGHAM, det. E. F. WARBURG.

550/3. *OROBANCHE ALBA* Steph. ex Willd. 104, N. Ebudes; crevice of Cambrian limestone, lower slopes of Ben Suardal, Broadford, Skye; also in rock gully near the sea, north-west of Loch Brittle, Skye, A. A. SLACK and A. M. STIRLING.

§558/1. *MENTHA ROTUNDIFOLIA* L. 101, Kintyre; recorded in error in *Proceedings, B.S.B.I.*, **1**, 177 (1954). Delete 101 from *C. F.*, M. H. CUNNINGHAM.

§558/2. *MENTHA ALOPECUROIDES* Hull. ‡101, Kintyre; wayside by Kilkeddan and Oed Lintmill, 1953, M. H. CUNNINGHAM, det. R. A. GRAHAM.—But see *Glasgow Nat.*, **17**, 79 (1954) for earlier records.

§558/4. *MENTHA SPICATA* L. *101, Kintyre; established along the Tayinloan burn between the village and the sea, 1952, M. H. CUNNINGHAM, det. R. A. GRAHAM.

560/1. *ORIGANUM VULGARE* L. 94, Banff.; on limestone rocks by roadside about a mile north-west of Tomintoul, near Bridge of Avon, A. A. SLACK and A. M. STIRLING.

563/1. *CLINPODIUM VULGARE* L. 86, Stirling; rocky bank near the Loup of Fintry, on the Endrick, A. M. STIRLING. 94, Banff.; on limestone rocks by roadside about a mile north-west of Tomintoul, near Bridge of Avon, A. A. SLACK and A. M. STIRLING.

611/5. *SALICORNIA RAMOSISSIMA* Woods. 34, W. Glos.; Pill, between Avonmouth and Chittering, M. P. W. Cummins (1954. *Proc. Bristol Nats. Soc.*, **28**, 383).

615/3. *POLYGONUM BISTORTA* L. 101, Kintyre; damp grassland by Erines, N. of Tarbert, Loch Fyne, in great quantity and luxuriance, M. H. CUNNINGHAM.

§618/13. *RUMEX MARITIMUS* L. ‡8, S. Wilts.; lake at Wardour, K. Marks, det. J. E. Lousley (1954, *Wilts. Arch. and N.H. Mag.*, 55, 261).

§632/2. *MERCURIALIS ANNUA* L. *69, Westmorland; Rayrigg Wood, Windermere, M. I. TETLEY, det. G. WILSON.

633/4(2). *ULMUS DIVERSIFOLIA* Melville. 19, N. Essex; Great Braxted, forming most of fieldside hedge, G. G. HATTON, det. R. MELVILLE.

638/1. *PARIETARIA DIFFUSA* Mert. & Koch. 100, Clyde Isles; roadside wall due north of Kingarth Hotel, Bute, A. M. STIRLING.

§652/2. *EMPETRUM HERMAPHRODITUM* (Lange) Hagerup. 72, Dumfries; acidic rocks, alt. c. 2,400 ft., north slopes of White Coon, b. Moffat Hills, D. A. RATCLIFFE.

662/1. *NEOTTIA NIDUS-AVIS* (L.) Rich. 96, Easternness; bank of the Grottaig Burn, four miles south-west of Strone, Loch Ness, 1953, A. A. SLACK. 97, Westernness; wood by Inninbeg, Lochaline, Morvern, (Argyll), E. C. WALLACE. 101, Kintyre; woodland at Ellavy, Loch Killisport, H. R. ROGERS, det. V. S. SUMMERHAYES, comm. M. H. CUNNINGHAM: Inverneill, Loch Fyne, M. H. CUNNINGHAM.

663/2. *LISTERA CORDATA* (L.) R. Br. 97, Westernness; at base of damp overhanging rocks at 3,500 ft. on Stob Coire an Easain, Glen Spean. Fully one hundred plants of which two were flowering. This altitude is considerably higher than that given in *C.F.*, A. A. SLACK and A. M. STIRLING. 103, Mull; open woodland, Craignure, E. C. WALLACE.

664/2. *SPIRANTHES SPIRALIS* (L.) Chevall. 22, Berks.: (5) Leighton Park School, within the borough of Reading, two plants flowered in an old lawn which was left unmown in September 1951. It is reported that the same occurred in 1941, but the plant had not been seen in other years, J. OUNSTED.

§667/3. *CEPHALANTHERA LONGIFOLIA* (L.) Fritsch. *96, Easternness; high bank by Inverness to Fort Augustus road, Loch Ness, opposite Inverfarigaig (north shore, near 19th milestone), M. S. CAMPBELL. 101, Kintyre; woodland by Ellavy, Loch Killisport, long known to H. R. ROGERS of Ellavy, det. V. S. SUMMERHAYES, comm. M. H. CUNNINGHAM.

§668/3b. *EPIPACTIS PHYLLANTHES* var. *VECTENSIS* (T. & T. A. Steph.) D. P. Young. ‡61, S. E. Yorks.; on the wolds, west of Hull, first found in 1953 by Mrs. Grewe of Hull. Visited in 1954 by Dr. D. P. Young (1955, *The Nat.*, 1955, 28).

§669/7. *ORCHIS INCARNATA* L. *63, S.W. Yorks.; near Tickhill, five miles south-west of Bawtry, in a meadow on magnesian limestone, 1949, J. BROWN, det. V. S. SUMMERHAYES. 101, Kintyre; coastal marsh by Tayinloan, W. Kintyre, also marsh by Clochkeil, 1953, M. H. CUNNINGHAM, det. V. S. SUMMERHAYES.

669/7c. *ORCHIS INCARNATA* var. *PULCHELLA* Druce. 101, Kintyre; damp coastal grassland near Ballochroy, also Clochkeil, both W. Kintyre, M. H. CUNNINGHAM, det. V. S. SUMMERHAYES.

§669/8. *ORCHIS PRAETERMISSA* Druce. *38, Warw.; Sutton Park, near Sutton Coldfield, 1951, R. C. READETT: marshy field, Earlswood, 100-200 plants, 1953, J. F. WOOLMAN, both det. V. S. SUMMERHAYES.

§669/9. *ORCHIS PURPURELLA* T. & T. A. Steph. *76, Renfrew.; Eaglesham, E. M. RUTTER, det. and comm. V. S. SUMMERHAYES. *91, Kincard.; Drumlithie, in a bog with *Orchis ericetorum* and *Gymnadenia conopsea*, 1951, J. C. GARDINER, det. and comm. V. S. SUMMERHAYES. *99, Dunbarton; Rosneath; Kilcreggan, marsh on slope below road near Portkil Farm, 1948, H. K. AIRY SHAW (*Hb. Kew*), comm. D. H. KENT.

§669/9(3). *ORCHIS TRAUNSTEINERI* Saut. *49, Caern.; Rhyd-y-clafdy, Cors Geirch, three miles west of Pwllheli, W. S. LACEY, det. and comm. V. S. SUMMERHAYES. See also separate paper on p. 297.

§669/10. *ORCHIS ERICETORUM* (Linton) E. S. Marshall. *7, N. Wilts.; Layfield outside Spyre Park, near Chittoe, 1947, N. Y. SANDWITH (*Hb. Kew*), comm. D. H. KENT. *27, E. Norfolk; Upton Broad, north of Acle, 1951, V. S. SUMMERHAYES.

§669(3)/1. *HIMANTOGLOSSUM HIRCINUM* (L.) Spreng. *59, S. Lancs.; Freshfield, in sand dune area, J. GRANT, det. and comm. V. S. SUMMERHAYES.

671/1. *ACERAS ANTHROPOPHORUM* (L.) Sm. 20, Herts; chalk down three miles from Hitchin, 1931, K. MEARS (*Hb. Kew*), comm. D. H. KENT.

674(2)/1. *LEUCORCHIS ALBIDA* (L.) E. Mey. ex Schur. 97, Westerness; dry hillocks, by Loch na Droma Buidhe, Dorlin, Morvern (Argyll), E. C. WALLACE.

674(3)/1 × 669/11. *COELOGLOSSUM VIRIDE* × *ORCHIS FUCHSII*. 51, Flint.; Maeshafen, with both parents, E. HUYTON, det. and comm. V. S. SUMMERHAYES.

+678/1. *CROCUS NUDIFLORUS* Sm. 59, S. Lancs.; Woolfold, 1952, F. SLATER.

§702/3. *ALLIUM SCORODOPRASUM* L. *87, W. Perth.; among grass by roadside on west bank of Forth, at the road junction immediately south-west of Gartmore Station, 1950, A. M. STIRLING.

§702/9. *ALLIUM OLERACEUM* L. ‡7, N. Wilts.; Colerne Park, J. D. GROSE. But see *Fl. Glou.*, 464 (1948).

§711/1. *GAGEA LUTEA* (L.) Ker-Gawl. ‡77, Lanark.; in sandy soil among trees on north bank of river Clyde near Crossford, 1952, A. M. STIRLING—see also J. R. Lee in *Glasgow Nat.*, 17, (1952). Remove from brackets in *C.F.*

718/2. *JUNCUS ACUTUS* L. 49, Caern.; Bardsey Island, the second record for the county. Mrs. M. RICHARDS. conf. P. W. RICHARDS.

718/12b. *JUNCUS KOCHII* F. Schultz. 46, Cardigan.; stream near the shore (on mainland) between Gwbert and Cardigan Island. P. M. BENOIT, comm. NAT. MUS. WALES. 101. Kintyre; marshy ground, Tarbert Hills, also hills around Campbeltown, and Aros Moss, M. H. CUNNINGHAM, det. P. W. RICHARDS.

§719/9. *LUZULA LUZULOIDES* (Lam.) Dandy & Wilmott. ‡66, Durham; Lambton Woods. J. W. Heslop Harrison (1954, *Vasc. (Subst.)*, 39, 18).

723/2. *ARUM MACULATUM* L. 101. Kintyre; Keil woodland, S. Kintyre, long known and seen in 1952 and 1953, M. H. CUNNINGHAM.

§745/2. *ELEOCHARIS UNIGLUMIS* (Link) Schult. *38. Warw.; margin of pool (salt spring). Southam Holt, R. C. READETT, det. S. M. WALTERS.

747/1. *ERIOPHORUM LATIFOLIUM* Hoppe. 97, Westerness; several places about Glen Cripesdale, and Loch na Droina Buidhe, Morvern (Argyll), E. C. WALLACE.

§749/1. *SCHOENUS NIGRICANS* L. *86, Stirling; western shores of Inchealloch, Loch Lomond, 1953, A. A. SLACK and A. M. STIRLING.

753/10. *CAREX PENDULA* Huds. 86, Stirling; at the waterfall called the Spout of Ballagan, Strathblane, A. M. STIRLING.

753/20(2). *CAREX DEMISSA* Hornem. 90, Forfar; above Falls of Damff, Glen Esk, U. K. DUNCAN, det. E. NELMES.

§753/21. *CAREX LEPIDOCARPA* Tausch. *101, Kintyre; damp pasture by sea, Baraskomil, E. Kintyre, and shore marsh by Ardnacross, E. Kintyre, M. H. CUNNINGHAM, det. E. C. WALLACE.

753/68. *CAREX DIVISA* Huds. 6, N. Som.; edge of a pool near Berrow Church, Miss A. Miller, and in 1953, Miss E. Rawlins (1954, *Proc. Bristol Nats. Soc.*, **28**, 384).

§787(2)/1. × *AMMOCALAMAGROSTIS BALTICA* (Fluegge) P. Fourn. (*Ammophila arenaria* × *Calamagrostis epigejos*). ‡25, E. Suffolk; south end of Gorleston, 1953, F. W. Simpson (1954, *Trans. Suffolk Nats. Soc.*, **8**, 192).

†796/1. *GAUDINIA FRAGILIS* (L.) Beauv. S, Jersey; Port Marquet, D. McCLINTOCK.

797/1. *CYNODON DACTYLON* (L.) Pers. †16, W. Kent; Abbey Wood, G. M. BROWN, conf. and comm. D. H. KENT.

814/1b. *CATABROSA AQUATICA* var. *LITORALIS* Parn. 101, Kintyre; sandy beach, seaward of all other land plants and apparently salt-washed, north of Machrihanish, J. OUNSTED.

§818/1. *MELICA NUTANS* L. *104, N. Ebuades, rocky bank of burn on Cambrian Limestone, south-east side of Loch Cil Criosd, Broadford, Skye, A. A. SLACK and A. M. STIRLING.

§818/2. *MELICA UNIFLORA* Retz. *96, Easternness; shaded rocks on bank of Gralaig Burn, four miles south-west of Strone, Loch Ness. A. A. SLACK and A. M. STIRLING.

824/5. *POA PALUSTRIS* L. †21, Middx.; bombed site, Lower Thames Street, London, E.C.4, D. McCLINTOCK.

824/8. *POA BALFOURI* Parn. 72, Dumfries; moist calcareous rocks. Raven Craig, Carrifron, Moffat Hills, D. A. RATCLIFFE.

826/5. *FESTUCA ALTISSIMA* All. 99, Dunbarton.; steep rocks in ravine on Finglas Water, near Luss, Loch Lomond, 1950, A. M. STIRLING, det. C. E. HUBBARD.

†827/13(2). *BROMUS CARINATUS* Hook & Arn. 18, S. Essex; grounds, of Shoebury Garrison, 1953, S. T. Jermyn, det. A. Melderis (1954, *S. Essex Nat.*, **3**, 13).

827/19(2)b. *BROMUS LEPIDUS* var. *MICROMOLLIS* (Krösche) C. E. Hubbard. 83, Edinb.; locally dominant on overgrown cinder path by the side of St. Steven's Church, Comely Bank, Edinburgh, 1953, P. S. GREEN, conf. C. E. HUBBARD.

827/19(3). *BROMUS THOMINI* Hard. 6, N. Som.; limestone quarry at Cross (the f. *hirsutus* (Holmb.), C. I. and N.Y. Sandwith: 34, W. Glos.; Bury Hill, Yate Rocks; and quarry east of Yate Court, G. W. Garlick; Avonmouth Docks, C. C. Townsend (1954, *Proc. Bristol Nats. Soc.*, **28**, 385).

†829/2. *LOLIUM TEMULENTUM* L. 55, Leics.; waste ground between railway and canal near Marlow Road, Leicester, three plants, E. K. HORWOOD.

844/7. *EQUISETUM HYEMALE* L. 92, S. Aberdeen.; a single clump on the bank of the Glas Allt Beag near the track from Invercauld House, Braemar, A. A. SLACK and A. M. STIRLING.

850/1. *PHYLLITIS SCOLOPENDRIUM* (L.) Newm. 104, N. Ebudes; in fine condition in "grikes" of limestone pavement, lower slopes of Ben Suardal, Broadford, Skye, A. A. SLACK and A. M. STIRLING.

856/5. *DRYOPTERIS AEMULA* (Ait.) Kuntze. 14, E. Sussex; peaty bank in Beechdown Wood, Ashburnham, E. C. WALLACE.

§856/11. *THELYPTERIS ROBERTIANA* (Hoffm.) Slosson. *†17, Surrey; railway platform, Kew Gardens Station, J. P. M. BRENNAN.

§857/4. *CYSTOPTERIS FRAGILIS* (L.) Bernh. *101, Kintyre; damp rocks at Mull of Kintyre, in company with *Sedum rosea*, *Saxifraga oppositifolia* and *Thelypteris phegopteris*, at c. 1,000 ft., M. H. CUNNINGHAM, det. A. MELDERIS.

865/1. *BOTRYCHIUM LUNARIA* (L.) Sw. 34, W. Glos.; Engine Common, Yate, G. W. Garlick (1954, *Proc. Bristol Nats. Soc.*, **28**, 385).

870/5. *LYCOPODIUM CLAVATUM* L. 34, W. Glos.; scattered patches on side of old cart track in open woodland, Lydney Tufts, near Whitecroft; a rediscovery of a species thought to be extinct in Gloucestershire, J. T. FLETCHER, comm. W. R. PRICE.

CHAROPHYTA, all det. by G. O. ALLEN.

§872/7. *NITELLA GRACILIS* Ag. *108, W. Sutherland; very small immature specimens obtained by grapnel in about 10 ft. of water (pH 5.7) interspersed amongst considerable masses of the alga *Batrachospermum atrum* (Dillw.) Harv., Lochan an Smuraich, near Loch Stack; larger but sterile specimens from Loch Grosvenor, 1½ miles north west of Lochan an Smuraich (pH 5.7), A. V. HOLDEN, comm. A. J. BROOK.

873/1. *TOLYPELLA INTRICATA* Leonh. 34, W. Glos.; pond near Vinney's Lane, Horton, and in two ponds on Inglestone Common, G. W. Garlick (1954, *Proc. Bristol Nats. Soc.*, **28**, 385).

§876/3c. *CHARA VULGARIS* var. *PAPILLATA* Wallr. *56, Notts.; peaty drain, Misson, R. C. L. HOWITT.

§876/4. *CHARA RUDIS* Leonh. *27, E. Norfolk; Hassingham, G. H. ROCKE.

876/16a. *CHARA GLOBULARIS* var. *CAPILLACEA* (Thuill.) Zanev. 53, S. Lincs.; ballast pit, Woolsthorpe, R. C. L. HOWITT.

§876/17. *CHARA DELICATULA* Ag. *56, Notts; peaty drain, Misson, R. C. L. HOWITT. 88, Mid Perth; pool beside an old lime kiln near Loch Kinardochy, on the road from Keltneyburn to Loch Tummel, 1952, A. M. STIRLING.

ABSTRACTS FROM LITERATURE

Compiled by D. H. KENT

Thanks are due to D. E. Allen, E. B. Bangerter, N. D. Simpson and A. E. Wade for their help.

SYSTEMATIC, ETC.

3/2. *ANEMONE NEMOROSA* L. Kotilainen, M. J., 1953, Valkovuokon levinneisyys destä maassamme, *Suomen Luonto*, **12**, 54-63. Studies on the distribution of *Anemone nemorosa* in Finland.—[D.H.K.]

6. *RANUNCULUS*. Hess, H., 1953, [*Ranunculus acer* L. \times *Ranunculus steveni* Andrz.] ein neuer Bastard aus dem St-Galler Rheintale, *Ber. Schweiz. Bot. Ges.*, **63**, 267-270.

23/1. *CHELIDONIUM MAJUS* L. Fast, G., 1953, Über laciniate Mutanten von *Chelidonium majus* L., *Ber. Deutsch. Bot. Ges.*, **66**, 188-198. *Chelidonium majus* var. *laciniatum* includes forms described under the names f. *acutiloba*, f. *multifida*, f. *quercifolia* and f. *serrata*. The distribution of these forms is discussed, and the author suggests that they have arisen spontaneously and independently.—[D.H.K.]

61/3. *CARDARIA DRABA* (L.) Desv. Willis, S. J., 1953, *Cardaria draba*—a globe-trotting weed, *World Crops*, **5**, No. 8. The spread of *Cardaria draba* throughout the world is discussed.—[D.H.K.]

77. *CAKILE*. Harrison, J. W. Heslop, 1952, A new British sea rocket, *Cakile edentula* (Bigel.) Hooker, *Vasc. (Subst.)*, **37**, 30. In 1941 the author drew attention to the fact that Hebridean material differed from the normal British *Cakile maritima*. He now concludes that this belongs to the American species *C. edentula*. It has been observed from Barra to Lewis in the Outer Hebrides as well as in Coll and Tiree.—[D.E.A.]

127/14. *GERANIUM ROBERTIANUM* L. Böcher, T. W., 1953, Cultivation experiments with *Geranium robertianum*, *Veronica officinalis* and *Prunella vulgaris*, *Proc. 7th Intern. Bot. Congr., Stockholm*, 268-269.

152. *TRIGONELLA*. See Kloos, A. W., Jr., 1952.

185. *RUBUS*. Beijerinck, W., 1953, On the habit, ecology and taxonomy of the brambles of the Netherlands, *Acta Bot. Neerl.*, **1**, 523-546.

185. RUBUS. Berger, X., 1953, Untersuchungen über die Embryologie partiell apomiktischer Rubusbastarde, *Ber. Schweiz. Bot. Ges.*, **63**, 224-266.

185. RUBUS. Haskell, G., 1953, Quantitative variation in subsexual Rubus, *Heredity*, **7**, 409-418.

185. RUBUS. Vaarama, A., 1953, Chromosome numbers of some species and hybrids in the genus Rubus, *Arch. Soc. Zool. Bot. Fenn. 'Vanamo'*, **8**, 192-195.

190. ALCHEMILLA. Pawlowski, B., 1953, Nowe lub mało znane przywrotniki zachodnio-karpackie, *Fragm. Flor. Geobot.*, **1**, 42-73. Eight new species of *Alchemilla* are described from the Carpathians.—[D.H.K.]

190/1. ALCHEMILLA ALPINA L. Naustdal, J., 1953, Om *Alchemilla alpina*'s tilhøve til kalk på Vestlandet, *Blyttia*, **11**, 79-95. *Alchemilla alpina* is usually regarded as a calcifuge species, but in a great many localities in west Norway it grows in association with a number of distinctly calcicolous species.—[D.H.K.]

191. AGRIMONIA. Brittain, N.H., 1953, Cytotaxonomy of some species of Agrimonia, *Proc. 7th Intern. Bot. Congr., Stockholm*, 278.

197. COTONEASTER. Eberle, G., 1952, Felsenbirne und Felsemspel, *Natur und Volk*, **82**, 325-331. An account of *Cotoneaster integririmus* and allied species, and *Amelanchier ovalis* in Germany.—[D.H.K.]

198. AMELANCHIER. See 197. COTONEASTER.

207. RIBES. Vaarama, A., 1953, A contribution to the genetics of *Ribes sativum* Syme, *Arch. Soc. Zool. Bot. Fenn. 'Vanamo'*, **8**, 115-116.

212/1. SEMPERVIVUM TECTORUM L. Eberle, G., 1953, Donnerwurz, *Natur und Volk*, **83**, 336-343.

217. CALLITRICHE. Schotsman, H. D., 1954, A taxonomic spectrum of the section eu-Callitriche in the Netherlands, *Acta Bot. Neerl.*, **3**, 313-384. A taxonomic and cytological account of the genus *Callitriche* in the Netherlands. Five species are recognised:—*C. hamulata* Kuetz. ($2n = 38$), *C. obtusangula* Le Gall. ($2n = 10$), *C. platycarpa* Kuetz. ($2n = 20$), *C. stagnalis* Scop. ($2n = 10$) and *C. palustris* L. ($2n = 20$). *C. pedunculata* is referred to *C. hamulata*; all species are very variable, especially in their vegetative parts. Detailed distribution of the species in the Netherlands and the rest of Europe is given, and habitat preference and other ecological data are also presented. British material of all the species except *C. platycarpa* is cited, and nomenclature is dis-

cussed at length. The following key to the identification of the species is given. It is only reliable for well-developed flowering and fruiting plants.

A. Water forms

- 1a Leaves all linear, with widened and deeply emarginate apex. Basal rests of the reflexed stigmata pressed close to the lateral sides of the fruit *C. hamulata*
- b Upper leaves spatulate, forming a well-marked floating rosette 2
- 2a Rosette composed of about 20 rhomboid thick leaves. Fruit with rounded edges and very shallow median and lateral furrows, in side view elliptical, longer than broad. Seed unwinged. Pollen ellipsoidal *C. obtusangula*
- b Rosette composed of about 8-14 elliptical, circular or obovate leaves. Fruit more or less keeled. Seed winged 3
- 3a Fruit small (1 mm. long), narrowed in the lower half, in side view obovate, blackish. Seed winged at the top *C. palustris*
- b Fruit larger, in side view circular or almost circular. Seed with dorsal wing 4
- 4a Rosette cup-shaped. Stamens and stigmata wholly submerged. Anthers small, rather colourless. Pollen colourless. Stigmata reflexed at base. Basal rests of stigmata pressed close to the lateral sides of the fruit ... *C. hamulata*
- b Rosette more or less convex. Stamens and stigmata above the water surface. Anthers yellow. Pollen yellow. Stigmata erect or recurved 5
- 5a Rosette leaves generally elliptical. Pollen of various shape. Stigmata erect or spreading, to 5 mm. long. Seeds in transverse section of the fruit parallel *C. platycarpa*
- b Rosette leaves generally almost circular. Pollen globular. Stigmata generally arcuate-recurved, 2-3 mm. long. Seeds in transverse section of the fruit divergent *C. stagnalls*

B. Land forms

- 1a Pistil with very reduced stigmata. Stamen reduced, generally entirely lacking. Fruit small (1 mm.), narrowed in the lower half, in side view obovate, blackish. Seed winged at the top *C. palustris*
- b Pistil with well developed thread-shaped stigmata. Fruit larger, in side view circular or elliptical 2
- 2a Fruit with rounded edges and very shallow furrows, in side view elliptical, longer than broad. Seed unwinged. Pollen ellipsoidal *C. obtusangula*
- b Fruit keeled. Seed with dorsal wing 3
- 3a Stigmata reflexed at base. Rests of the stigmata pressed close to the lateral sides of the fruit *C. hamulata*
- b Stigmata erect or recurved 4
- 4a Stigmata erect-patulous. Seeds in transverse section of the fruit parallel. Leaves generally elliptical *C. platycarpa*
- b Stigmata arcuate-recurved. Seeds in transverse section of the fruit divergent. Leaves generally almost circular *C. stagnalls*

—[D.H.K.]

220. *EPILOBIUM*. Ross, H., 1953, Physiologie der Reziprokenunterschiede bei einigen *Epilobium*-Bastarden, *Proc. 7th Intern. Bot. Congr.*, Stockholm, 343-344.

220/7(2). *EPILOBIUM ADENOCaulon* Hausskn. Swann, E. L., 1953, A new plant for Norfolk, *Trans. Norfolk & Norwich Nat. Soc.*, 17, 298-300. *Epilobium adenocaulon* has been found in several parts of Norfolk. The author gives a short description of the plant and compares it with other closely allied species.—[D.H.K.]

238→ UMBELLIFERAE. Håkansson, A., 1953, Some chromosome numbers in Umbelliferae, *Bot. Not.*, **1953**, 301-307.

261/1. ANTHRISCUS SYLVESTRIS (L.) Hoffm. Kousal, K., 1953, Abnormity u kerbliku lesniho (*Anthriscus sylvestris* Hoffm.), *Prir. Sborn.*, **14**, 526-527.

296/4. GALIUM SAXATILE L. Gilli, A., 1953, *Galium hercynicum* und *Euphrasia nemorosa*—neu für Österreich, *Verh. Zool.-Bot. Ges. Wien*, **93**, 110-111. *Galium saxatile* and *Euphrasia nemorosa* have been discovered in Austria.—[D.H.K.]

353. BIDENS. Nehou, J., 1953, Deux *Bidens* nouveaux pour le Massif Armoricain: *Bidens frondosa* L. et *Bidens connata* Mühl. (Composées), *Bull. Soc. Sci. Bretagne*, **27**, 97-107. *Bidens frondosa* L. and *B. connata* var. *petiolata* Farw., N. American adventives, are spreading rapidly along the waterways of western France, and have now extended their range into Brittany. The two species are described and compared with the native *B. cernua* and *B. tripartita*. Drawings of the leaves and fruits of the four species are also given.—[D.H.K.]

354. GALINSOGA. Dizerbo, A. H. & Nehou, J., 1953, Apparition de *Galinsoga parviflora* Cav. et *Galinsoga aristulata* Bicknell (Composées) dans le Massif Armoricain, *Bull. Soc. Sci. Bretagne*, **27**, 85-92.

419. HIERACIUM. Dijkstra, S. J., Kern, J. H., Reichgelt, T. & Van Soest, J. L., 1953, Sur quelques *Hieracia* subg. *Pilosella* des Pays-Bas, *Acta Bot. Neerl.*, **2**, 522-534. The subgenus *Pilosella* of *Hieracium* falls into three groups in the Netherlands; *Acaulia* N.P. sect. *Pilosellina* N.P.; *H. pilosella*. *Cauligera humilia* N.P. sect. *Auriculina* N.P.; *H. auricula*. *Cauligera elata* N.P. sect. *Pratensina* Aschers.: *H. aurantiacum*, *H. caespitosum*: sect. *Cymosina* N.P.; *H. cymosum*: sect. *Praealtina* N.P.; *H. piloselloides*, *H. bauhini*. Hybrids are found in spite of a high degree of apomixis in the subgenus. The first two groups are mainly western in eurasian distribution whilst the third is central to eastern. Small distribution maps show *H. caespitosum*, *H. piloselloides* and *H. bauhini* as occurring in the British Isles. Details of the distribution in the Netherlands of the third group are given with a map for *H. caespitosum*.—[E.B.B.]

444/1. ANDROMEDA POLIFOLIA L. Eberle, G., 1953, Rosmarinheide und Torfgränke, *Natur und Volk*, **83**, 194-202. An ecological account of *Andromeda polifolia* in Germany.—[D.H.K.]

457. LIMONIUM. Baker, H. G., 1951, The agamic complex in *Limonium* (Sects. *Densiflorae* and *Dissitiflorae*), *Proc. 7th Int. Bot. Congr.*, Stockholm, 329-330.

458. *ARMERIA*. Bernis, F., 1953, Revisión del género *Armeria* Willd. con especial referencia a los grupos ibéricos, *An. Jard. Bot. Madrid*, **11**, 5-287.

537. *MIMULUS*. Vickery, R. K., Jr., 1953, An experimental study of the races of the *Mimulus guttatus* complex, *Proc. 7th Intern. Bot. Congr., Stockholm*, 272.

543. *VERONICA*. Kunz, H., 1953, Hinweis auf *Veronica catenata* Pennell, *Mitt. Basle Bot. Ges.*, **1**, 8. A short note on *Veronica catenata* and *V. anagallis-aquatica*.—[D.H.K.]

543/3. *VERONICA OFFICINALIS* L. See 127/14. *GERANIUM ROBERTIANUM* L.

543/41. *VERONICA FILIFORMIS* Sm. Kornaś, J. & Kuc, M., 1953, *Veronica filiformis* Smith—nowy we florze polskiej uciążliwy chwast lakowy, *Fragm. Flor. Geobot.*, **1**, 81-86. *Veronica filiformis* has been discovered in the East Carpathians, it is new to Poland and appears to be of recent introduction. The distribution and spread of the species in Europe, and its affinity to *V. persica* is discussed.—[D.H.K.]

545/5. *EUPHRASIA NEMOROSA* (Pers.) Mart. See 296/4. *GALIUM SAXATILE* L.

553. *PINGUICULA*. Zurzycki, J., 1953, Studia nad polskimi-t-tustos-zami (*Pinguicula* L.), *Fragm. Flor. Geobot.*, **1**, 16-31. Studies on the morphology, anatomy and cytology of the three species of *Pinguicula* found in Poland, viz.—*P. vulgaris*, *P. bicolor* and *P. alpina*.—[D.H.K.]

573/1. *PRUNELLA VULGARIS* L. See 127/14. *GERANIUM ROBERTIANUM* L.

651. *POPULUS*. Ward, J. D. U., 1953, A note on poplars, *Town & Country Planning*, **1953**, 138-141.

669/1. *ORCHIS PURPUREA* Huds. Medwecka-Kornaś, A. & Kornaś, J., 1953, *Orchis purpurea* Huds. na Wyzynie Matopolskiej, *Fragm. Flor. Geobot.*, **1**, 7-11. The distribution of *Orchis purpurea* in Poland and adjacent countries is discussed and illustrated by maps.—[D.H.K.]

737. *POTAMOGETON*. Clason, W., 1953, Notes on the Potamogetons of the Zuidlaren Lake and its adjacent waters, *Acta Bot. Neerl.*, **1**, 489-496.

741/1. *NAJAS MARINA* L. Barry, D. H. & Jermy, A. C., 1953, Observations on *Najas marina* L., *Trans. Norfolk & Norwich Nat. Soc.*, **17**, 194-297. The distribution, habitat and ecology of *Najas marina* are discussed.—[D.H.K.]

745. *ELEOCHARIS*. Walters, S. M., 1953, *Eleocharis mamillata* Lindb. fil. and allied species, *Ber. Schweiz. Bot. Ges.*, **63**, 271-286.

745/1. *ELEOCHARIS PALUSTRIS* (L.) Roem. & Schult. Walters, S. M., 1953, Variation in *Eleocharis palustris*, *Abstr. Diss. Univ. Camb.*, **1950-51**, 21-22.

778/1. *MIBORA MINIMA* (L.) Desv. Eberle, G., 1953, Das Zwerggras. *Natur und Volk*, **83**, 33-39. A taxonomic and physiological account, illustrated by photographs and drawings, of *Mibora minima* in Germany. Some ecological data are also given.—[D.H.K.]

824/11. *POA ALPINA* L. Skalińska, M., 1952, Cyto-ecological studies on *Poa alpina* L. var. *vivipara* L., *Bull. Acad. Pol. Sci.*, Series B, **1**, 4-10, 253-283.

824/11. *POA ALPINA* L. Schwarzenbach, F. H., 1953, Die Abhängigkeit der Bulbillenbildung bei *Poa alpina* vivipara von Photoperiodismus und Frost, *Experientia*, **9**, 96. Culture experiments with Greenland plants of *Poa alpina* (viviparous form) have shown that after the action of frost the mode of reproduction is determined by the photoperiodic factor. The influence of short days produces blossoms, and that of long days results in bulbillae.—[Author's summary.]

826. *FESTUCA*. Litardière, R. de, 1952, Sur la répartition en Espagne des *Festuca* du groupe du *F. ovina* L. subsp. *laevis* Hack. (var. *gallica* St-Y. et var. *marginata* Hack.), *An. Jard. Bot. Madrid*, **10**, 291-300. The distribution in Spain of the two vars. is given, together with descriptions of subvars. *hervieri* St.-Y., *leptophylla* R. Lit. and *costei* St.-Y. under var. *gallica* and subvars. *timbalii* Hack. and *alopecuroides* Hack. under var. *marginata*. Various intermediate forms between subsp. *laevis* and other subsp. are also described.—[E.B.B.]

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PTERIDOPHYTA. Whiteside, R., 1949, Some rare ferns, *Brit. Fern Gaz.*, **7**, 257-259.

847/1. *PTERIDIUM AQUILINUM* (L.) Kuhn. Conway, E., 1953, Studies in the spread of bracken, *Proc. 7th Intern. Bot. Congr.*, Stockholm, 238-239.

853/1. *ATHYRIUM FILIX-FEMINA* (L.) Roth. Druery, C. T., 1950, The lady fern, *Brit. Fern Gaz.*, **7**, 267-269.

854. *POLYSTICHUM*. Elliot, E. A., 1950, *Polystichum* notes, *Brit. Fern Gaz.*, **7**, 271-275.

854/1. *POLYSTICHUM SETIFERUM* (Forsk.) Woynar. Greenfield, P., 1950, The vagaries of *Polystichum angulare pulcherrimum*, *Brit. Fern Gaz.*, **7**, 276-282.

857/4. *CYSTOPTERIS FRAGILIS* (L.) Bernh. Greenfield, P., 1951, *Cystopteris fragilis*, *Brit. Fern Gaz.*, **8**, 10-12.

868/1. *AZOLLA FILICULOIDES* Lam. Schloemer, A., 1953, Ein ver-wildeter Wasserfarn, *Natur und Volk*, **83**, 131-135. Gives an account of the occurrence and spread of *Azolla filiculoides* in Germany.—[D.H.K.]

TOPOGRAPHICAL

3-4, DEVON. Martin, W. K., 1953, 45th Annual report on the botany of Devon, *Rep. & Trans. Devon. Assocn.*, **85**, 178-188. Includes a few new vice-county records.—[A.E.W.]

5-6, SOMERSET. Hamlin, E. J., 1952-53, Botanical report, 1951, *Mid-Somerset Nat. Soc. Rep.*, **1**, 23-25, & **2**, 30-31. Gives unlocalised lists of Somerset plants.—[D.H.K.]

5-6, SOMERSET. Watson, W., 1953, Botanical report, *Proc. Somerset Arch. & N.H.S.*, **97**, 168-170. Gives a number of new locality records, mainly from v.c. 6.—[A.E.W.]

10. WIGHT. Elliot, E. A., 1950, Ferns in the Isle of Wight, *Brit. Fern Gaz.*, **7**, 310.

11, S. HANTS. Bury, H., 1953, Wild flowers in the New Forest, in *Guide to the New Forest*, (Forestry Commission), 25-31.

11, S. HANTS & 13, W. SUSSEX. Perraton, C., 1953, Salt-marshes of the Hampshire-Sussex border, *J. Ecol.*, **41**, 240-246. An ecological account of the Portsmouth, Langton and Chichester Harbour areas. The primary coloniser is *Spartina townsendii*, but the upper regions of the Spartinetia become invaded by *Obione portulacoides*, and later by other halophytic species. There is evidence of a transition from general salt-marsh to a *Festuca rubra* turf.—[D.H.K.]

13-14, SUSSEX, 15-16, KENT & 17, SURREY. Rose, F., 1953, Botanical records in Kent, Surrey and Sussex, 1952-53, *S.E. Nat.*, **58**, xviii-xx.

14. E. SUSSEX. Ticehurst, N. F., 1953, Notes on the local fauna and flora for 1952: Plants, *Hastings & E. Sussex Nat.*, **8**, 77. The more interesting records made during 1952 are given. They include *Orobanche aegyptiaca* Pers. which was reported by F. G. Osborn as occurring on tomatoes in a St. Leonard's nursery. The plant, which is a native of south east Europe, the Middle East and India had not previously been recorded from Britain.—[A.E.W.]

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22. BERKS. & 23. OXON. Butler, K. I., 1951, Extract from botany report, *Reading Nat.*, **3**, 11-12.
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ÅBERG, E., 1953, Biology of weeds and hormone weed killers, *Proc. 7th Intern. Bot. Congr., Stockholm*, 182-184.

ALLAN, H. H., 1952, Some remarks on the species question, *Rep. Roy. Soc. N.Z. Sci. Congr.*, **7**, 36-39.

ALLEN, D. E., 1953, Botanical indications of a possible climatic change in the Irish Sea area, *Irish Nat. J.*, **11**, 77-78. Several species belonging to the Germanic element appear to be spreading in the Irish Sea area. Conversely, other species markedly Atlantic in range have gradually been decreasing or disappearing. In the Isle of Man the summer rainfall has become less heavy since about 1910. The evidence suggests a change towards a less oceanic type of climate.—[D.E.A.]

ANON., 1952, Chromosome counts of species and varieties of garden plants, *Rep. John Innes Hort. Inst.*, **1951**, 47-50. New chromosome counts include *Fuchsia magellanica* var. *gracilis*, $2n = 44$, *Rubus fuscus*, $2n = 28$, *R. carpiniifolius*, *R. drejeri*, *R. dumetorum*, *R. koehleri*, *R. lentiginosus*, *R. thyrsoides*, $2n = 35$, *Chrysanthemum parthenium*, $2n = 18$, and *Triglochin maritimum*, $2n = 48$.—[D.H.K.]

ANZALONE, B., 1951, Flora e vegetazione dei muri di Roma, *Annali Bot.*, **23**, 393-497. The author has made extensive studies on the flora of walls in Rome. A systematic list of 385 species noted is given, and the various plant associations are discussed. The wall-flora of Rome is compared with those of other cities in central and southern Italy, and Sicily.—[D.H.K.]

BABCOCK, E. B., 1952, The development of fundamental concepts in the science of genetics, *Portug. Acta Biol., A.*, vol. **R. B. Goldschmidt**, 1-46.

BAKER, H. G., 1952, The ecospecies—prelude to discussion, *Evolution*, **6**, 61-68. The unsuitability of the taxonomic species as a "unit of evolution" is emphasized, and it is believed that for many problems in "micro-evolution" use of the categories of the "special" classification of biosystematics is preferable although they are not as useful as a "general" classification in tracing phylogeny. The time has, therefore, come for an increased measure of agreement in the use of such terms as ecospecies and recent opinions and trends are discussed, while a collection of published definitions is appended. An examination is made of the genetical criteria of ecospecific distinction. The development of hybrid incapacity is considered to occur in too irregular a

manner to provide the only criterion and it is proposed that the dividing line between ecotype and ecospecies should be drawn at the level where the first bar to crossing is imposed which is not purely concerned with habit-preference. Suggestions are made as to the manner in which tests for such barriers may be made.—[Author's summary.]

BANGERTE, E. B., 1953-54 Some alien flowering plants (2), *Country-side*, **16**, 259-263. Describes *Polygonum cuspidatum*, *Bunias orientalis* and *Calystegia sylvestris*; (3), *op. cit.*, **16**, 347-350. Gives accounts of *Petasites fragrans*, *Claytonia alsinoides* and *Veronica filiformis*, the latter is illustrated by a line drawing; (4), *op. cit.*, **16**, 391-394. Describes *Sisymbrium orientale*, *S. altissimum* and *Cicerbita macrophylla*, leaves of the first two are illustrated by drawings; (5), *op. cit.*, **17**, 9-12. Gives accounts of *Omphalodes verna*, *Trachystemon orientale* and *Symphytum orientale*; (6), *op. cit.*, **17**, 61-64. Describes *Coronilla varia*, *Galega officinalis* and *Gaultheria shallon*, siliquae of the first two, and a plant of the latter are illustrated by line drawings; (7), *op. cit.*, **17**, 97-101. Describes *Heracleum mantegazzianum*, *Lycium halimifolium*, *L. chinense* and *Geranium versicolor*.—[D.H.K.]

BATEMAN, A. J., 1952, Self-incompatibility systems in angiosperms: 1. Theory, *Heredity*, **6**, 285-310.

BERTON, A., 1950-52, Adventices et naturalisées du Nord, *Monde des plantes*, **273**, 85-87 and **285-286**, 11-12. An account of various adventive plants found in northern France.—[D.H.K.]

BETHLAHMY, N., 1952, Why do plants wilt in cold weather?, *Ecology*, **33**, 301-303.

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BONANCINA, L. C. W., 1953, British forest trees in the weather scene, *Weather*, **1953**, 237-242.

BROWN, J. M. B., 1952, Notes on the Chiltern beechwoods, *Quart. J. For.*, **46**, 5-15. The growth of beech in the extensive woods of the Chiltern Hills is poorer than in many other parts of England. The cutting of the better trees in the past may have left poorer, less vigorous trees for reproduction. Desirable silvicultural treatment is discussed.—[D.H.K.]

CARROTHERS, E. N., 1952, Giesecke's report of *Ledum palustre* L. and *Papaver nudicaule* L. in Ireland, *Irish Nat. J.*, **10**, 264-266. The former existence of *Papaver nudicaule* near Achill Head is confirmed by the discovery of a specimen in Herb. Kew. A letter written by G. L. Giesecke, also preserved at Kew, records that a living specimen of *Ledum palustre*, also reputed to have come from Achill Head, was taken from the hat of a local fisherman. A short account of the life of

Giesecke is given, and the author concludes with the hope that the two species may yet be refound in Ireland.—[D.H.K.]

CAYOUTTE, R., 1951, Trois additions à la flore adventice du Quebec, *Ann. L'afe.*, **17**, 155-156. *Gypsophila muralis*, *Euphorbia peplus* and *Ornithogalum umbellatum* have occurred as adventives in Quebec.—[D.H.K.]

CHRISTIANSEN, W., 1949, Polyploidie-Spektren: statistische Untersuchungen an Pflanzengesellschaften in Schleswig-Holstein, *Biol. Zentralbl.*, **68**, 369-384. The author gives an account of statistical studies carried out on plant associations in Schleswig-Holstein. In nearly all the examined associations the proportion of polyploids exceeded the proportion of diploids. The possible reasons for this occurrence are discussed.—[D.H.K.]

CHRISTIANSEN, W. & SCHMIDTENDORF, H., 1952, Zur Frage des atlantischen Klimakeils in Schleswig-Holstein und zur pflanzengeographischen Stellung des Seestrandes innerhalb desselben, *Ber. Deutsch. Bot., Ges.*, **65**, 341-348.

CONRAD-MARTIUS, H., 1952, Das Artproblem in naturphilosophischer Beleuchtung, *Experientia*, **8**, 400-404. Abandoning the accepted differences between species and subspecies in the plant and animal worlds, the author proposes and discusses the empirical definition of a species as the aggregate of subspecific forms developed through evolution. The acceptance of such a definition raises anew the problem of whether species distinctions are based on essential metaphysical differences. In discussing the determination of species special reference is made to the views put forward by Camp and Gilly.—[D.H.K.]

COQUILLAT, M., 1951, Sur les plantes le plus communes à la surface du globe, *Bull. Soc. Linn. Lyon*, **20**, 165-170. Lists of the "most common" plants, and of the species considered to be most widely spread throughout the world are compared. The author concludes that the most widely distributed plants, are, in the following order:—*Polygonum aviculare*, *Capsella bursa-pastoris*, *Chenopodium album*, *Stellaria media* and *Poa annua*.—[D.H.K.]

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DONY, J. G. & LOUSLEY, J. E., 1952, The travels of plants, *Bedfordshire Mag.*, **3**, 185-189. An account of wool-alien species in Bedfordshire.—[D.H.K.]

DOORENBOS, J., 1953, Review of the literature on dormancy in buds of woody plants, *Med. Llandbouchoogesch. Wagen.*, **53** (1), 1-24.

DREES, E. M., 1953, A tentative design for rules of phytosociological nomenclature, *Vegetatio*, **4**, 205-214.

DUIVEN, J. M., 1952, Les "relicts" de la période glaciaire dans la région de Westerwolde (Pays-Bas), *Monde des Plantes*, **287-288**, 15-16. Four species:—*Chamaepericlymenum suecicum*, *Trientalis europaea*, *Rubus saxatilis* and *Carex aquatilis* are claimed as true relicts for the Westerwolde region of north-east Holland. All the conditions necessary for their occurrence in early times are shown to have existed, and the argument that they are recent arrivals brought by birds is shown to be erroneous.—[E.B.B.]

DURIN, L., 1953, Notes pour la flore du nord de la France, *Bull. Soc. Bot. Nord France*, **6**, 11-13. Short plant notes on thirty species (British, or recorded from Britain) of phytogeographical interest, in the north of France. Some morphological distinctions between some of these and closely allied species are given.—[E.B.B.]

EARNSHAW, F., 1953, The nature of ecotypes, *Proc. 7th Intern. Bot. Congr., Stockholm*, 269-271.

EDLIN, H. L., 1953, English tree names and their origins, *Forestry*, **24**, 57-63.

EDLIN, H. L., 1953, Rebuilding Britain's woodlands, *Biology and Human Affairs*, **18**, 72-80.

EMBERGER, L., 1951, L'origine de la fleur, *Experientia*, **7**, 161-168. The flower did not arise with the angiosperms in the Cretaceous period: its origin can be traced to the vascular cryptogams of the much earlier Devonian. The sporangia of these plants, dispersed singly in a branched arrangement, have gradually come together, become united, and, accompanied by contraction and foliarisation of the branched parts, have resulted in the modern flower. The stages in this development are given in detail and diagrammatically illustrated. Illustrated examples are also given of present-day angiosperms which have not yet reached full development of the flower.—[E.B.B.]

EPLING, C. & CATLIN, W., 1950, The relation of taxonomic method to an explanation of organic evolution, *Heredity*, **4**, 313-325. A general discussion on the way in which taxonomic and genetic investigation may be integrated to assist in the study of the course of organic evolution.—[D.H.K.]

EVENARI, M. & STEIN, G., 1953, The influence of light upon germination, *Experientia*, **9**, 94-95.

FAVARGER, C., 1950, Polyploidie et vicariance dans la flore alpine, *Arch. Klaus.-Stift.*, **25**, 472-477.

FINNEY, D. J., 1952, The equilibrium of a self-incompatible polymorphic species, *Genetica*, **26**, 33-64.

FORESTRY COMMISSION, 1952, *Britain's Forests: Thornthwaite*. Gives an historical account of the 5,000 acre forest of Thornthwaite in Cumberland.—[D.H.K.]

FORESTRY COMMISSION, 1953, *Britain's Forests: Drumtochty Forest*. An account of the history and development of Drumtochty Forest, Kincardineshire, which includes a brief mention of the more uncommon plants.—[D.H.K.]

FORESTRY COMMISSION, 1953, *Britain's Forests: Glentress (Peeblesshire)*.

FROMENT, P. & Mme., 1953, Importance du rôle des oiseaux pour la dissémination de certains arbres et arbustes dans les gisements tourbeux de la vallée de l'Ardon à Laon (Aisne), *Bull. Soc. Bot. Nord France*, **6**, 6-7. A survey of the trees and shrubs found in the muddy bed of the valley of the Ardon under tall planted poplars used as perches by frugivorous birds. About 400 individual plants, covering twelve species, were counted.—[E.B.B.]

GARDÉ, A. & MALHEIROS-GARDÉ, N., 1953, Contribuição para o estudo cariológico de algumas espécies de angiospermicas, **1**, *Gen. Iber.*, **5**, 115-124. Chromosome counts on Portuguese and Spanish plants include *Galega officinalis*, $2n = 16$, *Matthiola incana*, $n = 7$ and *Reseda suffruticosa*, $n = 10$.—[D.H.K.]

GATES, R. R., 1951, The taxonomic units in relation to cytogenetics and gene ecology, *Amer. Nat.*, **85**, 31-50. The genetical and taxonomical approaches to the classification of plant species are discussed with reference to genic and chromosomal changes underlying speciation, subspecific categories, isolating mechanisms, etc. The general conclusion reached is that the taxonomist should be the final arbiter in classification, and that reproductive isolation is inadequate as the main criterion of species.—[D.H.K.]

GATES, R. R., 1953, Polyploidy and the sex chromosomes, *Acta Bioth.*, Series A, **11**, 27-44.

GATES, R. R., 1953, The taxonomic units in relation to Cyto-genetics and Gene-ecology, *Proc. 7th Intern. Bot. Congr.*, Stockholm, 287-288.

GAUME, R., 1952, Considérations générales sur la flore de la brie, *Bull. Soc. Bot. France*, **99**, 70-78. In this area of northern France the Atlantic distribution region reaches its eastern limits; a number of oriental species are also found, together with representatives of the Mediterranean element. This diversity may be attributed to climatic factors as the geological constitution of the soil is fairly uniform.—[E.B.B.]

GILLNER, V., 1952, Die Gürtelung der Strandwiesen und der Wasserstandswechsel an der Westküste Schweden, *Svensk. Bot. Tidssk.*, **46**, 393-428.

GOODALL, D. W., 1952, Quantitative aspects of plant distribution, *Biol. Rev.*, **27**, 194-245.

GREGG, J. R., 1950, Taxonomy, language and reality, *Amer. Nat.*, **84**, 419-435. Prompted by recent discussions on whether species are real the author gives a semantic analysis of the species and other taxonomic categories.—[D.H.K.]

GRIGSON, G., 1952, Flower-show in the corn, *Country Life*, **112**, 394-395. A popular account of some cornfield weeds and their origin.—[D.H.K.]

GRIGSON, G., 1952, Flowers and men, *History Today*, **2**, 823-831. The author shows that the record of human migration and colonisation may in many cases be traced by the diffusion and spread of plant species.—[D.H.K.]

GRIGSON, G., 1953, Ancient woods of box, *Country Life*, **113**, 1240-1241. Describes some of the ancient British box woods, and gives a short account of the history of the species in Britain.—[D.H.K.]

GRIGSON, G., 1953, Three instruments of magic, *Country Life*, **113**, 1070-1071. Gives a short account of the folk-lore associated with *Hypericum perforatum*, *Sorbus aucuparia* and *Artemisia vulgaris*.—[D.H.K.]

HAGBERG, A., 1953, Further studies on, and discussion of the heterosis problem, *Hereditas*, **39**, 349-379.

HAGERUP, O., 1950, Rain-pollination, *Kgl. Danske Vid. Sels. Biol. Med.*, **18** (5), 1-18. Studies on pollination in various species of *Ranunculus*, *Caltha palustris* and *Narthecium ossifragum*. In *Ranunculus* the flowers of the commonest species may be pollinated in three different ways:—by insects (particularly flies), by rain, and (should either of these two have failed) by autogamy. Insect pollination was most pronounced in *R. acris*, the flower of which bends in the rain.—[D.H.K.]

HARA, H., 1952, Contributions to the study of variations in the Japanese plants closely related to those of Europe or North America, Part 1, *J. Faculty Sci. Univ. Tokyo*, **6**, Sect. 3, Bot., 29-96. The Japanese flora includes many species and genera common to Europe and N. America. The author brings together a number of these, and discusses the differences between the Asiatic, American and European forms.—[D.H.K.]

HARA, H., 1952, *Vaccinium uliginosum* L. in Japan, with reference to variations in widespread northern species, 1, *J. Jap. Bot.*, **27**, 309-315. Deals with the related species or races in east Asia and Europe, or N. America, and discusses their taxonomic and genetical differences. Plants which also occur in Britain that are discussed in the account include several species of *Ranunculus* (Sect. *Batrachium*), *Chelidonium majus*, *Potentilla fruticosa*, *Adoxa moschatellina*, *Vaccinium uliginosum* and *Plantago major*.—[D.H.K.]

HARRISON, J. HESLOP, 1952, A reconsideration of plant teratology, *Phyton*, **4**, 19-34. The implications of recent work on the physiology of plant growth and development are discussed in relation to the causes of teratological phenomena. It is concluded that under the heading of teratology a wide range of different anomalies is grouped. These are classified under separate headings, and the possible causes of the various abnormalities are discussed.—[D.H.K.]

HASKELL, G., 1952, Polyploidy, ecology and the British flora, *J. Ecol.*, **40**, 265-282. Analysis is made of the relations between polyploidy and the British flora. Polyploidy was estimated as *CPT*, the coefficient of polyploidy among types, i.e. in all subdivisions of the flora. $CPTM=0.65$ for monocotyledons and $CPTD=0.46$ for dicotyledons, slightly lower values than another estimate; reasons for this are suggested.

The hypothesis of polyploidy increasing with altitude is confirmed. Some species are polyploid in Britain and diploid in Greenland. Higher polyploidy of monocotyledons favours the hypothesis that they returned to dry land following an aquatic existence which promoted polyploidy.

Generally *CPT*'s are high for Scottish and Highland species and low for Atlantic and Germanic species; monocotyledons and dicotyledons differ in how their *CPT*'s change. Monocotyledon upland species have a very high *CPT*; dicotyledon upland and universal species have comparatively high *CPT*'s. Polyploidy is lowest in lowland species; monocotyledons and dicotyledons differ in how their *CPT*'s change.

Both monocotyledon and dicotyledon perennial species have higher *CPT*'s than annuals but dicotyledon trees and shrubs are intermediate. Polyploidy may change diploid annuals to perennials but perennial diploids remain perennial.

Plants in man-made habitats (weeds) have lower *CPT*'s than those of natural habitats. *CPT*'s seem to be high for very wet habitats and also in monocotyledons for extreme wet-extreme dry situations; ordin-

any conditions have lowest *CPT*'s. Monocotyledons and dicotyledons differ in how their *CPT*'s change.

Polyploidy has not been an important factor in influencing:

- (i) the ability of introduced species to spread in Britain,
- (ii) general comital frequency,
- (iii) distribution of diploid/polyploid species pairs within genera, and of British *Carex* species.

There is no supporting evidence for the Age and Area hypothesis. New autopolyploidy has aided some British species to recolonise once glaciated land. Old tetraploid relicts are still confined to the unglaciated south but new polyploids have re-spread northwards.

Suggestions for further investigations of polyploidy in the British flora are outlined.—[Author's summary.]

HILLS, L. D., 1953, Hope from the wild lupin, *The Field*, **201**, 587. The author records *Lupinus nootkatensis* from the Fort William district, the Orkneys and the valley of the Tay. The plant has a low alkaloid content and the possibility of using it as a fodder crop and pasture user is discussed.—[N.D.S.]

HYDE, H. A., 1952, Studies in atmospheric pollen, 4A: pollen deposition at two Cardiff stations, *Trans. Cardiff Nat. Soc.*, **80**, 3-7. The numbers of pollen grains of various kinds deposited on unit area of an adhesive surface exposed horizontally on the roof of buildings situated $2\frac{3}{4}$ miles apart at Cardiff and Llandough (Glam.), respectively, are compared, and it is shown that they are consistent with the hypothesis that the catches at the two stations were in the main derived from sources present within a relatively short distance of each other.—[Author's summary.]

HYDE, H. A., 1952, Studies in atmospheric pollen. 5: a daily census of pollens at Cardiff for the six years, 1943-8, *New Phyt.*, **51**, 281-293. A day-to-day census of atmospheric pollen caught at Cardiff during the six years, 1943-48 is described. The same types of pollen were taken every year, but the magnitude of the annual catches of individual types varied considerably. The variation is considered in relation to its possible causes.—[D.H.K.]

IVERSEN, J., 1953, Origin of the flora of western Greenland in the light of pollen analysis, *Oikos*, **4**, 86-103.

JALAS, J., 1951, Eräitä ajatuksiata kasvisystematiikan kehityksestä ja nykyisestä asemasta, *Valvoja*, **71**, 122-126. A short discussion on the history of plant systematics.—[D.H.K.]

JALAS, J., 1953, Hemerokorit ja hemerobit Kasvien kulttuurisuhteisiin liittyvän oppisauaston selvitysyrittys, *Luonn. Tut.*, **57**, 12-16. The author attempts to solve the terminology dealing with the relations of plants to human influence.—[D.H.K.]

JOYET, P., 1950, Sur l'*Alchemilla micrantha* (M.B.) Boiss. et le *Lampsana intermedia* Bieb.: importance des observations relatives aux plantes adventices, *Bull. Soc. Bot. France*, **97**, 218-219. The author suggests that the recent discovery in France of two new adventives shows the importance of noting and checking the introduction of foreign species which may become noxious weeds.—[D.H.K.]

JUST, T., 1951, Citation of specimens in cytotaxonomic literature, *Evolution*, **5**, 280-281.

KECK, D. D., 1953, Examples of the applications of experimental methods to taxonomy, *Proc. 7th Intern. Bot. Congr., Stockholm*, 277-278.

KLOOS, A. W., Jr., 1952, Aanwinsten van de Nederlandse flora in 1950, *Acta Bot. Neerl.*, **1**, 122-156. The acquisitions to the flora of the Netherlands in 1950 include a number of wool aliens and other adventives. A few new varieties are described, and a revision of the adventive species of *Trigonella* found in the Netherlands is given.—[D.H.K.]

KLOOS, A. W., Jr. & VAN OOSTSTROOM, S. J., 1952, Nieuwe plantensoorten en -vormen in Nederland gevonden in 1951, *De Levende Natuur*, **55**, 176. Species new to the Netherlands flora in 1951 include *Carex punctata* and a number of adventives.—[D.H.K.]

KNABEN, G., 1950, Chromosome numbers in Scandinavian Arctic plant species, *Blyttia*, **8**, 129-155.

KORNAS, J., 1953, Niektóre interesujące rośliny synantropijne znalezione w południowej Polsce w latach 1939-1952, *Fragm. Flor. Geobot.*, **1**, 32-41. Discusses the more interesting adventives found in southern Poland between 1939-1952. These include *Puccinellia distans*, *Galium tricornis*, *Papaver dubium* and *Sisymbrium altissimum*.—[D.H.K.]

KRYTHE, J. M. & WELLENSIEK, S. J., 1952, Five years of colchicine research, *Bibl. Gen.*, **14**, 1-132. 243 species in 137 genera treated with colchicine are tabulated and the technique of application is described. The literature on the induction of polyploidy is discussed in detail and an extensive bibliography is appended.—[D.H.K.]

LAMRECHT, H., 1953, Taxonomy on genic and cytological basis, *Proc. 7th Intern. Bot. Congr., Stockholm*, 287.

LAWALRÉE, A., 1950, Notice sur des phanérogames adventices en Belgique, *Bull. Soc. Roy. Bot. Belg.*, **83**, 43-49. Descriptions of wool aliens and other adventives which have been recently discovered in Belgium.—[D.H.K.]

LAWALRÉE, A., 1953, Contribution a l'étude de la flore adventice de la Belgique, *Bull. Soc. Roy. Bot. Belg.*, **86**, 137-143.

LID, J., 1950, Nye plantefunn, 1945-1949, *Blyttia*, **8**, 41-53. New Norwegian localities of 165 species and hybrids of vascular plants are recorded with new northern limits for 35 species. The following hybrids are new to Norway:—*Anemone nemorosa* × *ranunculoides*, *Carex canescens* × *remota*, *C. dioica* × *maritima* (arctica), *C. flava* × *lepidocarpa*, *C. elata* × *fusca* and *Dactylis aschersoniana* × *glomerata*.—[D.H.K.]

LID, J., 1952, Nye plantefunn, 1950-1951, *Blyttia*, **10**, 95-105. An annotated list of the more interesting plants found in Norway during 1950 and 1951. Among the species assumed to be new to the Norwegian flora are *Cicerbita macrophylla*, *Physalis alkekengi*, *Phyteuma orbiculare* and *Sagina apetala*.—[D.H.K.]

LOUSLEY, J. E., 1953, Study of the British flora in 1952. *Nature*, **171**, 335-337. An account of the exhibition held in London in November 1952 by the Botanical Society of the British Isles.—[D.H.K.]

LÖVE, A., 1953, The taxonomical evaluation of types with different chromosome numbers, *Proc. 7th Intern. Bot. Congr.*, Stockholm, 283-284.

LÖVE, A., 1953, Subarctic polyploidy, *Hereditas*, **39**, 113-124. A study of polyploidy in the Arctic flora. 511 indigenous and naturalised plants are found in Iceland; of these 65·8% are polyploids. Out of 389 indigenous species which survived the pleistocene glaciations as many as 71% are polyploids, or 90% of the monocotyledons and 60% of the dicotyledons. The author gives further data to support the hypothesis of the greater tolerance of polyploids to extreme climates of high elevations.—[D.H.K.]

LÖVE, A. & D., 1951, The Geobotanical Significance of Polyploidy, *Portug. Acta Biol.*, A., vol. **R. B. Goldschmidt**, 273-352. The frequency of polyploids in fifteen European and Arctic countries is discussed. It increases with the higher latitude, or with the extremeness of the Pleistocene and postglacial climate as postulated by Hagerup (1931). The frequency of polyploids with angiosperms in temperate or tropical regions is estimated to be 30% lower.

The frequency of polyploids is higher in monocotyledons than in dicotyledons, but in both groups a statistically significant increase corresponds to the increase in latitude. A high frequency of polyploids is found within the group of real glacial survivors in Scandinavia as well as in the floras of smaller areas in Iceland and Spitzbergen with a very high percentage of glacial survivors.

In arctic and boreal regions some connexion between polyploidy and perennity appears to exist; this may however be a false correlation, as

it is not observed in more temperate regions. The growth rate of polyploids is slower than that of the diploids, and they are more resistant to excess and shortage of water than their diploid relatives.—[D.H.K.]

MACDONALD, J. F. M. & LOCKHART, S. F. M., 1953, Some early observations on the natural regeneration of conifers in Scotland, *Scot. For. J.*, **1953**, 79-82.

MATTHEWS, J. R., 1952, Botanical aspects of nature conservation in Scotland, *Adv. Sci.*, **8**, 369-373.

MELHEIM, A., 1953, Om floraen på hustak in Hornindal, *Blyttia*, **11**, 33-61. In the Norwegian countryside, and particularly along the coast, it has long been the custom to cover the roofs of some houses with turf. 201 of these roofs in the Hornindal area were examined by the author, and 125 different species of vascular plants were found growing upon them. The dominant plants covering large areas, and the number of roofs that they were recorded from, were:—*Deschampsia flexuosa* (175), *Agrostis tenuis* (177), *Festuca vivipara* (146), *F. rubra* (164), *Achillea millefolium* (120), *Poa pratensis* (112), *Rumex acetosella* (187), *Viola tricolor* (115) and *Campanula rotundifolia* (101). The method of the introduction of the various species is also discussed.—[D.H.K.]

METCALFE, C. R., 1953, The anatomical approach to the classification of the flowering plants, *Sci. Progress*, **1953**, 42-53.

MEUSEL, H., 1952, Über Wuchsformen, Verbreitung und Phylogenie einiger Mediterran-mitteleuropäischer Angiospermen-Gattungen, *Flora*, **139**, 333-393.

MICHAELIS, P., 1953, Der Nachweis der Plasmavererbung (das Prinzip und seine praktische Durchführung beim Weidenröschen, *Epilobium*), *Acta Bioth.*, Series A, **11**, 1-26. A short review of the historic development of the problem of cytoplasmic inheritance is given, and the principles for the proof of cytoplasmic inheritance, with special reference to the genus *Epilobium*, is discussed.—[D.H.K.]

MOLDENKE, H. N. & A. L., 1951, St. Patrick's shamrock, *Sci. Counseler*, **14**, 35. Many triple-leaved plants have been called shamrocks, but of all these only *Trifolium dubium* would seem to grow well on sunny open hillsides, and have been native to Ireland. *Trifolium repens*, commonly called the shamrock, may be a later immigrant.—[D.H.K.]

MONTERRAT, P., 1953, El polen atmosférico de Barcelona en Barcelona en 1951, *Publ. Inst. Biol. Aplicada*, **13**, 121-128. Counts of pollen-grains deposited in special collectors on two roofs in Barcelona

were made from January to June 1951. 20 different types of pollen and 2 types of spores were noted.—[D.H.K.]

MUENSCHER, W. C. & SCHUMACHER, G. J., 1953, List of weeds of New York, *Cornell Extension Bull.*, **891**, 1-16. A list of 413 common weeds that grow in New York is given together with their frequencies and status. Approx. 30% of the plants are native to New York, about 68% have been introduced from other parts of the world, and approx. 2% are native to some part of New York but have been introduced into many parts of the State where they occur as weeds. Many plants also found in Britain are included in the account.—[D.H.K.]

OSVALD, H., 1953, On antagonism between plants, *Proc. 7th Intern. Bot. Congr., Stockholm*, 167-171.

PACLT, J., 1952, Hybrids and taxonomy, *Taxon*, **1**, 117-118.

PARKER, R. N., 1953, Alien plants growing without cultivation in the Somerset West neighbourhood, *J. S. Afr. Bot.*, **19**, 161-176. A systematic list of 215 adventive species noted growing in and near Somerset West, S. Africa. Approx. 63% of the plants are from Europe (many British) or the Mediterranean region.—[D.H.K.]

PARKES, H. M., 1953, Some notes on the herbarium of University College, Cork, *Irish Nat. J.*, **17**, 102-106.

PETTERSSON, B., 1952, An alien flora on Drumsö (Helsingfors) introduced by cork bark imported from Morocco and Spain, *Mem. Soc. Fauna Flora Fenn.*, **27**, 111-117. The author lists 206 adventive plants found in 1939-40 at the Finnish port of Drumsö. About 75% of them had not hitherto been found in Finland, and three were apparently new to Europe.—[D.H.K.]

PIMLOTT, J., 1952, The history of afforestation in Northern Ireland, *Adv. Sci.*, **9**, 297-303.

POLUNIN, N., 1953, British Floras ancient and modern, *Rhodora*, **55**, 209-224. The author reviews the published British Floras from Johnson's *Mercurius Botanicus* (1641) to Clapham, Tutin and Warburg's *Flora of the British Isles* (1950).—[D.H.K.]

REESE, G., 1952-53, Ergänzende Mitteilungen über die Chromosomenzahlen mitteleuropäischer Gefäßpflanzen, *Ber. Deutsch. Bot. Ges.*, **64**, 240-255 & **66**, 66-74. A considerable amount of data on the chromosome numbers of European plants (including British) are given.—[D.H.K.]

REITBERGER, A., 1951, Die Chromosomenzahl von Südtiroler Apfelsorten, *Zeitschr. Pflanz.*, **30**, 276-279.

RILEY, H. P., 1952, "Gene" and "genetics", *Amer. Nat.*, **86**, 249-250. The history of the terms "gene" and "genetics" is discussed, and it is emphasized that "genetics" was not derived from "gene" but preceded it, being proposed by Bateson in 1906. Johannsen first suggested the use of the term "gene" in 1909.—[D.H.K.]

ROSS-CRAIG, S., 1953, Botanical illustration, *Med. & Biol. Illustr.*, **3**, 8-19. Gives an account of the purposes, and much useful information on the technique, of botanical drawing.—[D.H.K.]

RUNE, O., 1953, Plant life on serpentine and related rocks in the north of Sweden, *Acta Phyt. Suecica*, **31**, 1-139.

SAKISAKA, M., 1953, Critical considerations of chromosome numbers in relation to plant habit (life forms), *Proc. 7th Intern. Bot. Congr., Stockholm*, 286-287.

SANCHEZ-MONGE, E., 1950, Glosario de terminos de Genetica y citogenetica, *An. Est. Exper. Aula Dei*, **2**, 98-148. An annotated glossary of cytological terms used in Spain and Portugal.—[D.H.K.]

SARVAS, R., 1950, Effect of light on the germination of forest tree seeds, *Oikos*, **2**, 109-119. In tests carried out with artificial-lighting equipment the author discovered that with the seed of *Picea excelsa*, *Betula verrucosa* and *B. pubescens* the same germination result was obtained in darkness and in light. *Pinus sylvestris* seed yielded a considerably poorer final germination result in darkness than in light.—[D.H.K.]

SCHULZE, G. M., 1953, Beiträge zur deskriptiven Terminologie, *Engler Bot. Jahrb.*, **76**, 109-133. The terms elliptic, oval, oblong, lanceolate, obtuse, rotund, acute, acuminate, cuspidate, apiculate, mucronate, etc., as applied by various authors are discussed.—[D.H.K.]

SILVA, A. R. P. DA & SOBRINHO, L. G., 1950, Flora vascular da Serra do Geres, *Agron. Lusit.*, **12**, 233-380. *Salix atrocinerea* is regarded as a subspecies of *S. cinerea*, as the authors think that the two are merely geographical races with few differences separating them. The correct name for the hairy-leaved race of *Viola palustris* in Portugal, which Wein established was not the same as *V. epipsila* Ledeb. is cited as subsp. *hermini* K. Wein (1906) (subsp. *juressi* (Lk. ex Neves) Beck. (1910).—[D.E.A.]

SIMPSON, C. G., 1951, The species concept, *Evolution*, **5**, 285-298. A general discussion on the species concept from many aspects, including semantics, morphological and genetical concepts and the genetical definition of a species in relation to the evolutionary unit involved.—[D.H.K.]

SIRKS, M. J., 1952, Variability in the concept of species, *Act Bioth.*, **10**, 11-21.

Soo, R., 1952, Die modernen Grundsätze der Phylogenie in neuen Systemen der Blütenpflanzen, *Acta Biol. Hung.*, **4**, 257-306.

STEBBINS, G. L., Jr., 1949, Reality and efficacy of selection in plants, *Proc. Amer. Phil. Soc.*, **93**, 501-513. The author examines the results of studies on cultivated and wild species by various investigators. He is led to the conclusion that natural selection in the higher plants is founded on harmonious adaptive combinations of characters and that the selective value of any individual character largely depends upon its relationship to the other characteristics of the plant. The evolution of angiosperms is discussed in relationship to this theory.—[D.H.K.]

STEBBINS, G. L., 1952, Aridity as a stimulus to plant evolution, *Amer. Nat.*, **86**, 33-44. Where moisture is a limiting factor, xerophytic plant communities possess fewer species than do the communities of mesophytic regions, but the number of communities per unit of area is likely to be larger than in regions of adequate moisture. This promotes geographic separation of species, populations and races, and thus might be expected to speed up evolution. Evidence that certain mesophytic types are derived from xerophytic ancestors is presented for the genera *Scorzonera* and *Tragopogon* of the *Compositae*, tribe *Cichorieae*, and for certain genera of the subfamilies *Mimosoideae* and *Caesalpinioidae* of the family *Leguminosae*. The evidence in the latter family is derived chiefly from the development of both adult and seedling leaves.—[Author's summary.]

STEINDORSSON, S., 1952, Flórunýjungar, 1951, *Náttúrfr.*, **22**, 36-40. Gives new localities for Icelandic plants. The hybrid *Carex rigida* × *salina* is new to the island. Adventive species new to the Icelandic flora in 1951 include *Rorippa sylvestris*, *Alliaria petiolata*, *Armoracia rusticana*, *Anthriscus sylvestris* and *Chenopodium opulifolium*.—[D.H.K.]

TAKHTADJIAN, A. L., 1953, Phylogenetic principles of the system of higher plants, *Bot. Rev.*, **19**, 1-45.

TOURNAY, R. & LAVALRÉE, A., 1952, Une classification nouvelle des familles appartenant aux ordres des Ligustrales et des Contortées, *Bull. Soc. Bot. France*, **99**, 262-263. A rearrangement of the families of the orders *Ligustrales* and *Contortae*, keyed as follows:—

Ligustrales:

Ovary 2-loc.; plant often pilose:

Ovules 2 in each loc.; andr. 2-merous, rarely 4-merous; corolla 4-, 5- or poly-merous; leaves exstipulate *Oleaceae*

Ovules numerous in each loc.; andr. & cor. 4-merous; leaves usually stipulate *Buddlejaceae*

Ovary 1-loc., ovules numerous; flowers 5-merous; andr. & cor. isomerous, plant glabrous; lvs. exstipulate *Menyanthaceae*

Contortae :

Plants lacking latex :

Woody plants, not bitter; stipules present, often much reduced ... *Loganiaceae*
 Herbaceous plants, bitter; stip. O *Gentianaceae*

Plants with latex :

Andr. not at all adnate to stigma; anthers not furnished with translators
Apocynaceae

Andr. adnate to stigma; anthers furnished with translators ... *Asclepiadaceae*
 —[E.B.B.]

TRONCHET, M. A., 1950, Aperçu historique et bibliographique sur la floristique et la phytosociologie en Franche-Comté, *Ann. Sc. Univ. Bes.*, **5**, 9-20. Gives numerous bibliographic references on the floristics and phytosociology of Franche-Comté (E. France).—[D.H.K.]

TURRILL, W. B., 1952, Methods of the experimental ground in relation to taxonomy, *Kew Bull.*, **1952**, 427-437.

ULLRICH, J., 1953, Die ernährungsbedingte Variabilität im Bereich von Blüte und Infloreszenz, *Ber. Deutsch. Bot. Ges.*, **66**, 5-18.

ULLRICH, J., 1953, Variationsstatistische Untersuchungen an Blättern, *Ber. Deutsch. Bot. Ges.*, **66**, 322-332.

VALENTINE, D. H., 1949, The units of experimental taxonomy, *Acta Bioth.*, **9**, 75-88. Recent definitions of the botanical terms ecotype, ecospecies and coenospecies are briefly reviewed. Examples of ecotypes are discussed and the following new definitions are proposed:—

g-ecospecies.—Groups with the same chromosome number between which there are well-defined morphological, ecological and geographical differences and which, under artificial or natural conditions, are capable of only limited gene-exchange.

a-ecospecies.—Groups with different chromosome numbers between which there are well-defined ecological and geographical differences and which are capable of only limited gene-exchange.

ecotypes.—Groups forming genetically distinct components of ecotypes, adapted to special types of environment and capable of unlimited gene-exchange.

ecotypes.—Groups forming polyploid components of an ecotype.

The probable modes of origin of *g*-ecospecies (gradual) and *a*-ecospecies (abrupt) are explained, and the importance of the recognition by taxonomists of *a*-ecospecies which may differ morphologically hardly at all is emphasized.

Examples of the uses of the terms are given, and it is suggested that their application to animals as well as plants would be of interest.—[Author's summary.]

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VAN OOSTSTROOM, J. J., 1953, Nieuwe plantensoorten en -vormen in Nederland gevonden in 1952, *De Levende Natuur*, **56**, 212-214. Many adventives are included in this account of plants new to the Dutch flora in 1952.—[D.H.K.]

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WALTER, E., 1952, Deux fougères calcifuges en sol calcaire, *Monde des Plantes*, **287-288**, 20. A short note on the occurrence of *Asplenium septentrionale* and *Pteridium aquilinum* in chalky soil in Alsace.—[E.B.B.]

WEEVERS, T., 1952, flower colours and their frequency, *Acta Bot. Neerl*, **1**, 81-92. After a short survey of the chemical structure of flower pigments the relative frequency of the various flower colours is examined on the basis of an analysis of standard floras of different parts of the world. The approximate percentage of each colour was found to be:—yellow-orange 31%, white 26½%, red-pink 15%, green 7½%, purple 7%, violet-lilac 7%, and blue 5½%. The reasons for higher percentages of particular colours in specific regions, and the genetical problems of flower colour are discussed.—[D.H.K.]

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WILSON, A., the late, 1953, The Albert Wilson herbarium, *N.W. Nat. (N.S.)*, **1**, 391-399. An account of a herbarium of some 6,000 British plants now preserved at York Museum.—[D.H.K.]

NORTHERN REGIONAL MEETING, 1954

This regional meeting, the second of its kind, took place in the new West Building of the Department of Science of Durham University on Saturday, 30th October, the lectures being given in the Appleby Theatre, while the exhibits were displayed in two rooms on the same floor.

At 11.30 Professor D. H. Valentine, the chairman for the morning session, welcomed members and their guests, numbering 69, and introduced the first speaker, Professor J. W. Heslop Harrison, F.R.S., who then gave his most instructive and illuminating lecture, illustrated by a number of beautiful coloured lantern slides, on "Durham Wild Roses". A short discussion followed.

After lunch, three talks were given by Messrs. F. H. Perring, R. J. Elliott and J. Rossiter, followed by some lively discussion, with Mr. Lousley in the chair.

Then tea was served in the laboratories, when the Society was the guest of the University, and afterwards the exhibits were inspected until the closure of the meeting at 6 o'clock.

An excursion to the Magnesian limestone had been arranged for the next day, and a party of about a dozen, under the leadership of Professor Heslop Harrison, went to Cassop, about 5 miles S.E. of Durham, to study the vegetation and, in particular, the rose bushes, when Professor Harrison gave practical demonstrations illustrating some of the points made in his lecture on identifying these in the field, chiefly by their fruits.

The weather was exceptionally good that week-end, which enabled us to enjoy a picnic lunch on a hillside. After a three-mile walk, via Cassop Vale and Shadforth, the party reached Sherburn Hill, where a bus was taken back to Durham.

In spite of the lateness in the season, this excursion proved to be an interesting and profitable one. No further details are given here, as this will be one of the areas to be visited during the field meeting in Durham in July 1955.

A. N. GIBBY.

Lectures

DURHAM WILD ROSES

J. W. HESLOP HARRISON

Professor Heslop Harrison began by stating that, almost certainly, the rose flora of our two counties was the richest in Britain and then showed a number of lantern slides in colour, depicting the whole of the Durham and Northumberland species. In doing so, he pointed out their

distinguishing features and emphasized that for distributional and ecological reasons, as well as structural, *Rosa dumetorum* should be kept separate from *R. canina*, and *R. dumalis* (*R. glauca*) from *R. caesia* (*R. coriifolia*). It was stated, too, that the usual British ranges supplied for *R. tomentosa* and *R. micrantha* are quite incorrect, *R. sherardi* forms often being referred to *R. tomentosa* and *R. caesia* forms to *R. micrantha*. As a matter of fact, both are very rare in Durham and there attain their northern limits.

Next, taking up the question of rose hybrids, he listed those found in the two counties, and insisted that, contrary to general opinions, many showed limited fertility, although he remarked that Durham *R. villosa* \times *spinosissima* and *R. dumalis* \times *spinosissima* were always sterile. Very much different were the cases of *R. sherardi* \times *spinosissima*, *R. rubiginosa* \times *spinosissima*, *R. caesia* \times *spinosissima*, *R. canina* \times *sherardi* and *R. dumetorum* \times *villosa*. The first of these crosses he had reared up to the F_4 generation, the second to the F_3 lots and the third, fourth and fifth to the F_2 lots. In each case, the F_2 and succeeding lots, when the latter had been obtained, were much more fertile than the F_1 generation. At this stage it was indicated that *R. spinosissima* was self sterile.

Next, by the aid of lantern slides, he described the cytology of the of the roses, stressing the peculiarities of the *Caninae* and the *Spinosissimae*. From that he led up to experimental work with the hybrids between *R. spinosissima* on the one hand and *R. sherardi*, *R. rubiginosa* and *R. caesia* on the other. In all the hybrids reared F_1 generations were obtained which manifested a certain degree of fertility, and the resulting F_2 lots leant strongly toward the *R. spinosissima* parent when reared to maturity. In addition, many F_2 plants remained herbaceous, and perished after a height of 2 cm. had been reached.

Professor Heslop Harrison emphasized that the F_1 lots, whilst conforming, in a general sort of way, cytologically to the usual *Caninae* pattern, in their later meiotic stages on the female side showed important anomalies. As a result, amongst the seedlings, orthoploid plants were secured carrying chromosome complements of 14, 28, 35 and 42. Thus it was clear that a new polyploid series had been evolved by a distinctly novel mechanism. Further, amongst the seedlings there were encountered aneuploid plants with chromosome numbers $2n = 24$, $2n = 32$ and so on.

Apparently, in development a fairly heavy mortality rate takes place, leaving F_2 plants, as far as present results indicate, possessing, like *R. spinosissima*, a balanced set of 28 chromosomes. These plants display a regular heterotype division like *R. spinosissima* and a normal homotype division, and are quite fertile. Further, this same fertility is manifested by the F_3 and F_4 generations. Incidentally, the lecturer pointed out that pinkness in all these crosses is dominant.

At this point the topic of the puzzling rose described by Smith as *Rosa rubella* was raised. This species (?) was erected in 1810 on the basis of Durham material, and its status has ever since been a problem

to rhodologists. By comparisons made point by point with Smith's and other descriptions, and by a direct consideration of Winch's specimens, the speaker showed that in every respect *R. rubella* agreed with certain segregates in the F_2 *R. sherardi* \times *spinosissima* lots, as did his own *R. rivalis* described from Wheel Birks plants. He had, therefore, no hesitation in regarding *R. rubella* and *R. rivalis* as naturally occurring hybrids originating in a cross between *R. sherardi* and *R. spinosissima*. Obviously, since F_2 plants so reared are fertile, the generation to which they belong remains undecided. Professor Heslop Harrison stated that in his opinion, based on certain experimental data, they actually belonged to the F_2 lot.

The lecturer concluded by indicating a few of the investigations yet to be carried out on the wild roses of Durham and Northumberland.

THE B.S.B.I. DISTRIBUTION MAPS SCHEME

F. H. PERRING

Mr. Perring gave a comprehensive account of this work, chiefly for the benefit of those who had not heard of the scheme or were unfamiliar with the details. He appealed for volunteers to undertake the recording of 10 kilometre squares and answered a number of questions.

THE WORK OF THE NATURE CONSERVANCY RESEARCH STATION AT GRANGE-OVER-SANDS

R. J. ELLIOTT

The lecturer gave an account of this work in its various aspects, mentioning the most recent developments in this area as well as in Scotland.

THE FLORA OF THE DURHAM WALLS

J. ROSSITER and S. R. J. WOODELL

This paper was an account of some work on the flora of the walls within the City boundary. The total number of species found was 141 angiosperms, 1 gymnosperm, 6 ferns, 12 mosses and 6 algae and fungi.

Exhibits

1. CYTOTAXONOMY OF *HERNIARIA*

The exhibit consisted of herbarium sheets of some European *Herniaria* species, figures of their chromosomes, a list of chromosome numbers and drawings of diagnostic morphological features. Special attention was given to *H. glabra* L., *H. ciliata* Bab. and *H. maritima* var. *ciliata* Dav. which are shown to be distinct on both morphological and cytological grounds. A similar demonstration was shown, by re-

quest, at the London Exhibition meeting and is reported in more detail in the account of that Meeting.

Miss K. B. BLACKBURN and Miss A. W. ADAMS.

2. SOME CORNISH PLANTS

The herbarium specimens fell into two groups.

- (1). Native, such as *Allium triquetrum* L., very abundant round St. Ives.

Scilla autumnalis L. and *Scilla verna* Huds., growing on the cliff tops.

Sibthorpia europaea L., growing in wet ditches.

Erica vagans L., abundant locally.

Parentucellia viscosa (L.) Caruel, growing in bogs.

- (2). Introduced, such as

Erigeron mucronatus DC., growing on walls.

Carpobrotus edulis (L.) N.E.Br., hanging over cliffs.

Acanthus mollis L., growing on cliff tops.

D. BLACKBURN.

3. DISTRIBUTION OF THREE SPECIES OF *ALCHEMILLA* IN COUNTY DURHAM

Detailed work on the distribution of all the species of *Alchemilla* found in Co. Durham has been continued since the maps were exhibited at the London meeting in 1952.

Distribution maps of *A. vestita*, *A. glomerulans* and *A. wickuræ* were based on the presence or absence of the species in each 1 kilometre square. These showed *A. glomerulans* and *A. wickuræ* confined to the valleys in the west and *A. vestita* in these valleys and the east of the county. *A. wickuræ* occurs in 8 km. squares in Teesdale and *A. glomerulans* in 16 squares plus 1 square in Weardale. Both species occur in Scotland and the former in the Craven district and should be looked for in Weardale and other parts of the Pennines.

Detailed work is being done on *A. vestita* and material from other parts of the country would be welcome.

Miss M. E. BRADSHAW.

4. A NEW STATION FOR *DROSERA ANGLICA* IN NORTHUMBERLAND. S., V.C. 67

The exhibit consisted of a pressed specimen of *Drosera anglica* collected from Coom Rigg Moss at the head of the Chirdon Burn in the North Tyne Valley and of a distribution map, showing the previous two localities from which this plant has been recorded from Northumberland. As *Drosera anglica* is almost certainly now extinct in its earlier known stations at Muckle Moss and Prestwick Carr, its discovery this summer by Mr. Allison and myself in Coom Rigg Moss means that we

can still claim this now very rare plant in North East England, as a native of Northumberland. Coom Rigg Moss is situated in an area where extensive planting of conifers by the Forestry Commission is now taking place and, although much of the surrounding area has been drained prior to planting, there is every prospect that the moss itself will neither be drained nor planted.

W. A. CLARK.

5. DISPERSAL OF SEEDS ON BOOTS

The transport of seeds and other propagules by their adhesion to the feet of animals is well known, but few attempts have been made to assess the importance of man as an agent in similarly dispersing plants in the mud frequently clinging to his boots. Samples of mud scraped from several pairs of boots have been kept under conditions suitable for germination and the plants which have been noted, both as to species and abundance. Often no seedlings appear, but there are usually a few and there may be many, for from one sample 176 seedlings of *Bellis perennis* were obtained.

From the boots not worn in England since their wearer's return from Ireland, 65 seedlings were raised; similarly, mud from boots worn in Madeira yielded 10 seedlings. It is apparent that quite long distance dispersal may be achieved in this manner.

To the present date, amongst the seedlings raised from boot mud, the following genera have been identified.

Anthoxanthum, *Bellis*, *Capsella*, *Cardamine*, *Cerastium*, *Chamaenerion*, *Chenopodium*, *Crataegus*, *Matricaria*, *Plantago*, *Poa*, *Ranunculus*, *Rubus*, *Trifolium*, *Urtica*, *Juncus*.

H. T. CLIFFORD.

6. A COLLECTION OF HERBALS OLD AND NEW

The volumes shown were *A Family Herbal* by John Hill, 1812, another copy of this work, but a different edition, of the same date, *A New Family Herbal* by Thornton, with wood engravings by Bewick, 1810, *Compassionate Herbs* by Mrs. C. F. Leyel, 1946, etc.

Mrs. A. N. GIBBY.

7. DURHAM ROSES, ETC.

This exhibit included freshly collected fruiting specimens of Durham and Northumberland roses. Amongst them were *Rosa spinosissima* L., *R. canina* L., *R. dumetorum* Thuill., *R. obtusifolia* Desv., *R. dumalis* Bechst. (*R. glauca* auct.), *R. caesia* Sm. (*R. coriifolia* auct.), *R. sherardi* Dav., *R. villosa* L., *R. rubiginosa* L., *R. micrantha* Sm. and *R. agrestis* Savi. In each case, many of the varieties growing in the counties were represented. In addition, a long series of dried specimens of species and hybrids, comprising those mentioned above, as well as hybrids and forms not shown in a living condition, were on view. Noteworthy amongst these was the new subspecies *R. dumalis* subsp. *dolomitica* Heslop Harrison.

The hybrids from Durham and Northumberland exhibited were *R. villosa* × *spinosissima*, *R. villosa* var. *relicta* × *spinosissima*, *R. sherardi* × *spinosissima*, *R. dumalis* × *spinosissima*, *R. canina* × *sherardi*, *R. canina* × *caesia*, *R. canina* × *obtusifolia*, *R. villosa* × *dumetorum*.

Scottish hybrids shown were *R. sherardi* × *spinosissima*, *R. rubiginosa* × *spinosissima*, *R. caesia* × *spinosissima* from Port Seaton (v.c. 82), *R. sherardi* × *spinosissima*, two forms, almost certainly originating as reciprocal crosses from the Isle of Eigg (v.c. 104) and *R. sherardi* var. *pseudomollis* × *canina* var. *verticillacantha* from the Isle of Raasay (v.c. 104).

Amongst the plants of experimental origin shown were F_2 , F_3 and F_4 generations of the cross *R. sherardi* × *spinosissima* and F_2 and F_3 lots resulting from the *R. rubiginosa* × *spinosissima* cross. In addition, living potted specimens of F_4 *R. sherardi* × *spinosissima*, F_2 *R. canina* × *R. sherardi*, F_2 *R. villosa* × *spinosissima* and F_3 *R. rubiginosa* × *spinosissima* were on view. One of the latter, a full-grown plant, attained a height of only 1.4 cm.

Mounted specimens, also illustrative of experimental work, included leaves of the parents of the cross *R. sherardi* × *spinosissima*, of the F_1 lot and of a series from F_2 plants to demonstrate the effects of Mendelian segregation and recombination.

This portion of the exhibit demonstrated the strong leaning of the F_2 generation to the *spinosissima* parent, a fact confirmed by their chromosome number 28. A similar group of leaves, showing F_1 and F_2 plants of *R. rubiginosa* × *spinosissima*, revealed a similar state of affairs in that hybrid in which, again, the plants on display possessed 28 chromosomes.

Other plants brought by Professor Harrison comprised:—

Cerastium arvense × *vulgatum* from the Wear Banks, Lampton (v.c. 66).

Euphrasia curta (Fr.) Wettst. from Birtley (v.c. 66).

Potamogeton epihydrus Raf. from the Isle of South Uist (v.c. 110).

P. × prussicus Hagstr. Isle of Colonsay (v.c. 103).

Betula tortuosa Ledeb. from the Isle of Harris (v.c. 110).

Cakile maritima Scop.

C. edentula (Bigel.) Hook. from the Isle of Harris (v.c. 110).

C. edentula × *maritima* from Horgabost, Isle of Harris (v.c. 110).

J. W. HESLOP HARRISON.

PHOTOGRAPHIC ENLARGEMENTS OF DURHAM ROSES

J. THOMPSON.

8. (1) SOME SCOTTISH CARICES

A number of herbarium sheets of Carices including *Carex microglochis*, *C. atrofusca*, *C. rupestris*, *C. atrata*, *C. saxatilis*, *C. rariflora*.

(2) TWO ALIEN SPECIES OF *LYSIMACHIA* FROM THE LAKE DISTRICT
 (a) *Lysimachia ciliata* L.

This specimen was collected from the Lancashire side of Lake Windermere during the meeting of Junior Members of the Botanical Society of the British Isles held in August 1953.

Wilson, in his *Flora of Westmorland*, gives references to plants from adjacent counties, but makes no mention of this species. It would appear, therefore, that it is an addition to the flora of the North Lancashire portion of v.c. 69.

(b) *Lysimachia terrestris* (L.) Britton

Wilson records this species only from an island in Lake Windermere. Since that time, however, it has spread widely and now occurs in quantity, on both shores of the lake.

Attention is also drawn to the fact that the description in Clapham, Tutin and Warburg's *Flora of the British Isles* does not appear to be true of the plants found at Windermere. None of these plants have been found with elongated bulbils in the axils of the leaves, and during the two years I have had them under observation the plants have flowered freely.

(3). *ERIOPHORUM ANGUSTIFOLIUM* HONCK. AND *ERIO-
 PHORUM LATIFOLIUM* HOPPE

Specimens collected from a small calcareous bog near Ingleton, v.c. 64, Mid-West Yorkshire, were exhibited to draw attention to what appears to be good colour characteristics by which I was able to distinguish the two species without a close examination.

In *Eriophorum angustifolium* the leaves and stems are a greyish green colour, and in *E. latifolium* they are a yellowish green colour. A further characteristic which was observed is the colour of the inner sheaths of the lower leaves where surrounded by the outer sheaths of the basal leaves. In *E. angustifolium* these sheaths have a pinkish tinge, and in *E. latifolium* they have a yellowish tinge. In dried material the leaf and stem colouration is not so easily distinguishable as in fresh material, but the colouration in the lower leaf sheaths is retained.

I have had no further opportunity of examining any additional material to verify if these characters are constant, and I am unable to find any references to these colour characteristics in existing British Floras. It would be interesting to know if these characters are, in fact, constant, as the colour of the lower leaf sheaths would be especially useful in the identification of non-flowering material. The observations of other botanists on these points would be very welcome.

(4). *CALYSTEGIA SEPIUM* (L.) ROEM. & SCHULT. AND *C. SYL-
 VESTRIS* (WILLD.) ROEM. & SCHULT.

Specimens from South Holderness, S.E. Yorkshire, v.c. 61, were exhibited to illustrate the main distinguishing characters between the two species of *Calystegia*. These are:—

(a) The corolla, which is c. 5 cm. long in *C. sepium* and c. 7 cm. in *C. sylvestris*, and

(b) the bracteoles enclosing the calyx, which are not inflated in the case of *C. sepium*, and which are large and inflated in the case of *C. sylvestris*.

Owing to the fact that, until comparatively recently, *C. sylvestris* was not recognised in Britain as a separate and distinct species from *C. sepium* our knowledge of the vice-comital distribution of the two species in the British Isles is either inaccurate or incomplete. Generally, however, it may be said that *C. sepium* is common in the southern half of Great Britain, gradually becoming rarer northwards, and that *C. sylvestris* is fairly evenly distributed over the whole country and is the commoner species in the northern half.

A reprint of a note by J. E. Lousley published in *Rep. Bot. Soc. & E.C.* 13, 265-268, and giving a detailed account of the history of *C. sylvestris* in Great Britain, was included in the exhibit.

R. LEWIS.

9. MEIOTIC BEHAVIOUR IN *AGRIMONIA* POLLEN MOTHER CELLS

Almost completely normal meiosis is observed in pollen mother cells of the British *Agrimonia eupatoria* L. ($2n=28$) and *A. odorata* Mill. ($2n=56$), the European *A. repens* L. ($2n=28$) and *A. zeylanica* ($2n=56$) from Ceylon.

A sterile haploid plant ($2n=14$), arising parthenogenetically after emasculation of *A. eupatoria*, shows an overall reduction in size and increase in auxiliary branching. A wide range of variation in the first division followed by a normal second division results in the formation of irregular tetrads of inviable pollen grains.

A wild hybrid *A. eupatoria* \times *A. odorata* ($2n=42$) shows leaf characters intermediate between the two parents and is sterile owing to irregular meiosis, in which both univalents and bivalents occur.

The artificially produced hybrid *A. repens* \times *A. eupatoria* ($2n=28$) is variable in both pollen mother cell chromosome number and the presence of univalents. Although this hybrid sets fruit, the seeds have not been induced to germinate.

C. M. MEDD.

10. VARIATION IN *ANTENNARIA DIOICA* (L.) GAERTN.

This demonstration was intended to show some of the results obtained during a series of observations on fixed populations of *Antennaria dioica*.

The area selected for the work was a small island called Alstenøy, lying just off the Norwegian coast and some 30 miles south of the Arctic Circle. Here this species grew in habitats of very varied aspects and at heights ranging from sea-level to 2,300 feet.

Samples were taken of 20 plants per population and for each individual a number of measurements and observations were made on scape length, width of largest rosette leaf, shape and colour of involueral bracts, sex, etc.

The results were subsequently subjected to statistical analysis in order to try to determine any pattern in the variation of these characters and, if present, whether it could be linked with external influences.

It was found that, although certain general trends were evident, these were masked by the different relative effects of certain factors on various characters and by the inherent properties of the sexes (e.g., males have a significantly shorter scape than the female plants).

These few observations did, however, show quite clearly the interplay between a number of clines in such micro-populations as were dealt with here, although only a few could be evaluated completely. The two which have been taken here as examples are:—(a) The reduction in width of the largest rosette leaf in response to the increase of exposure, and (b) The expression “compactness of rosette” which was shown to become less with increase of soil depth and maturity.

The herbarium specimens from populations XI and XIV were included, since they illustrate the importance of competition in determining the success of this species. Both these samples had markedly low leaf widths and were found growing in quite close turf areas. Ecological observations carried out at the same time showed a preference for more open situations, so that these measurements do seem to conform with such a state of affairs.

D. M. MOORE.

11. THE B.S.B.I. DISTRIBUTION MAPS SCHEME

This exhibit included maps, the various types of individual and regional record cards, as well as leaflets giving information on the way to use these cards and other methods of helping in the work of the Scheme. Mr. Perring was kept extremely busy answering questions and allocating 10-kilometre squares to volunteers. A quantity of leaflets and record cards, which were available for distribution, were taken by interested individuals.

F. H. PERRING.

12. YORKSHIRE ALIENS

The 30 sheets of alien plants from vice counties 62 and 65 in this exhibit could be put into four groups.

1. Wool Shoddy plants. Examples of these are *Xanthium spinosum* L., *Echium plantagineum* L., *Erodium botrys* (Cav.) Bertol.

2. Mill Aliens. Examples are *Melilotus indica* (L.) All., *Medicago arabica* (L.) All., *Phalaris paradoxa* L.

3. Garden Escapes. These include such plants as *Omphalodes verna* Moench, *Lilium monadelphum* L., *Veronica filiformis* Sm.

4. Seed Introductions. The following are some of the representatives of this class:—*Camelina sativa* (L.) Crantz, *Silene dichotoma* Ehrh., *Silene schafta* Gmel., *Impatiens glandulifera* Royle, *Linaria supina* (L.) Chazelles, *Chenopodium glaucum* L.

The recording of alien plants is often neglected. *Impatiens glandulifera* was not noted in v.c. 65 until 1944, but by then had become so well established there is no doubt it had been there for many years; the object of this exhibit was to stimulate the recording of all alien plants, and to stress the need for investigation into the possible means of introduction, without which the mere recording is rather pointless.

Miss C. M. ROB.

13. THE FLORA OF THE DURHAM WALLS

The demonstration illustrated the paper read to the Society the same day, and consisted of 38 sheets of herbarium material of the most frequent species, and of modifications of plant form due to habitat. Some undetermined species were put out for identification.

A selection of photographs was shown, and a complete list of species found indicating the status, life-form, dispersal-mechanism and usual habitat of the plants.

J. ROSSITER and S. R. J. WOODELL.

14. SOME NEW RECORDS AND INTERESTING PLANTS OF SARK

This exhibit, which includes a map of Sark, showed plant specimens of some of the new records to the Sark flora. Sark has a flora of about 450 species, and a visit to the island in July 1953 added several new records such as:—

Dianthus deltoides L.

Spergularia rupicola Lebel ex Le Jolis

Potentilla recta L.

Calystegia sylvestris (Willd.) Roem. &

Juncus kochii F. W. Schultz

Schult.

Bromus rubens L.

Carex polyphylla Kar. & Kir.

Several of these new records were of plants that are frequent in the North of England, e.g., *Sedum album* L. and *Galium erectum* Huds.

Sark, having a much warmer climate than the north of England, supports many interesting plants that are restricted in the British Flora to southern England. A few of these plants were shown, as they would probably be unfamiliar to many northern members at the meeting:—*Leonurus cardiaca* L., *Polycarpon tetraphyllum* (L.) L., *Anaphalium undulatum* L., *Chenopodium polyspermum* L.

W. B. H. SOWERBY.

15. VARIATION IN *PLANTAGO MAJOR* L.

Specimens were shown which had been grown in the garden from seeds collected in (a) Durham, (b) Morocco and (c) Tasmania. Considerable differences between the populations from these three widely separated localities could be observed. The Moroccan plants are significantly larger in all parts than any plants normally observed in Britain, while the Tasmanian plants differ from local Durham populations in both habitat and leaf shape.

D. H. VALENTINE.

EXHIBITION MEETING, 1954

An Exhibition Meeting was held in the Lecture Hall of the British Museum (Natural History), South Kensington, by kind permission of the Trustees, on Saturday, November 27, 1954, from 2.30 to 5.45 p.m. 253 members and guests attended, and exhibits were arranged by 35 individuals and institutions. An account of these is given below, with notes supplied by the exhibitors.

THE DISTRIBUTION MAPS SCHEME.

The centre-piece of the exhibit was a map showing the distribution of botanists who had already volunteered to send records for the Scheme. On this certain underworked areas were already apparent, notably Ireland, Scotland, Mid Wales, Devon and Cornwall (excluding the coast). However, even areas in more populated regions of the British Isles had gaps, e.g., Northamptonshire, N. Oxford, N. Buckinghamshire, N. Hampshire, Suffolk and Norfolk. Records for common species from these areas would be particularly valuable.

The map showed that, by the end of November, 615 people had asked for information about the Scheme. Of these 298 had agreed to send records, of whom 175 were members of the B.S.B.I. In all, 900 squares out of a total of 3,500 are being totally or partially covered, for which records have been received from 278.

As a result of the exhibit about 20 new volunteers were enrolled and about 40 squares allocated.

J. E. BAGNALL, AUTHOR OF *FLORA OF WARWICKSHIRE*

No portrait of James Eustace Bagnall (1830-1918) has ever appeared in a botanical publication, and consequently his likeness has been a subject for speculation by those who have followed in his footsteps. The photograph exhibited was an enlargement of one which had lain hidden in a rare, privately circulated memoir; it was used in an exhibition of Bagnall and his work recently held at Birmingham Museum and Art Gallery, to which his collections, comprising some twelve thousand sheets of plants, were presented in 1913.

A clerk in a Birmingham pen factory for over fifty years, Bagnall devoted all his scanty leisure to the investigation of the flora of the central Midlands. His week-end excursions to explore the remoter areas often entailed a railway journey of three to four hours, followed by a slow walk of anything from twelve to thirty miles; he is even reputed to have spent nights in the open, sleeping under hedges. Deeply religious and of a retiring disposition, he was an indefatigable worker and specialised in difficult groups like the roses and brambles. He died unmarried, at the age of eighty-seven.—D. E. ALLEN.

A HYBRID *CAREX* FROM MERIONETH.

Herbarium sheets of the hybrid *Carex binervis* \times *punctata* and the putative parents were exhibited together with a table showing their distinguishing characters.

An account of this new hybrid is being prepared for *Watsonia*.—P. M. BENOIT.

SALICORNIA PERENNIS IN WALES.

The discovery of *Salicornia perennis* in Merioneth (v.c. 48) constitutes the first certain record of the species for Wales, and a considerable extension of its known British range. Previously it was considered to be confined in the British Isles to the south and east coasts of England.

The plant has been found in two localities in Merioneth: near Mochras, and near Barmouth. In the Mochras locality it is abundant on the mud-flats where it is associated with *Limonium humile*, *Puccinellia maritima*, *Salicornia stricta* sens. lat., *Suaeda maritima*, etc., and forms large tussocks several feet in diameter. At Barmouth the habitat is similar but the plants exist in very small quantity, suffer through grazing by sheep, and rarely flower. The exhibit comprised a herbarium sheet of the species and a map showing its distribution.—P. M. BENOIT.

CYTOLOGY IN *HERNIARIA*.

Chromosome counts of six species of *Herniaria* show a 1-ploid series on the base number of 9. The exhibit was chiefly concerned with the "glabra" group of the subgenus *Eu-Herniaria* Williams.

H. glabra is diploid, but specimens of *H. glabra* var. *subciliata* from Coimbra, Portugal, gave aneuploid counts near the octoploid. The relationships of the plant are obscure and we should particularly like to obtain material from other localities.

The chief interest of the exhibit centred round the relationship between *H. ciliata* Bab. and *H. maritima* var. *ciliata* Dav. which have previously been considered on the one hand to be identical, and on the other to be distinct taxa. The evidence from chromosomes seems to support the latter view, since *H. ciliata* from the Lizard, W. Cornwall and from Guernsey is octoploid, whereas two stocks of *H. maritima* var. *ciliata* were found to be 12-ploid and Mesquita-Rodrigues records one 14-ploid.

Morphological details from plants growing under similar conditions were illustrated, and were, in general, in support of the results from the chromosomes.

A map of the distribution of these plants in Europe showed that there were French forms from Brittany and the Vendée which were still in need of examination. Material from these areas would be most gratefully received.—Miss K. B. BLACKBURN and Miss A. W. ADAMS.

STRONTIUM IN PLANTS

Strontium is a widely distributed element in soils and is found in large concentrations near Wickwar and in the Avon Gorge (both v.c. 34, W. Glos.). The element was determined by the radioactivation analysis of plant ashes, and was found to be present in amounts varying from about one to fifty parts per million in the dry weight of normal plants. In plants from strontium-rich areas, however, the amount may rise to as much as 2% of the dry matter. Particularly interesting from the point of view of plant distribution is the finding that some of the rarities of the Avon Gorge (e.g. *Arabis stricta* Huds. and *Bromus madritensis* L.) contain about 1% of the element. It is suggested that plants of Strontium-rich areas, especially the Charophytes, deserve further study. Some autoradiographs of Strontium in native plants were exhibited.—H. J. M. BOWEN.

PREDICTING TIMES OF INSOLATION IN CREVICE PLANTS

A graph was presented showing values of altitude and azimuth of the sun for all times of all days in north-west Yorkshire. The times at which a microhabitat such as a rock crevice is potentially capable of receiving direct sunlight depends on its angular exposure to the sky. The periods at which the sun is in an effective part of the sky could be drawn on such a graph.

This graphical expression is easily comprehended and is being used in conjunction with a sunshine recorder to determine actual times of insolation and to make rapid estimates of averages of actual insolation received.—B. N. BOWDEN.

SOME INTERESTING PLANTS FROM THE EUROPEAN HERBARIUM OF THE BRITISH MUSEUM

1. SPECIMENS CONNECTED WITH PAPERS IN *Watsonia*:

Nuphar intermedia Ledeb.; see Harrison, Y. Heslop, *Watsonia*, 3, 7; from Chartner's Lough, Northumberland, S. (v.c. 67), collected by Fraser Robinson.

Stellaria nemorum subsp. *glochidosperma* Murb.; see Green, *op. cit.*, 3, 122; from Llandogo, Monmouth (v.c. 35).

Carex lepidocarpa subsp. *scotica* E. W. Davies; see Davies, *op. cit.*, 3, 70; type specimen from Creag-an-Lochain, Mid Perth (v.c. 88).

Festuca vivipara (L.) Sm., *Poa bulbosa* var. *vivipara* Koel., *Poa alpina* var. *vivipara* L., *Poa* × *jemtlandica* (Almq.) Richt., *Deschampsia cespitosa* var. *pseudalpina* (Syme) Druce, *Deschampsia alpina* (L.) Roem. & Schult.; see Wycherley, *op. cit.*, 3, 41; examples of grasses showing proliferation of spikelets; also three examples of grasses showing abnormal proliferation due to attack by nematodes (eel-worms), viz., *Lolium perenne* L., *Agrostis tenuis* Sibth. and *Agropyron pungens* (Pers.) Roem. & Schult.

2. TYPE SPECIMEN OF *ARTEMISIA NORVEGICA* FR. VAR. *SCOTICA* HULTÉN*

Type specimen of *Artemisia norvegica* var. *scotica* Hultén from Ullapool, W. Ross (v.c. 105), coll. J. E. Lousley, 1953. described by E. Hultén in *Nytt Mag. Bot.*, 3, 67 (1954).—BRITISH MUSEUM (NATURAL HISTORY).

SOME UNPUBLISHED DRAWINGS AND TEXT FOR *TYPES OF FLORAL MECHANISM*, BY A. H. CHURCH

A selection from the 700 drawings and MSS. by A. H. Church; material for further volumes of his *Types of Floral Mechanism* was exhibited.—BRITISH MUSEUM (NATURAL HISTORY) LIBRARY.

FLOWER VARIATION IN *DIANTHUS GRATIANOPOLITANUS*

The occurrence of *Dianthus gratianopolitanus* in the Cheddar Gorge, its limited habitat and the considerable variation which occur in the petals were illustrated and described. The need for further work before the full significance of the variation can be appreciated was stressed.—S. CHALLENGER.

LABELS AND HANDWRITING, OR 'WHO DUN IT?' (1) EARLY EXAMPLES.—Mrs. H. N. CLOKIE.

SCOTTISH *EUPHRASIAE*

Herbarium sheets were exhibited showing the distribution of the commoner species in Scotland. Plants represented were *Euphrasia brevipila*, *E. confusa*, *E. nemorosa* var. *collina*, *E. micrantha*, *E. scotica*, *E. frigida*, *E. occidentalis* var. *calvescens*, *E. foulaensis*, *E. marshallii*, and two hybrids.—Miss U. K. DUNCAN.

VARIATION AND ECOLOGY OF *CAREX FLACCA* SCHREB.

The exhibit consisted of three herbarium sheets showing a range of forms of *Carex flacca* from different habitats. In the accompanying notes an attempt was made to correlate the length of the lowest fruiting spike with the base status of soil (pH measurement). Similar variable characters were pointed out including peduncle- and leaf-lengths which showed similar variation to spike length, and the very variable character of fruit colouration. Overall height was found to be an inconsistent character and somewhat independent of soil conditions. One sheet showed a series of fruiting spikes which were more uniform than the specimens on the other sheets, thus demonstrating the danger of drawing conclusions from single specimens.

Transplant experiments are being carried out, the results of which it is hoped will show how much of the variation is due to environmental differences, and how much to the genetical constitution of the plants.—H. J. FLETCHER.

*See also **Plant Notes.**—Ed.

SOME PLANTS FROM THE 'N' HORIZON IN THE ESTHWAITE BASIN

Photographs of pollen grains and a part of a pollen diagram from Out Dub's Tarn, Esthwaite, were exhibited.

The photographs were of *Plantago lanceolata*, Gramineae type, Chenopodiaceae type, Caryophyllaceae *Scleranthus* type, Urticaceae type, Umbelliferae type, *Hedera helix* and Compositae *Tubuliflorae* type.

These were compared with modern grains of *Plantago lanceolata*, *Deschampsia flexuosa*, *Pastinaca sativa*, *Hedera helix* and *Eupatorium cannabinum*.

It was suggested that the presence of *Plantago lanceolata* and other ruderals, together with the overall changes in vegetation as shown in the pollen diagram, provided some evidence for regarding the 'N' Horizon as a product of the first human settlement in the area.—J. W. FRANKS.

THE FORMS OF *GALIUM PUMILUM* IN BRITAIN

Five distinct taxa are included in the species known as *Galium pumilum* in this country. The exhibit illustrated their morphology and distribution.

1. The common northern form, a tetraploid whose closest allies occur in Scandinavia and Iceland.

2. A western form, found on the Irish limestone, in Snowdonia and at Inchnadamph. Morphologically similar to the northern form, but a diploid.

3. The montane form, intermediate between the northern form and *Galium saxatile*. A very variable plant; some individuals appear to be hybrids cytologically. Found only on the Breadalbane range.

4. The southern chalk form, an octoploid found in small isolated populations. Very different morphologically from the forms above, and more closely related to the central European forms.

5. The Cheddar form, an octoploid found only in the vicinity of Cheddar Gorge. Closest to the southern chalk form, but with a different habit. Perhaps identical with a plant found on chalk cliffs of the Seine.

The relative status of these five taxa, and hence their nomenclature, is not yet certain.—K. M. GOODWAY.

SOME WATER MINTS

The "varieties" of the polymorphic species *Mentha aquatica* L. were shown, with a few intermediates, in order to illustrate how they may be determined apart for convenience in large collections. It was made clear that no scientific value was placed on these varieties". In general, the exhibit provided an illustration of the recent paper on water mints in *Watsonia*.

In addition, a specimen was exhibited of a mint, recently discovered in Cornwall by Miss B. M. Sturdy, which appeared to be *M. × maximiliana* F. Schultz (*M. aquatica* × *rotundifolia*), a hybrid not pre-

viously recorded for Britain. A final determination must await fresh material next year, when, if the presumption is confirmed, the mint will be again exhibited.—R. A. GRAHAM.

BRITISH *CYPRIPEDIUM CALCEOLUS*

The exhibit consisted of a photograph, taken some years ago, of a flowering plant *in situ*. In addition, a fragment was shown that had been collected this spring, having been eaten off by slugs.—R. A. GRAHAM.

STELLARIA NEMORUM L. SUBSP. *GLOCHIDOSPERMA* MURB. IN BRITAIN

Two herbarium specimens of *Stellaria nemorum* L. subsp. *glochidosperma* Murb. and a typical specimen of subsp. *nemorum* were exhibited. The two former specimens had been gathered: (1) 'at the falls, Llando, Monmouthshire, 36.6.29' (Ex Herb. F. Farre); (2) 'Llyfnant Valley, Cardiganshire, July-August 1954, Miss Sine MacLachlainn'. The specimen of subsp. *nemorum* was from Roslin Glen, Midlothian, 26th June 1902, W. Edgar Evans.

In addition seeds of the two subspecies were exhibited and a map showing the vice-comital distribution of *S. nemorum* L. sens. lat., marked with the known localities of subsp. *glochidosperma*.—P. S. GREEN.

THE CYTOLOGY AND ECOLOGY OF BRITISH *OROBANCHACEAE* AND SEMI-PARASITIC MEMBERS OF THE *SCROPHULARIACEAE*

The genus *Orobanche* has been divided into two sections, *Osproleon* Wallr. and *Trionychon* Wallr. Photographs and drawings of chromosome counts for eight of the nine British species in *Osproleon* Wallr. were demonstrated. These species were *Orobanche minor* Sm., *O. maritima* Pugsl., *O. elatior* Sutton, *O. reticulata* Wallr., *O. picridis* F. Schultz, *O. hederæ* Duby, *O. rapum-genistæ* Thuill. and *O. caryophyllacea* Sm., all possess $2n=38$ chromosomes, indicating a basic number $x=19$. One of the two British members of *Trionychon* (*O. purpurea* Duby) has been examined: it possesses $2n=24$ chromosomes, which were illustrated by a photograph and drawing. Drawings of *O. caryophyllacea* and *O. purpurea* demonstrated the single bract characteristic of the section *Osproleon*, and the two bracteoles which occur in addition to the bract in *Trionychon*.

Rhinanthoideae in Britain may be classified cytologically into two groups on the basis of the resting nucleus. One group, comprising *Rhinanthus* and *Euphrasia*, possesses a prochromosomal resting nucleus: the stainable material in this type of nucleus is concentrated into a variable number of large bodies. The second group contains the remaining British genera: in these the resting nucleus shows irregular small stained regions (chromocentres), or diffuse staining properties with occasional aggregation of stainable material. *Rhinanthus* has been shown to possess the basic number $x=11$ which is the same basic number as that of *Euphrasia*: this point has not previously been noted

as a number of small chromosomes (8 in a diploid complement of 22) appear to have been overlooked, except by Fagerlind (1936)¹, who gave $2n=22$ as the number for *R. major*. Photographs and drawings of the chromosomes of British *Rhinanthus minor* Ehrh.², and Finnish *R. major* Ehrh. (both $2n=22$) were exhibited.

For comparison with these, P. Yeo kindly provided illustrations of *Euphrasia* chromosomes which do not show such marked size differentiation within the complement (the largest chromosome being about twice as large as the smallest). The photographs were of *E. anglica* Pugsl., $2n=22$, *E. hirtella* Jord., $2n=22$, *E. pseudokernerii* Pugsl., $2n=44$ and *E. marshallii* Pugsl., $2n=44$. All are members of the Section *Semicalcaratae*.

Members of the non-prochromosomal *Rhinanthoideae* possess different basic numbers:—*Pedicularis* $x=8^3$, *Melampyrum* $x=9^4$, *Odontites* $x=10^4$ and *Bartsia* $x=12^4$. Photographs and drawings of the chromosomes of *Pedicularis palustris* L., $2n=16$ (material from Kent), *Melampyrum cristatum* L., $2n=18^2$ (from Essex) and *Parentucellia viscosa* (L.) Caruel, $2n=48^2$ (from Kent) were demonstrated. This last count is interesting in view of the fact that 48 is a multiple of 12, the basic number for *Bartsia*, the genus to which this species was assigned by Linnaeus.

Herbarium specimens of British *Rhinanthus minor* were exhibited for comparison with *R. major* from Switzerland. Preserved specimens of *Orobanche minor*, *O. maritima* and *O. caryophyllaceae* were exhibited.

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D. J. HAMBLER.

SOME OBSERVATIONS ON *SALICORNIA*

There is an erect form of *Salicornia*, similar to *S. appressa* (Dum.) Dum. except in habit, which has not yet been described. This plant differs from *S. ramosissima* Woods in its dingy crimson colour, more delicate cylindrical branches and in its habitat preferences. *S. appressa* is apparently genetically distinct from its erect counterpart as the forms may grow side by side. The decussate nature of the branching is partially obscured in the prostrate form where successive branch-pairs lie in the same plane. Erect forms may be trampled, or flattened by other environmental factors, or prostrate forms may become semi-erect. These intermediate forms may cause confusion but in general it seems possible to distinguish plants with negatively geotropic shoots, as the apices of stem and branches of such plants are not appressed to the substratum, and successive branch-pairs are obviously decussate.

Photographs and habit specimens illustrated these points.

A *Salicornia* like *S. smithiana* Moss possesses prostrate and erect forms. Quadruple branching occurs at the nodes in this taxon (as in *S. dolichostachya* Moss) which is very variable on the Medway Estuary; extreme forms, with long (up to 6 cm.) tapering fertile spikes, which resemble *S. dolichostachya* Moss in habit, also occur. A series of photographs illustrated this variability.

A living specimen of *Salicornia perennis* var. *radicans* Moss & Salisbury was exhibited together with a photograph and drawing of its somatic chromosomes ($2n = 18$). The somatic chromosomes of *S. ramossissima* Woods ($2n = 18$) were also illustrated, together with a habit photograph. All material was from the estuary of the River Medway.—D. J. HAMBLER.

RUBUS ARCTICUS IN BRITAIN

Specimens of *Rubus arcticus* were exhibited from Ben Lomond and from Ben-y-Glo; kindly lent by the British Museum (Natural History). A third specimen, from Ben Lawers, recently located in Herb. J. C. Melvill at Harrow School, was also exhibited.—R. M. HARLEY.

PLANTS OF CALDEY ISLAND, PEMBROKESHIRE

A list of the plants of Caldey Island has already been published (Hepper, F. N., 1954, *Proc. B.S.B.I.*, 1, 21-36) and the exhibit supplemented that paper with other information on the island and its flora. Two maps indicated the geology and the vegetation respectively and a series of photographs helped to give an impression of the scenery. A few specimens were also shown, including the more interesting species occurring on Caldey in relation to Pembrokeshire (v.c. 45), and *Carex polyphylla* Kar. & Kir., which was a new vice-county record.—F. N. HEPPER.

A VARIEGATED FORM OF *POA ANNUA*

A variegated form of *Poa annua* was found in a shrubbery at the Royal Botanic Gardens, Kew, during the past summer, growing with the normal green form. The original small plant was divided to produce 16 separate plantlets which rooted and branched from the lower nodes, each giving rise to several vegetative shoots and a few flowering culms. These plants had the habit of one of the short-lived perennial variants of the species. In many leaves the green tissue was confined to the midrib, whilst in others there were 2-4 longitudinal strands of green, the remainder of the leaf being white. From panicles flowering in the late summer two batches of seed were collected and sown a few days later when dry. In the first batch all the seedlings appear to have been green, but in the second there were two albinos out of the 15 seedlings.

Plants with variegated leaves have been found in several grass-species found in the British Isles. In these the leaves were longitudinally striped with green and white, cream or yellow. Such

variegated forms are known in *Alopecurus pratensis*, *Arrhenatherum elatius*, *Dactylis glomerata*, *Glyceria maxima*, *Holcus mollis*, *Melica uniflora*, *Molinia caerulea*, *Phalaris arundinacea* and *Phragmites communis*.—C. E. HUBBARD.

AN INTERGENERIC GRASS HYBRID NEW TO BRITAIN*

Intergeneric hybrids between genera of the tribe *Hordeae* are not of common occurrence in nature, although there are numerous instances of them being produced artificially. Among the natural hybrids found in Europe are two between species of *Agropyron* and *Hordeum*. These hybrids must be comparatively rare since they have been recorded only from Denmark and the south coast of France.

The Danish hybrid, *Agropyron repens* × *Hordeum secalinum* was first gathered by P. Nielsen at Stubberup near Skjelskov in the south-west of the island of Sjaelland in 1865, in a coastal meadow, where it persisted until 1877 or later. Nielsen named it *Agropyron repens* var. *hordeacea*, but at the same time observed that it might be a hybrid between *Agropyron repens* and *Hordeum secalinum*, a suggestion with which the Danish botanist, J. Lange, agreed. This rare hybrid was first discovered in the British Isles by Mrs. C. I. Sandwith in August 1945, in brackish pasture by the river Avon at Shirehampton, W. Gloucestershire. It was refound there last August and September, as a single large patch of about a square yard, with both parent species.

The French hybrid ?*Agropyron pungens* × *Hordeum secalinum* (× *Agropyron rouxii* Gren. & Duval-Jouve, *Rouxia* × *hordeoides* Husn., *Agropyrohordeum* × *rouxii* G. Camus, *Agrohordeum* × *rouxii* G. Camus) was discovered first by Salzmann in August 1819, in brackish meadows at Villeneuve, and later in June 1859 by Blaise and Roux near Marseilles. It has since been recorded from various coastal localities in the départements of Hérault, Bouches-du-Rhône and Var.—C. E. HUBBARD & N. Y. SANDWITH.

VARIATION IN THE *CAREX NIGRA* COMPLEX

Variation in herbarium specimens of this species complex was shown under three main categories. Specimens whose variation in colour of the female glumes and utriculi had attracted the attention of early botanists have been collected from most parts of Britain. In forma *chlorostachya* Reichb. (*C. chlorocarpa* Wimm.) the black female glumes are much smaller than the green utriculi and almost hidden in the compacted spikelet. Forma *leucolepis* Meinsh. has both glumes and utriculi of a very light fawn, whereas in forma *badia* Sanio the utriculi are as above but the glumes assume a chestnut-brown colour. The extreme is seen in forma *fuliginosa* A.Br. (*C. melaena* Wimm.) where both glumes and utriculi are of a sooty black.

Three anomalous forms were exhibited showing a variation which can be seen in many species of *Carex*. A woodland form in which

*See also **Plant Notes**.—Ed.

the leaves are narrow and the spikelets distant, short and few-flowered compares with Kükenthal's forma *subsetacea*. An almost unisexual plant only occasionally with female flowers at the base of the otherwise all-male spikelet corresponds to forma *polyandra* (Schkuhr) Kük. (*C. polyandra* Schkuhr). Some living material from a grazed flush on being brought into the greenhouse produced flowering spikes in which the lowest spikelet was pedunculate and originated almost from the rootstock itself—forma *basigyna* Reichb.

Kükenthal (in Engler, *Das Pflanzenreich* IV, 20, 1909) gives ten forms of *C. goodenoughii* Gay a varietal status; three of these were exhibited. Var. *strictiformis* L. H. Bailey (*C. limula* A. Gray) is a tufted form in which the leaves and flowering stems grow up to a height of 75 cms. The utriculi are markedly stipitate and nerved. Var. *recta* Fleischer is a type with a Scandinavian and Central European range and is probably present in Britain. The plant is more robust than the type and the leaves overtop the spike. The spikelets are lax and 4-5 cms. long and the utriculus is oblong-elliptical. The specimen exhibited was from Långskär, Sweden. A further variety which we have in this country is var. *stolonifera* (Hoppe) Aschers. (*C. stolonifera* Hoppe). According to Kükenthal the geographical range of this plant extends to Chile and Bolivia. It has a very short, rigid and often curved stem; the basal sheaths are shiny and of a reddish-brown. The leaves are channelled and somewhat falcate; the whole plant suggests very close affinities with *C. bigelowii* Torr.

A fine specimen of the hybrid between the type *nigra* and a near relative *C. elata* All. was kindly lent by Mr. E. A. Ellis for exhibition. This is a very large form (= *C. goodenoughii* var. *turfosa* Aschers.) whose characters are intermediate between those of the parents.—A. C. JERMY.

ORCHIS TRAUNSTEINERI SAUT. IN WALES

Specimens of *Orchis traunsteineri* Saut. collected by the exhibitor from Cors Geirch, near Pwllheli, Caernarvonshire (v.c. 49), in June of 1953 and 1954 were shown. Hitherto this species has been known in the British Isles from scattered localities in Ireland and south-east England. The discovery in Wales helps to fill a gap in its markedly discontinuous distribution. Maps were provided showing the distribution of the species, together with photographs of the new locality in Wales, and a short list of associated plants. A fuller account is published elsewhere in this journal.—W. S. LACEY.

WILD PLANTS OF JERSEY, CHANNEL ISLANDS

Herbarium specimens of the following Jersey plants were exhibited:—*Dianthus gallicus*, *Kohlruschia prolifera*, *Lythrum hyssopifolia*, *Eryngium maritimum*, *Centaurea aspera*, *Erica cinerea* (albino form), *Limonium lychnidifolium* and *Euphorbia paralias*.—MRS. K. LE SUEUR.

EPIPOGIUM APHYLLUM IN OXFORDSHIRE

Epipogium aphyllum was first found in Oxfordshire "in a wood near Henley" in 1924, and was seen again in this wood in 1926. In 1931 Miss Vera Smith (now Mrs. Paul) found it in a wood "near Peppard", where it reappeared in 1933 and 1953. It did not flower in either of these localities in 1954, but on September 4 I found it in a new wood in the parish of Rotherfield Greys, where there were five flowering spikes. Photographs taken there were exhibited.—J. E. LOUSLEY.

A SYNTHESISED PLANT OF *ASPLENIUM* × *BREYNII*

An exhibit was shown at the 1953 Exhibition Meeting concerning the synthesis of the well-known hybrid fern, *Asplenium* × *breyneii* (*Proceedings B.S.B.I.*, 1, 97 (1954)). It was not possible then to display one of the artificial hybrids, but on the present occasion a live synthesised example was exhibited, together with a small explanatory demonstration.—J. D. LOVIS.

ASPLENIUM ADULTERINUM AND ITS PROBABLE PARENTS

Asplenium adulterinum Milde is only known from serpentine and other similar ultra-basic rocks in Central Europe and Fenno-scandinavia. It is intermediate in morphology between *A. viride* Huds. and *A. trichomanes* L. and is usually found growing with one or both of these species. On account of these facts *A. adulterinum* aroused considerable speculation as to its true status amongst German authors in the last century.

A. adulterinum is now known to be a tetraploid species with $2n=144$, and cytogenetic investigation shows it to be an amphidiploid, with *A. trichomanes*, diploid form ($2n=72$) and *A. viride* ($2n=72$), as its probable parents. Meiosis in *A. adulterinum* is regular, 72 bivalents being formed. Triploid hybrids between *A. adulterinum* and *A. viride* (= *A. × poscharskyanum*) occur in the wild and have now also been synthesised by myself in Leeds. Analysis of meiosis in both wild and synthesised hybrids shows 36 bivalents and 36 univalents to be present. The other backcross, between *A. adulterinum* and *A. trichomanes* diploid form, has also been synthesised, and also shows 36 bivalents and 36 univalents in meiosis. These results indicate a high degree of homology between the chromosomes of *A. adulterinum* and the two diploid species, which may therefore be regarded as the probable parents of *A. adulterinum*.

It is possible that *A. adulterinum* may yet be found on rocks of the serpentine group in the more remote parts of Scotland, and it is suggested that botanists might bear this in mind when in such areas.

The exhibit was supported by (1) herbarium specimens of the three species concerned, and of both wild and synthesised hybrids between them, (2) photographs of meiosis in both species and hybrids, (3) photographs of *A. adulterinum* and of *A. × poscharskyanum* growing wild in Norway.

A full account of this investigation will appear elsewhere.—J. D. LOVIS.

NORWEGIAN MATERIAL OF SOME OF THE RAREST BRITISH MOUNTAIN PLANTS

This exhibit consisted mainly of herbarium specimens, mostly collected at Finse, in Norway. The species shown were some of which recent British specimens in luxuriant growth are not, or *should* not, be available to-day, e.g. *Woodsia alpina*, *Phyllodoce coerulea*.

Colour transparencies of vegetation at Finse were also on display.

It was pointed out that our British mountain flora can be regarded as essentially an impoverished sub-arctic flora, and its closest affinity is with the flora of the Scandinavian mountains. There are very few high mountain species in Britain which do not occur in Scandinavia. Moreover, many of the rarest British mountain plants are relatively common in Norway, e.g. *Carex atrofusca*, *Carex vaginata*, *Arabis alpina*, *Gentiana nivalis* and *Luzula arcuata*.—J. D. LOVIS & J. V. LOVIS.

RECENT WORK ON THE GENUS *SENECIO*

Specimens were exhibited of *Senecio vulgaris*, *S. squalidus*, the synthetic hybrid *S. vulgaris* × *squalidus* and the synthetic allopolyploid which had been produced by colchicine treatment of the hybrid.

These were accompanied by a plant of the naturally occurring allopolyploid from north Wales.—DEPT. OF BOTANY, MANCHESTER UNIVERSITY.

A HYBRID BETWEEN *FESTUCA RUBRA* AND *VULPIA MEMBRANACEA*

An intergeneric hybrid new to science, *Festuca rubra* × *Vulpia membranacea* was collected from two localities during summer 1954:—(1) at Southport, S. Lancs. (v.c. 59) by Mr. and Mrs. P. C. Hall and Mrs. B. Welch, and (2) at Sandwich, E. Kent (v.c. 15) by Miss M. McCallum Webster.

In appearance this hybrid resembles a long-awned form of *Festuca rubra* with rhizomatous growth and dark-brownish lower leaf-sheaths. The structure of the spikelet is similar to that of *Vulpia membranacea*, having pedicels thickened upwards, and narrow keeled glumes, though these gradually taper, and the lower glume is distinctly longer than that of *V. membranacea*. The size of the lemma and the length of the awn in the hybrid is intermediate. All specimens examined were completely male-sterile, having narrow, indehiscent anthers with badly developed pollen grains.

This intergeneric hybrid has not been recorded before either in Britain or on the Continent, but it was collected earlier on Guernsey, Channel Islands, by Francis Druce and C. E. Hubbard. In the herbarium of the British Museum there are some specimens belonging to this hybrid which were cultivated in Curtis's Botanic Garden and dis-

tributed erroneously under the name "*Festuca cambrica*" which is a form of *F. rubra*.

Festuca rubra \times *Vulpia membranacea* has in its external morphology a remarkable resemblance to *Vulpia sicula* Link which grows in Sicily, Sardinia, Tunis and Algeria. This species may also have arisen from hybridization between *F. rubra* and *V. membranacea*. As the pollen grains in *V. sicula* are well-developed, it seems that the duplication of chromosome sets of species involved might have taken place in that case.

Specimens of this hybrid with its putative parents and *V. sicula* were demonstrated in this exhibit. A description and full account of this hybrid is being prepared for publication.—A. MELDERIS.

THE DISTRIBUTION OF *CIRSIIUM ACAULE* AND *ASPLENIUM VIRIDE* IN THE BRITISH ISLES

Many northern plants reach their south-eastern limit, and many southern plants reach their north-western limit along a line running diagonally across central England. There seems little doubt that this phytogeographical boundary is also an important climatic boundary and maps were exhibited to show that to the south-east, over lowland England, the climate is more continental, annual rainfall is lower and hours of sunshine and summer temperatures are higher, than to the north-west, where the reverse is the case. *Asplenium viride*, selected as an example of a northern type, was compared with *Cirsium acaule*, a southern type, and the distribution maps demonstrated that these two species meet along this boundary but never overlap. In Derbyshire, which lies on the boundary, *Asplenium viride* is always confined to north-facing rocky slopes where limited observations show that summer temperatures are very low and, probably of greater significance, relative humidity correspondingly high. *Cirsium acaule*, on the other hand, is generally on south-facing slopes, and studies of the reproductive capacity in these habitats show that this is greatly reduced.—C. D. PIGOTT.

HELIANTHEMUM CANUM IN BRITAIN

Helianthemum canum occurs very locally in Britain in five rather small areas on Carboniferous Limestone; the Gower Coast, North Wales, Teesdale, near the head of Morecambe Bay, and the Burren in Ireland. Taxonomically these populations fall into three groups: (a) the well-known and scarcely variable plant from Teesdale with small dark green leaves. (b) The remaining populations in England and Wales; rather large and often grey-tomentose plants. (c) The much coarser Irish plants; like the Teesdale form in their lack of stellate tomentum on the upper leaf-surfaces, but differing in their much larger hairier leaves.

These were illustrated with herbarium sheets and cultivated material, and by diagrams showing the results of analysis of leaf length and length/breadth ratio measurements. Also exhibited were a number of photographs of *H. canum*, and some of its British habitats.

A more detailed account is in preparation for publication elsewhere.
—M. C. F. PROCTOR.

COLOUR PHOTOGRAPHS OF ALPINE PLANTS.—M. C. F. PROCTOR.

FERNS ON A RAILWAY PLATFORM

On the eastern face of one of the platforms at Legrave Station, Bedfordshire (v.c. 30), beside the railway track, is a remarkable colony of ferns (see also Dony, J. G., 1953, *Flora of Bedfordshire*). This platform face is of cemented bricks, the cement crumbling in many places, and the ferns grow from the crevices between them. The steam from passing trains, though emitted on the off-side, is a fairly continual source of moisture. A map showed the distribution of the train services through Legrave Station, and four photographs illustrated some of the ferns there. A list of species seen there two months ago was displayed, showing that calcicole ferns consort with calcifuge. An interesting problem is whether the colony owes its existence primarily to the transport of spores by the trains or to the favourable conditions afforded by that particular platform face.—T. D. V. SWINSCOW.

SYMPHYTUM IN BRITAIN

Specimens were exhibited of *Symphytum officinale*, *S. asperum*, *S. tuberosum* and *S. orientale*. The origin of *S. peregrinum* was examined. T. G. TUTIN.

THE USE OF 'SUB-SPECIES' IN TAXONOMY

The recent increase in knowledge of variation within species of the British Flora has resulted in the suggestion of a number of different taxonomic treatments for particular cases. These may roughly be grouped as follows:—

A. The extreme genetical view, which would attempt to work a species-concept based primarily on sterility, and would claim that, below the level of species, orthodox taxonomic categories are undesirable. This view, in its extreme form, is likely to be upheld only by workers who are not faced with the practical necessity of producing a workable taxonomy.

B. A less extreme view, which, whilst aiming at a genetical species-concept, concedes the practical difficulties by devices such as the use of 'aggregate' (agg.), but which on the whole thinks the orthodox infra-specific categories of little value.

C. A view which concedes the desirability of incorporating new knowledge (and particularly that usually called 'experimental taxonomy') into the orthodox taxonomy, but which holds that the latter must remain

- (a) based on observable and describable morphological differences.
- (b) practicable for the *general* purposes of the science of Botany as a whole.

If, to satisfy these conditions, it is necessary to use the existing categories for what are genetically speaking different types of situation, this is neither inconvenient nor undesirable. The *taxon* is *morphologically* definable; what it is equivalent to genetically or in terms of evolving population studies is a matter requiring a separate terminology. (Such a terminology, involving the use of the suffix '-deme', has been suggested and elaborated by Gilmour, Gregor, Heslop Harrison and others).

The case in favour of adopting the third view was set out, in the exhibit, with reference to the use of the category 'subspecies' for particular examples. In current practice (e.g. in Clapham, Tutin & Warburg's *Flora*) three main types of situation (from the experimental taxonomic viewpoint) underlie the use of this category:—

(1) 'geographical subspecies', morphologically more or less definable from the 'type' subspecies with an assumed interfertility, at least partial, e.g. *Veronica spicata* L. subsp. *hybrida* (L.) E. F. Warb.

(2) 'cyto-subspecies', insufficiently clearly definable on morphology (the differences being usually quantitative and statistical), but, usually, with more or less complete sterility barrier between it and the 'type', e.g., *Galium palustre* subsp.

(3) subspecies definable to some extent morphologically, ecologically and geographically, but about the nature of whose variation there is insufficient evidence for a satisfactory taxonomic treatment, e.g., *Ranunculus aquatilis* L. subsp. *radians* (Revel) Clapham.

Clearly the refusal of *specific* rank to examples of type (2) is a decision based on purely practical considerations. No logical boundary can be drawn between species and subspecies, nor should one attempt to find one. In practice, specific rank should be given where it is possible to assign, say 90% of reasonably complete specimens to one or the other *taxon*. If this is not practicable, then the subspecific category should be used, so that the *unqualified* binomial is available for general-purpose taxonomy.

Evidence was given in favour of treating the three cytodesmes of *Polypodium vulgare* L. as subspecies (type (2)), not as separate species.

Type (3) cases will presumably continue to trouble us; but no-one need feel dissatisfied with this, which is merely a convenient taxonomic device.—S. M. WALTERS.

SOME HYBRIDS IN THE BRITISH FLORA—EXISTENT AND NON-EXISTENT.—E. F. WARBURG.

ARTIFICIAL INTERSPECIFIC HYBRIDS IN *EUPHRASIA*

The hybrids shown were *Euphrasia occidentalis* × *salisburgensis* var. *hibernica* and *E. pseudokernerii* × *occidentalis*. Dried specimens of the hybrids and their parents were exhibited. In addition flowers and leaf silhouettes were shown.

E. occidentalis and *E. pseudokerneri* are placed in Subsection *Ciliatae*, Series *Nemorosae*, and *E. salisburgensis* is placed in Subsection *Angustifoliae*. All have the same chromosome number.

The hybrids were intermediate between the parents in most respects. An exception was seen in the flowers of *E. occidentalis* \times *salisburgensis* which were larger than those of either parent.

The percentage production of normal-looking pollen and of good seed was normal or almost so in *E. pseudokerneri* \times *occidentalis*. In *E. salisburgensis* \times *occidentalis* only about 20% of normal-looking pollen was produced and seed-production averaged one to two good seeds per capsule, as compared with nine per capsule in *E. salisburgensis*.—P. F. YEO.

SUMMARY OF PAPERS READ PRIOR TO THE ANNUAL GENERAL MEETING, 1955

CHANGES IN THE FLORA OF NORTH-WEST YORKSHIRE DURING THE PAST CENTURY

Miss C. M. ROB

Most of the changes in the flora of v.c. 65 since J. G. Baker's day are losses. It is an area of upland and lowland, but with no large towns. Catterick Camp encloses 11 square miles; airfields do not cover much ground, nor do roads, and the only loss due to the making of A.1 into a dual-carriageway was *Doronicum pardalianches*. Thanks to an enlightened Surveyor, no sprayed weed-killer is used.

It is drainage that has led to more changes in the flora than everything else put together. There were several carrs, in one of which, Leckby carr, *Scheuchzeria palustris* survived at least to 1840. *Gentiana pneumonanthe* has gone from Catton and become very rare at Strensall, where tanks are an added menace. *Saxifraga hirculus* is in danger. Drainage had been begun earlier, but was intensified during the 1914-18 war and the land now grows good potatoes. Another change originating in the 1914-18 war was the wholesale removal of willows from the river banks, which leads to scouring which prevents the growth of herbaceous plants. When there is much snow on Mickle Fell, the rush of water washes out plants of *Potentilla fruticosa* which is much decreased.

On the uplands there are less sheep, and on the lower ground more potatoes and sugar-beet are grown and less corn, and there are now far fewer arable weeds; poppies are now rare. Everywhere wire fences replaced hedges, many of which were delightful mixtures of *Salix pentandra*, crabs, etc., planted about 1790. The recent spectacular spread of *Senecio viscosus* right up into the dales is attributed to milk lorries carrying seeds which germinate on bare patches by farm gates. *Col. chicum autumnale* has been exterminated by ploughing up pasture. There has been very little afforestation. Lord Bolton's well-managed mixed woods are allowed to regenerate, and have a good ground flora. The War Office ranges automatically form Nature Reserves, but tank training churns the soil into porridge annihilating all vegetation. One change for the better was the increase, between 1940 and 1945, of *Gentiana verna* in Upper Teesdale, attributed to lack of transport for marauders.

"QUO IMUS?"

R. W. BUTCHER

After a warning that he would be ignoring the laws of priority and using synonyms indiscriminately for the Society which began as the Botanical Society of London and, after being the "B.E.C." for many

years, is now the B.S.B.I. Dr. Butcher described how he joined it. In 1921 he discovered *Tillaea aquatica*, and showed it to Dr. Druce, who said: "Splendid; the Society should make you an Honorary Member", which he remained for fifteen months, after which he was asked for a subscription.

Many things had changed since then. For years, Dr. Druce was combined Secretary-Treasurer-Editor and often Exchange Distributor; there was no A.G.M. and no excursions; the Reports were sometimes late but full of interesting items. For the amateur Dr. Butcher thought the finest period of the Society was the forty years from the 1890's, when identification was on gross morphology. Now the emphasis is on microscopic distinctions, on genetics, biology and ecology. Lately we have had an orgy of changes, in nomenclature, from "Hooker order" to "Engler order", and splitting of species and genera to the confusion of the amateur. The change from mere collecting to the study of habitats and distribution is all to the good, and the Maps Scheme was admirable.

As to the fate of the flowers, they have many enemies and are the victims of rural and social economics. Many attempts at conservation are useless, for fencing in a plant will not preserve its environment; many are dying out from changing conditions. Dr. Butcher strenuously opposes deliberate sowing or replanting a species in a "lost locality", and, above all, he thought we must help to educate the public to appreciate the plants of Britain before it is too late.

In the discussion which followed, Dr. Warburg commented that the number of cytological papers in early numbers of *Watsonia* was largely fortuitous, and nomenclature in Britain had fallen behind, so that changes were necessary to bring us in line with the Continent.

THE PROGRESS OF THE DISTRIBUTION-MAPS SCHEME

F. PERRING

Deputising for Dr. Walters, Mr. Perring described how contact had been made with local Natural History Societies, schools and with the general public by notices in local papers. A Scottish Office had been set up in Edinburgh. The area within a hundred miles of London was adequately covered by promises of lists and several other counties were well in hand, but there were still areas without workers, such as North Hampshire and North Bucks; Lines, was short of workers, and for large areas of Northumberland, Cumberland and the moorland areas of Devon and Cornwall, records would be very welcome.

So far about a thousand of the approximately 3,500 ten-kilometre squares were in hand. He and Dr. Walters had made a number of visits to talk to Societies and co-ordinate local helpers. The relative value of time spent in extricating information from literature and time spent in the field, showed the latter to be far more productive of records per man-hour. Many museums up and down the country have local herbaria, but staff shortage prevents their extracting the information; if members of the B.S.B.I. could undertake the extraction of

records from their local Museum herbarium, the help would be very welcome. A curious extension of the Maps Scheme is that a manufacturer of nylon stockings has adopted the system to map his sales.

Prof. D. A. Webb spoke of the Distribution-Maps Scheme in Ireland, and asked for any records, however few, for any part except such well-known places as Killarney.

Dr. D. P. Young said that Croydon Natural History Society had undertaken six squares, and he had abstracted records from literature for them, and found that this method has left many gaps, especially among sedges and grasses, which the Society hopes to fill by field-work.

REPORT OF THE COUNCIL FOR 1954

This report and the audited accounts printed below cover the period January 1st to December 31st, 1954.

MEMBERSHIP. During the year 142 new members joined the Society and we lost 25 through death, resignation and the operation of Rule 6 (e). It is with very great regret that we report the death of three Honorary Members, Dr. Karl Ronniger, P. Senay, and W. C. R. Watson, who all rendered valuable services to the Society. The net increase in membership was 117, which is the largest number recorded in our history, and to be compared with 12, 104, 79, 97 and 61 for the years 1949 to 1953. The total membership at the end of the year was 956.

FINANCE. Receipts from subscriptions amounted to £910, compared with £823, £719, and £641 for the previous three years. During 1954 we expended £938 on our two periodical publications. Sales of publications totalled £209, which is more than twice the figure for 1953 when special receipts are excluded. Our total assets at the end of the year amounted to £1750, which shows a decrease (£134) on the previous figure.

The Society's financial position remains sound, although rising expenses, which are partly due to increased facilities offered to members, give cause for anxiety. In view of the increased cost of our publications under the new arrangements, the Council has decided that for the time being the standard size of parts of *Watsonia* should be kept down to 52 pages, and the published prices increased to 15/- a part for *Watsonia* and 10/- a part for the *Proceedings*. The full effect of this is not reflected in the present accounts. Expenditure on postages and General Printing have shown a further increase, while, in spite of a transfer of £25 from the General Fund (£8 in 1953), the Meetings Committee's Fund shows an overdraft of £36. Efforts are being made to effect further economies in these and other directions.

DEVELOPMENT AND RULES COMMITTEE. Secretary: Mr. D. E. Allen.

In addition to its usual duties in revision of the lists of Local Secretaries, Referees, the Panel of Specialists, Floras in preparation, the Prospectus, and Rules, this Committee has been concerned during the year with the co-ordination of the new activities of the Society, including the Maps Scheme. Other matters referred to it include a suggestion that periodically the Annual General Meeting should be held away from London, proposals from a meeting of Local Secretaries and mem-

bers at Perth regarding the organisation of our activities in Scotland, and a recommendation from the Junior Membership Committee that a Panel of Lecturers should be formed. It has also considered the urgent need for making available more information about the autecology of rare plants to which attention was drawn by the Conservation Committee, and following its recommendation, as approved by Council, the General Secretary has arranged a meeting of our representatives with those of other interested bodies.

MEETINGS COMMITTEE. Secretary: Dr. J. G. Dony.

A Conference on "The Species Concept in its relation to the British Flora" was arranged at Church House, Westminster, on April 9th and 10th. It was attended by 234 members and guests, the papers read were of a very high standard, and the programme was carried out as advertised. A demonstration of the machinery to be used, and of the methods of collecting records for the Maps Scheme, was on view in a separate room throughout the Conference, and on the evening of the first day Professor Clapham and Dr. Walters lectured on the progress of the Scheme and the part members would be invited to play. The Conference was followed on Sunday, April 11th, by a field meeting arranged jointly with the British Bryological Society under the leadership of Mr. E. C. Wallace. The attendance was about 80.

The Annual Exhibition Meeting was held on November 28th in the Lecture Hall of the British Museum (Natural History) by kind permission of the Trustees, and was attended by about 280 members and guests. The meeting was followed in the evening by a *Conversazione* at the Glendower Hotel, South Kensington, at which the attendance was 54. A Northern Regional Meeting was held at Durham University on October 30th, when 69 members and guests were present. We are grateful to Professor D. H. Valentine and Mrs. A. N. Gibby for organising this meeting, and also a visit to the Magnesian Limestone country near Durham on the following day. Arrangements are in hand for Regional Meetings at Glasgow, Cardiff and Leeds in 1955.

The published programme of field meetings was carried through as advertised, with a total attendance of 224, made up as follows:—King's Lynn 35, Southport 27, Salisbury 58, Horsham 25, Sheffield 28 and Shingle Street 26. The special meeting for younger members at Garth, near Aberfeldy, which lasted a week, had an attendance of 25. Two of the 1954 meetings were devoted to collecting more detailed records of the flora than has been usual in the past. At King's Lynn members were issued with specially printed booklets for listing the species observed, while on the Horsham meeting the Maps Scheme printed cards were used. Here 535 species were listed for one 10-kilometer square, and other squares received attention. In arranging the programme for 1955 the Committee have included meetings specially devoted to the collection of records for the Maps Scheme and it is hoped that, as far as possible, this work will be included at all meetings.

Following the discussion at the last Annual General Meeting, fees charged were deducted from the amounts collected for coach fares, teas, etc., at meetings in 1954. Under this arrangement the expenses of field meetings amounted to £32, and, in estimating the total cost to the Society, the charges for printing and postage on the programme must also be taken into account. The Committee are reviewing this question in the light of the experience gained.

PUBLICATIONS COMMITTEE, Secretary: Mr. P. J. Wanstall.

During the year the arrangements for improving the Society's periodical publications initiated in 1953 have been carried into effect. *Watsonia*, Volume III, Part 2, was issued in September, and Part 3 was in page proof by the end of December and will be published early in 1955. The first part of the new *Proceedings* appeared in April and the second part in December, and these have been well received.

Work has continued on the revised and shortened *British Plant List*, which is now in an advanced stage, and the Sub-Committee responsible is aiming at publication by the summer of 1955. The Council has agreed to publish a report of the 1954 Conference, which is being edited by J. E. Lousley. Work is also proceeding on the *Index of British Herbaria* and *A Flora of the Isles of Scilly*, but it is felt that owing to the limited finance available the two works previously mentioned should have precedence.

It was with very great regret that we received the resignation of Professor J. Heslop-Harrison as Secretary of the Committee when he left London to take up his appointment at Belfast. Mr. P. J. Wanstall was elected in his place as from October 15th, 1954.

CONSERVATION COMMITTEE. Secretary: Mr. J. E. Lousley.

The number of "threats" reported during the year has been small, and in several cases it has proved that our informants were not fully acquainted with the position, so that action has not been required. Some of the special plants of Teesdale continue to be a source of anxiety, and the enquiries we have made indicate the importance of collecting more information about their ecological requirements and population fluctuations. We are pleased to report that the Ministry of Agriculture has not approved the Glamorgan River Board's scheme for the "improvement" of the Ely River which threatened the magnificent colonies of *Aconitum anglicum* which grow there. There have been fewer reports of damage to roadside plants from the use of chemical sprays than in recent years.

During 1954 we have continued to collaborate closely with the Nature Conservancy and the regular meetings between members of the Committee and representatives of the Conservancy have proved very valuable. The scheme for collecting reports on areas in which they are specially interested has been continued and Mrs. Welch has received

reports on 96 areas from 38 members. Some of these reports have been extremely thorough and of a very high standard. Arrangements are being made for continuing this scheme in 1955.

MAPS COMMITTEE. Secretary: Prof. A. R. Clapham.

The progress made by the Distribution Maps Scheme during its first year is the subject of a separate report prepared by the Director, and of accounts which are kept entirely separate from the Society's own funds. The first annual instalment of the Nuffield Foundation grant of £2,000 per annum for 5 years has been received, and £50 has been transferred from the Society's funds as its contribution for 1954. It is understood that the British Ecological Society has approved a grant of a like amount. The Nature Conservancy has agreed to make a grant not exceeding £1960 per annum from April 1st, 1955, to March 31st, 1959, which includes the estimated cost of the punched card system. With this financial support it has been possible to set up the necessary organisation for the collection of data with confidence, and members and others have been enthusiastic in promising their assistance.

JUNIOR MEMBERSHIP COMMITTEE. Secretary: Mr. A. W. Westrup.

During 1954, field meetings were organised at Epping Forest and Runnymede for young people between the ages of 15 and 21, and attended by 40 and 12 respectively. Details of a visit to the Department of Botany, Natural History Museum, for January 8th, 1955, have been circulated to Grammar Schools in the London area and 245 pupils and teachers have asked to attend. Arrangements have been made for three field meetings near London, one in Lancashire, and one near Glasgow in 1955.

Copies of the Junior Prospectus and Mapping Scheme leaflet have been circulated to schools and Training Colleges, and useful contacts with youth organisations have been established. With the experience gained during its first year the Committee is considering further developments for making known the Society's activities to botanists of school age.

EXCHANGE SECTION.

To the 1953-54 Distribution, 10 members contributed 53 gatherings totalling 560 sheets of specimens. In addition, 1,484 miscellaneous duplicates, mostly from University College, Leicester, were distributed. Professor T. G. Tutin acted as distributor, and his report will appear in the *Proceedings*, Vol. I, Part 3.

REPRESENTATION AT MEETINGS OF OTHER BODIES.

We were very pleased to present a congratulatory address to the Royal Horticultural Society on the occasion of its Sesquicentenary celebrations in July when we were represented by Mr. J. S. L. Gilmour. At the Centenary celebrations of the Société Botanique de France, Professor T. G. Tutin read a short congratulatory speech prepared by the President, and Dr. Butcher represented us at the 250th anniversary celebrations of the teaching of botany at Glasgow University. We were represented by Professor T. G. Tutin and Professor D. H. Valentine at the International Botanical Congress at Paris. The Council would like to express its appreciation of the services of the officers and members who represented the Society at these and other meetings during the year.

C. E. RAVEN, President.

J. E. LOUSLEY, Honorary General Secretary.

By Order of the Council.

February 4, 1955.

ACCOUNTS FOR 1954.

GENERAL FUND.

To Subscriptions received during the year	£909 16 0	By Balance from 1953	£24 19 8
„ Receipts from Advertisements	7 14 0	„ Transfers to Journal Fund	300 0 0
„ Income Tax Recovered	45 11 8	„ Transfers to Proceedings Fund	250 0 0
„ Interest for 1953 on Post Office Savings Bank Deposit	35 9 10	„ Transfers to Meeting Committee Fund	25 0 0
„ Sales of Reports and Reprints	25 17 7	„ Notional Interest to Publications Fund	25 8 0
		„ Hire of Rooms for Council and Committee Meetings	6 5 0
		„ Cheque-book	1 0 0
		„ Duplicating Minutes of Meetings	14 7 0
		„ Officers' Expenses	5 10 10
		„ Expenses re "Index of British Herbaria"	5 0 0
		„ Making rack at Nat. History Museum for storage of publications ...	5 0 0
		„ Congratulatory Address to Royal Horticultural Society	5 0 0
		„ Grant to Distribution Atlas project	50 0 0
		„ Fire Insurance on publications at Nat. History Museum and Portrait ...	1 2 6
		„ Advertising Expenses	2 0 0
		„ Telephones	3 19 1
		„ General Printing and Stationery	147 19 6
		„ Committee Secretaries' Expenses	4 17 6
		„ Postages and Petty Expenses :—	
		Hon. General Secretary ... £18 0 6	
		Hon. Treasurer 16 11 1	
		Hon. Assistant Secretary ... 17 8 1	
		Hon. Distributor 1 15 4	
		Hon. Secretary, Development Committee ... 1 4 10	
		Hon. Secretary, Junior Members' Committee ... 8 19 11	
		Parcelling Publications at Oxford (1953) ... 8 16 5	
		Parcelling publications at Nat. History Museum ... 10 0 0	
			82 16 2
		„ Balance	64 3 10
			£1024 9 1
			£1024 9 1

REPORT OF THE COUNCIL

JOURNAL FUND.

To Balance from 1953	£474 7 1	By Printing <i>Watsonia</i> and postages thereon :	
.. Transfers from General Fund	300 0 0	Vol. III, part 1 (to complete payment) ...	£230 1 3
.. Sales of <i>Watsonia</i>	105 19 6	Vol. III, part 2	190 14 10
		Vol. III, part 3 (part payment)	100 0 0
		.. Balance	359 10 6
	<u>£880 6 7</u>		<u>£880 6 7</u>

PROCEEDINGS FUND.

To Balance from 1953	£200 0 0	By Printing <i>Proceedings</i> and postages thereon :—	
.. Transfers from General Fund	250 0 0	Vol. I, Part 1	£217 1 11
.. Sales of <i>Year Book</i> and <i>Proceedings</i>	13 2 3	Volume I, part 2 (part payment)	200 0 0
		.. Balance	46 0 4
	<u>£463 2 3</u>		<u>£463 2 3</u>

PUBLICATIONS FUND.

To Balance from 1953	£1016 7 11	By Balance	£1132 9 1
.. Interest for year on initial balance at 2½% (per General Fund)	25 8 0		
.. Sales of 1948 Conference Report	4 4 7		
.. Sales of 1950 Conference Report	8 10 3		
.. Sales of 1952 Conference Report	66 11 8		
.. Sales of <i>Comital Flora</i> and <i>British Plant List</i> ...	7 13 3		
.. Sales of <i>Flora of Northants</i>	3 13 5		
	<u>£1132 9 1</u>		<u>£1132 9 1</u>

MEETINGS COMMITTEE'S FUND.

To Sales of Conference						By Balance from 1953 £28 9 11
Tickets £86 4 0						" Balance of Con-
" Transfer from General						ference Expenses £96 17 6
Fund 25 0 0						paid in 1953 22 1 0
" Balance 36 6 4						_____ 74 16 6
						" Northern Regional meet-
						ing Expenses 1 10 5
						" Postages and Petty Ex-
						penses :—
						Hon. Meetings
						Secretary ... £3 15 8
						Hon. Field
						Secretary ... 7 14 0
						_____ 11 9 8
						" Printing and Stationery 10 15 4
						" Travelling Expenses
						(Field Secretary) 6 12 2
						" Loss on Field Meetings ... 6 17 10
						" Expenses of Exhibition
						Meeting 6 18 6
						_____ £147 10 4
						_____ £147 10 4

The Balances on Life Members' and Benevolent Funds remain unchanged for the year at £145 12s 0d and £39 11s 0d respectively.

BALANCE-SHEET as at 31st December 1954.

General Fund	£64	3	10
Journal Fund	359	10	6
Proceedings Fund	46	0	4
Publications Fund	1132	9	1
Life Members' Fund	145	12	0
Benevolent Fund	39	11	0
	<hr/>		
	£1787	6	9

500 National Savings Certificates at cost	£400	0	0
Meetings Committee's Fund Debit Balance	36	6	4
Deposit with Post Office Savings Bank	1335	9	10
Cash at Bank	15	10	7
	<hr/>		
	£1787	6	9

Examined and found correct, (Signed) J. H. G. PETERKEN, Hon. Auditor.
20th January 1955. „ E. L. SWANN, Hon. Treasurer.

DISTRIBUTION MAPS SCHEME

FIRST ANNUAL REPORT TO 31st DECEMBER 1954.

In December 1953, the B.S.B.I. Council gratefully accepted the £10,000 grant from the Nuffield Foundation, and the Distribution Maps Scheme was officially launched at the Society's Conference on 9th April 1954. On this occasion acknowledgment was made of the generous grant of the Nature Conservancy, consisting of £4,000 over the five years' duration of the Scheme plus the whole cost of the Powers-Samas punched card recording system chosen for the Scheme. Further small grants towards the Scheme have been announced during the year, viz., £50 per annum by the Society itself, and a £50 grant by the British Ecological Society. The Royal Irish Academy have made a grant of £25 in aid of field work in Ireland, and hope to continue this annually over the five-year period.

Since April, the office of the Maps Scheme has been functioning in its temporary quarters in the Botany School, Cambridge, and has gradually expanded its activities, until by 1st October the full staff was employed on the work. This staff consists of:—

Dr. S. M. WALTERS, Part-time Director.

Mr. F. PERRING, Full-time Administrative Officer.

Miss A. MATTHEWS, Full-time Secretary.

Mrs. S. FINCHAM, Full-time Punched-card Operator.

The reconstructed and augmented Maps Committee, consisting of 14 members with limited power to co-opt non-members of the Society, directs the main policy of the Scheme, and an Executive Committee of three is consulted by the Director on matters of policy which require urgent decision.

A Scottish Office was set up in the Nature Conservancy's offices in Edinburgh on 1st November, and Mrs. M. E. D. Poore was appointed as part-time Regional Officer. Professor D. A. Webb has set up an Irish Regional Office in Dublin, in co-operation with Professor J. Heslop-Harrison (Belfast) for Northern Ireland. The National Museum of Wales (Cardiff) is co-operating fully in the collection and checking of all Welsh records.

During the year an attempt has been made to approach all B.S.B.I. local officers for help in the recording from their particular vice-counties, and a satisfactory network has now been set up. By the 31st December, 700 people (as individuals or representing Natural History Societies) had offered to help in recording, of which approximately 180 were members of the Society, and about 1,000 of the approximately 3,500 10 kilometre squares were at least to some extent "covered" by these offers. Much useful information has been gained during the year on

the most practicable ways of recording, and the methods (involving principally the use of "Regional" and "Individual" Record Cards) have been largely standardised. Plans have been laid for special "recording" field meetings in 1955. A useful start has been made in abstracting herbarium data; Mrs. B. Welch has been appointed part-time worker on the British Museum collections, and members of the Society are beginning to send in records from private herbaria. All the machinery was installed by 31st December, although the tabulator was only supplied temporarily until the specially-designed machine was available. The installation will be complete by the end of January. Some 10,000 punched cards have already been prepared from record cards which since October have been coming in in a steady stream.

Two sub-committees have been set up, one to prepare the base-map(s), and the other to decide a provisional list of species to be mapped; both were at work before the end of the year.

Thus, early stages of the Scheme have gone roughly according to plan, and the ground-work now seems to be satisfactorily finished. There is reason for a qualified optimism for the future.

S. M. WALTERS.

DISTRIBUTION ATLAS ACCOUNT.

To Grant from Nuffield	By Furniture and Office
Foundation £2000 0 0	Equipment—
„ Grant from Nature Con-	Cambridge ... £206 18 4
servancy 246 10 0	Dublin ... 50 0 0
„ Grant from B.S.B.I. ... 50 0 0	Edinburgh ... 0 12 6
	257 10 10
	* „ Mechanisation Equipment 162 13 10
	„ Postages and Telephone ... 45 3 6
	„ Printing and Stationery 248 2 11
	„ Rent and Room Hire ... 40 10 0
	„ Salaries 860 14 0
	„ Travelling Expenses ... 62 2 0
	„ Employers' Liability In-
	insurance 0 9 0
	„ Investment in 3½% Defence
	Bonds 500 0 0
	„ Balance 119 3 11
	£2296 10 0
£2296 10 0	£2296 10 0

*Expenditure on this item is covered by the Nature Conservancy Grant.

Examined and found correct. (Signed) J. H. G. PETERKEN, Hon. Auditor.
20th January 1955. „ E. L. SWANN, Hon. Treasurer.

ANNUAL GENERAL MEETING, 2nd APRIL 1955

The Annual General Meeting was held in the rooms of the Linnean Society, Burlington House, Piccadilly, London, on Saturday, April 2nd, 1955, at 2.30 p.m.

The Rev. Canon Raven (President) was in the Chair and 64 members were present.

The Minutes of the last Annual General Meeting as printed in *Proceedings*, Vol. I, Pt. 2, page 274 were adopted.

COUNCIL'S REPORT.—The Report of the Council for the year 1954 had been printed and circulated. The Hon. General Secretary drew attention to the expansion of the Society's activities during the year and to the increase of interest among Scottish members. The Report was adopted and the President thanked Mr. Lousley for drawing it up.

ELECTION OF PRESIDENT.—As retiring President, Canon Raven expressed his pleasure at seeing the Society expanding in all directions and membership approaching a thousand. He thanked Mr. Lousley and other officers for their keenness and kindness and Prof. Tutin for taking his place in representing the Society overseas. He then introduced Dr. George Taylor whose election as President was carried with acclamation. The new President then took the Chair.

ELECTION OF TWO VICE-PRESIDENTS.—Council had nominated Mr. G. M. Ash and Prof. D. A. Webb and they were elected unanimously.

ELECTION OF HONORARY GENERAL SECRETARY, HONORARY TREASURER, HONORARY EDITOR AND HONORARY MEETINGS SECRETARY.—Council had nominated Mr. J. E. Lousley, Mr. E. L. Swann, Dr. E. F. Warburg and Dr. J. G. Dony respectively. They were unanimously re-elected.

ELECTION OF MEMBERS OF COUNCIL.—There were four vacancies occasioned by the retirement under Rule 3(e) of Prof. D. A. Webb, Prof. J. Heslop-Harrison, Dr. R. C. L. Burges and Mr. E. Milne-Redhead. Six members had been nominated by members under Rule 3(f). Ballot papers were distributed and Mr. R. A. Graham and Mr. D. H. Kent were appointed scrutineers. The following were declared elected:—Dr. F. Rose, Mr. C. E. Hubbard, Mr. P. J. Wanstall and Mr. J. E. Raven. The order of seniority for retirement, as decided by lots drawn by the Chairman, is in the sequence given.

ELECTION OF HONORARY MEMBERS.—Eight names were put forward by Council, under Rule 4(e):—Dr. Ch. H. Andreas (Groningen), Prof. T. W. Böcher (Denmark), M. Roger de Vilmorin (Verrières-le-Buisson),

Dr. N. Hylander (Uppsala), Dr. P. Jovet (Paris), Dr. A. Lawalrée (Brussels), Dr. Johannes Lid (Oslo), and Mr. H. N. Ridley (London). At the suggestion of Mr. Bangerter, Mr. Lousley said a few words about each and the value to the Society of their botanical work. They were elected by unanimous vote.

EXCHANGE SECTION.—The following Resolution was considered:—"That Rule 16 be suspended until further notice". This rule requires the annual appointment of an Exchange Distributor. Dr. D. P. Young pointed out that the Society had conducted exchange activities for the greater part of its life, and in recent years the emphasis was now on exchange of critical or otherwise interesting material and not rarities. Even before the war it was seldom that more than a dozen members sent parcels, and the handling of them entailed much work for the Distributor. Nevertheless he would be grieved to see the Exchange Section come to an end, and asked members who have never taken part to abstain from voting. Prof. Tutin, as last year's Distributor, agreed as to the work involved and said that the contributors were now mostly institutions and the material of more interest to specialist botanists and professionals than to the Society as a whole, and exchanges between specialists can be arranged privately. In his view the Exchange Section was a survival from the past rather than an active need of the present, and he felt the time had come for dropping it. Mr. R. W. David suggested that it might be replaced by a list published annually in *Proceedings* indicating the groups in which members were currently interested, to facilitate private exchanges. Prof. Webb proposed that Council consider, as a new basis for the Section, the setting up of some sort of machinery for the exchange of information as to specimens which might be exchanged among smaller institutions. Mr. Alston seconded this amendment, suggesting that perhaps the annual change of Distributor had contributed to the lack of enthusiasm. Mr E. C. Wallace mentioned that in the Bryological Society the exchange of specimens still receives ample support which shows no sign of diminishing. The amendment was put to the meeting and carried. The Resolution was also carried, the voting being 12 in favour and one against.

There being no other business, Mr. Lousley expressed his personal gratitude to Canon Raven, for the four years in which he had been an ideal President had been a time of very active expansion with many intricate details to be considered.

A vote of thanks to the Officers, proposed from the Chair, was carried with acclamation, and it was agreed that the Linnean Society be thanked for the use of their rooms. The meeting closed at 3.15 p.m.

J.E.L.

B.W.

ASSISTANT SECRETARY'S REPORT FOR 1954

During 1954, 142 new members joined the Society, this being 50 more than in 1953, and 28 more than in 1952. Of the new members 108 were Ordinary members, 10 Subscriber members, 23 Junior members and 1 a Family member. Losses were 25, this being 6 less than in 1953, and 8 more than in 1952. Of these, 7 members resigned, 6 ceased to be members under Rule 6 (e), and we regret having to record the deaths of the following 12 members:—A. Farquharson, Mrs. C. Graham, Rev. A. G. Gregor, Mrs. B. Hassall, R. Howarth, Major J. G. MacGeorge, Dr. K. Ronniger (Honorary Member), P. Senay (Honorary Member), J. S. Stephens, S. A. Taylor, A. Turner and W. C. R. Watson (Honorary Member).

New Ordinary members are:—K. L. Alvin, Mrs. M. R. Ashton, Rev. P. R. Barker, D. M. Barling, Miss M. E. Barnsdale, Mrs. M. Barton, J. T. H. Beetham, Dr. G. Benl, Miss K. Benson-Evans, J. Bergin, Miss E. I. Biggar, W. Bunting, Miss P. H. Burford, Dr. E. M. Burrows, Miss G. M. Butler, J. W. Carr, B. V. Cave, M. J. Christmas, M. H. Cocke, Mrs. N. L. Colthurst, Miss E. G. Cordiner, Miss P. Cox, J. A. Crabbe, D. Davidson, Dr. P. H. Davis, Miss L. H. Eaton, Dr. W. J. Eggeling, Dr. R. J. Elliott, Miss M. C. Entrican, Miss E. M. Evans, Mrs. E. Farnol, R. E. C. Ferreira, J. L. Fielding, F. Fincher, Dr. H. J. W. Fisher, J. T. Forrest, P. Greig-Smith, Mrs. N. K. Hadfield, Miss M. D. Hainsworth, D. D. Handford, Miss A. S. Harris, J. H. Hawkins, F. N. Haynes, D. J. Hinson, E. B. Hoare, H. C. Holme, P. R. G. Jackson, Dr. D. G. Jones, D. M. Jones, Mrs. D. M. Jones, F. Keeler, Dr. E. G. Kellett, Miss M. P. H. Kertland, Dr. B. A. Kilby, G. Knight, I. C. Lawrence, Miss V. M. Leather (re-joined), W. H. Lee, Miss K. D. Little (re-joined), Dr. A. Löve, Miss B. Lunn, Dr. K. M. Lyon, Miss S. MacLachlainn, Dr. A. MacLeod, P. H. McNally, Prof. I. Manton, Mrs. M. E. Mason, D. M. Moore, Mrs. O. R. Moyse, Mrs. M. J. Oldaker, Miss U. M. Palmer, F. P. Penfold, D. H. Phillips, L. G. Phillips, K. G. Plant, Miss B. A. Poulter, G. C. Rhodes, Dr. C. H. Rice, R. H. Roberts, C. W. Robinson, J. Rossiter, H. B. Sargent, T. Schofield, Miss C. Shaddick, Mrs. A. G. Side, P. W. Spragg (re-joined), Miss C. J. Spurgin, W. T. Stearn, Mrs. E. K. Stephenson, J. E. Stevens, A. M. Stirling, Miss B. M. Sturdy, P. G. Summers, F. J. Taylor, Sister Teresa, J. Thorpe, R. Torrey, Miss M. A. Turner, Miss J. E. Tutin, R. J. Ventura, Dr. S. Walker, W. A. Watts, B. Welsby, J. E. Willé, D. N. Williams, Dr. D. Wise, Miss R. Witton and S. R. J. Woodell.

New Junior members are:—A. Angel, A. G. Bailey, A. F. Baldry, R. A. Beaver, J. M. Colyer, Miss H. Cotton, D. W. Cross, J. D. Dodge, P. J. S. Furneaux, O. L. Gilbert, D. R. Harvey, Miss P.

Heaviside, J. I. Hopper, J. Horsman, P. F. Hunt, Miss B. Kydd, B. Miles, M. W. Morgans, R. C. Palmer, J. B. Phipps, I. T. Prance, Miss M. A. Williams and H. Wood.

New Subscriber members are:—Barnsley Naturalists' and Scientific Society, Birmingham City Museum and Art Gallery, Canterbury and District Birdwatchers' Association (Botanical Section), Herefordshire Botanical Society, Liverpool University Library, National Institute of Agricultural Botany, Scottish Home Department Marine Laboratory, University College of Wales (Aberystwyth) Library, Växtbiologiska Institutionen, and West Wales Field Society.

A new Family member is Mrs. M. M. Williams.

D. H. KENT.

January 1955.

REVIEW

Plants, Man and Life. By EDGAR ANDERSON. Published by Andrew Melrose Ltd., London. Pp. 208. with 16 text figures. 1954. Price 15s.

Plants, Man and Life has been written by an American for the general reader, but the contents will be of considerable interest to British botanists. The main theme is the methods used in the study of the origin of cultivated plants, and there is a useful summary of our present knowledge (and lack of knowledge) of about a hundred of the world's most important crop plants. In developing this theme the author shows how man has carried plants about with him and urges the active co-operation of historians, anthropologists and ethnobotanists for the study of cultivated plants and weeds. It is suggested that "the history of weeds is the history of man".

Edgar Anderson, who is Assistant Director of Missouri Botanical Garden, has, as one would expect, chosen most of his examples from personal observations in the New World. Many of these examples have interesting implications in connection with the origin of the British flora and its increment from alien introductions in ancient as well as modern times. Thus his accounts of the "transported landscapes" of the central and eastern United States, and of the rolling hills of coastal California, will be a revelation to many readers in this country of how the conscious and unconscious introductions of a short historic period can change the vegetational aspect of large areas. The chapters on Sunflowers and *Tradescantias* illustrate the taxonomic complexities with which all students of introduced plants become all too familiar. The book is written in a lively style and draws attention to important aspects which have hitherto not received adequate appreciation.

J. E. LOUSLEY

OBITUARIES

MRS. BESSIE FLORENCE HASSALL, née CORY (1883-1954). Mrs. Hassall, who joined the Society in 1934, died at Oxford on 15th September 1954, after a long and painful illness. Widely travelled, she had a great love of nature and her sketch-books were full of delightful water-colour drawings of plants. Her name appears frequently as a contributor of plant records to our reports and she was a regular attendant of our Field Meetings.

J. G. DONY.

P. SENAY (1892-1954). Pierre Senay was born at Le Havre (Seine-Inférieure) on December 29th, 1892, and died at Asnières (Seine) on September 2nd, 1954. Of humble origin, he entered at an early age the cotton trade, which at that time was attracting many young inhabitants of Havre. He was a model itself of self-education—his tenacity, exceptionally methodical ways of working and attention to minute detail, combined with a noble ambition to succeed completely in everything he undertook, led to the achievement of an incontestable mastery equally in the technicalities of his trade and in the elaboration of botanical works to which, from adolescence, he devoted his leisure. His courtesy and unwearying helpfulness made him the friend of all his confrères.

After demobilisation in 1919 he returned to Havre and lived there until 1933. During this period he explored the surrounding country and paid particular attention to the flora of the alluvial soils of the estuary of the Seine. His residence in Paris after 1933 compelled him to modify the subject of his research. He then undertook the systematic study of certain critical or little known groups and published numerous notes on various subjects concerning phanerogams. He left uncompleted important studies of marsh orchids and of the *muricata-divulsa* group of *Carex*. During the second World War he was attached to the Laboratoire de Phanérogamie du Muséum National.

Senay was a founder member of the Société Linnéenne de la Seine Maritime at Havre, which was founded in 1913, and of which he was vice-president from 1926 to 1936. In this Society he exercised an important influence in effectively directing the work on phanerogams after the death of his master, Raoul-F. Mail.

Since 1929 he was a member of the Société Botanique de France, of which he was vice-president during the years 1940 to 1944. He was an Honorary Member of the Botanical Society of the British Isles and belonged to various other scientific and historical societies. He was an Officier d'académie.

PRINCIPAL WORKS OF P. SENAY

I. Botanical Works

- 1922-1923 : Etudes de la flore adventice du Havre et des environs, *Bull. Soc. Linn. Seine marit.*, **1922**, 31-58; *op. cit.*, **1923**, 307-310.
- 1929 : Plantes disparues ou en voie de disparition et plantes nouvelles pour la Seine-Inférieure, *Congr. du Havre de l'Assoc. [se. pour l'Avanc. des Sc.]*, **1929**, 429-431.
- 1930 : A variety of the bluebell new to Britain (*Scilla non-scripta* var. *lacaillei* Senay), *J. Bot.*, **68**, 112-114.
Impatiens fulva Nutt. sur les rives de la basse Seine, *Bull. Soc. Bot. France*, **77**, 257-259.
- 1932 : Etudes de la flore adventice du Havre et des environs, *Bull. Soc. Linn. Seine marit.*, **1932**, 3-48.
- 1934 : *Spartina townsendi*, son extension à l'embouchure de la Seine. Observations sur son origine et son mode de dissémination, *Bull. Soc. Bot. France*, **81**, 632-643.
- 1935 : Sur une variation d'*Endymion nutans*, *Bull. Soc. Bot. France*, **82**, 129-131.
- 1936 : Contribution à l'étude du genre *Arctium*, *Bull. Soc. Bot. France*, **83**, 330-343.
- 1937 : *Orchis cruenta* Müller, nouveau pour la flore française, *Bull. Soc. Bot. France*, **84**, 511-515.
- 1939 : (with Varde, R. Potier de la) Extension de *Spartina townsendi* dans la baie du Mont Saint-Michel et sur le littoral occidental du Cotentin, *Bull. Soc. Bot. France*, **86**, 388-392.
- 1940 : *Symphytum peregrinum* Ledeb. et ses hybrides avec *S. officinale* L., *Bull. Soc. Bot. France*, **87**, 313-322.
- 1943 : Qu' est-ce que l'*Erythraea tenuiflora* ?, *Bull. Soc. Bot. France*, **90**, 181-187.
- 1944 : Le Sénéçon adventice de Mazamet, *Bull. Soc. Bot. France*, **91**, 111-113.
- 1945 : Le genre *Cochlearia* dans la Seine-Inférieure, *Bull. Soc. Bot. France*, **92**, 160-163.
 Le *Carex vulpina* et ses alliés, *Bull. Mus. Nat. d'Hist. Nat.*, **17**, 332-339, 443-449 and 529-535.
 (with Debray, M.) La flore des ruines du Havre, *Bull. Soc. Bot. France*, **92**, 229-235.
- 1947 : A propos d'hybrides d'*Orchis*, *Bull. Soc. Bot. France*, **94**, 249-250.
- 1950 : Réhabilitation du *Festuca loliacea* Huds. (*Festuca pratensis* × *Lolium perenne*), *Bull. Soc. Bot. France*, **97**, 228-230.
- 1950-1951 : Le groupe des *Carex flava* et *C. oederi*, *Bull. Mus. Nat. d'Hist. Nat.*, **22**, 618-624 and 790-796 and **23**, 146-152.
- 1952 : Découverte de l'*Asplenium viride* Huds. dans la Seine-Inférieure, *Bull. Soc. Bot. France*, **99**, 306-308.

II. Works on Cotton

- 1937 : *Le coton, sa production et sa distribution dans le monde*. Le Havre.
- 1939 : (with Chevalier, Prof. A.) *Le coton Coll. Que sais-je?* Paris. Ed. 3 (1954).

M. DEBRAY.

Pierre Senay was elected an Honorary Member of this Society at the Annual General Meeting on March 16th, 1938, on the recommendation of P. M. Hall, and his services in supplying information about the French flora have been invaluable. He had an excellent command of the English language (for a time he "monitored" B.B.C. transmissions for his country) and thus was able to follow with ease the developments recorded in English botanical publications. In return he was most generous in providing details required by members working on groups represented in France. This would often take the form of carefully

prepared maps showing the distribution of particular species in his country.

I never had the pleasure of meeting Senay but from a correspondence extending over many years grew to feel that I knew him almost intimately. His letters touched on many matters in addition to botany and revealed him as a man who thought very deeply about current affairs and who held this country in high esteem. His ready assistance to our members will be extremely difficult to replace and the Society has lost a very staunch supporter.

J. E. LOUSLEY.

PERSONALIA AND NOTICES TO MEMBERS

RORIPPA

Specimens of seed or living plants of *Rorippa nasturtium-aquaticum* (L.) Hayek and *R. microphylla* (Boenn.) Hylander are required for an investigation on resistance to the crook-root disease of watercress (*Spongospora* sp.) which is causing considerable losses to cultivated watercress in Britain. Seed or fresh material will be gratefully received by Dr. J. A. Tomlinson, National Vegetable Research Station, Wellesbourne, Warwick. Postage will be refunded.

ALCHEMILLA VULGARIS L. agg.

Miss M. E. Bradshaw is studying *Alchemilla vulgaris* L. agg. and would be grateful for records, herbarium specimens and living material of all the microspecies. Material of *A. vestita* from the Midlands, S. England and Wales would be particularly welcome; this is the only species with hairs on both surfaces of the leaves likely to be found in these areas. The National Grid number and a short note on the type of habitat and size of population from which plants are sent would also be useful. Communications should be sent to the Department of Botany, Science Laboratories, South Road, Durham.

SENECIO SQUALIDUS L.

Mr. D. H. Kent, 75 Adelaide Road, London, W.13, is studying the distribution and spread of *Senecio squalidus* in Britain and would be glad to receive records of the species, especially from the Midlands, northern England and Wales.

CAREX NIGRA (L.) REICHARD AND ITS ALLIES

Mr. A. C. Jermy, Dept. of Botany, University College of Leicester, is working on the ecology and taxonomy of *Carex nigra* (L.) Reichard, *C. elata* All., *C. acuta* L., *C. aquatilis* Wahlenb., *C. recta* Boott. and *C. bigelowii* Torr. He would be grateful to receive living or herbarium material, or information regarding localities of these species. Specimens from foreign localities would also be welcome.

FLORA OF CUMBERLAND

The Carlisle Natural History Society commenced work on a new Flora of Cumberland in 1946 and the project is being continued with vigour. The Society would welcome, and fully acknowledge, any assistance in recording the distribution of plants in the county and records should be sent to:—Derek A. Ratcliffe, Ph.D., B.Sc., 72 Newtown Road, Carlisle.

THE SOCIETY FOR VISITING SCIENTISTS

The Society for Visiting Scientists, Ltd., 5 Old Burlington Street, London, W.1, established in the spring of 1944 when Britain had the honour of welcoming many scientists from Allied countries, seeks to be a focus for all scientists visiting the United Kingdom, and to put them in touch with British scientists and with one another. The Society aims to provide and encourage an active exchange of scientific thought and discussion between scientists of the United Kingdom and scientists from overseas.

The House of the Society provides a meeting place, a refectory, a bar and some residential accommodation. In addition an information service is provided which is open to all visiting scientists, so that any scientist arriving in this country can, if he wishes, proceed at once to the House and be given such advice and information as is available.

Among the Society's activities is the holding of receptions in honour of groups of scientists visiting Britain, who thus have an opportunity of meeting at the House their British and overseas colleagues. Informal discussion meetings of general interest to scientists are organised. The Society provides a forum for topics which are outside the scope of specialised scientific societies but which are of importance to scientists as a whole.

The Society's Officers are Professor A. V. Hill, C.H., O.B.E., F.R.S. (President and Chairman); Professor F. J. M. Stratton, D.S.O., O.B.E., F.R.S., and Mr. A. Lang Brown, M.A. (Honorary Secretaries), and Professor Alexander Haddow, M.D., D.Sc., Ph.D. (Honorary Treasurer).

Scientists from all countries are welcomed at the Society, which tries to assist its visitors in every way possible.

The annual subscription is three guineas, with an entrance fee of one guinea. Oversea postgraduate students in science holding research grants may become Student Associates, paying an annual membership fee of one guinea; they pay no entrance fee. Other overseas members pay no annual subscription, but an entrance fee of five shillings.

Further particulars may be obtained from the Assistant Secretary, Society for Visiting Scientists, Ltd., 5 Old Burlington Street, London, W.1.

LIST OF MEMBERS AND SUBSCRIBERS

(up to and including 20th April 1955)

Members are asked to advise the Hon. Assistant Secretary, D. H. Kent, 75 Adelaide Road, London, W.13, of any corrections to this list.

When the year of attaining membership appears in *italics* the records show that the member has resigned and rejoined during the period.

Institutions are listed geographically, but it should be noted that many Institutions who do not appear in the list purchase the Society's publications through the Trade.

F = Family Member

J = Junior Member

L = Ordinary Member who has paid Life Composition

S = Subscriber Member

PATRONESS

H.R.H. THE PRINCESS ROYAL, COUNTESS OF HAREWOOD, Harewood House, Leeds, Yorkshire.

HONORARY MEMBERS

- | | |
|------|--|
| 1928 | Aellen, Dr. Paul, Mittlere Strasse 139, Basle, Switzerland. |
| 1955 | Andreas, Dr. Ch. H., Botanisch Laboratorium, Grote Roze-
straat 31, Groningen, Netherlands. |
| 1922 | Baker, Rt. Hon. H. T., P.C., Crabwood, Sparsholt, Win-
chester, Hants. |
| 1952 | Böcher, Prof. T. W., Fortunvej 90, Charlottenlund, Denmark. |
| 1926 | Campbell, Miss M. S., F.L.S., Easter Tegarmuchd, Aberfeldy,
Perthshire. |
| 1931 | Chapple, J. F. G., F.L.S., The Brackens, Nicholas Way,
Northwood, Middlesex. |
| 1914 | Davy, Lady, Wayside, Lawn Road, Pennington, Lymington,
Hants. |
| 1935 | Drabble, Mrs. E., Tregudda, Ayr, St. Ives, Cornwall. |
| 1955 | Hylander, Dr. N., Botaniska Museet, Uppsala 1, Sweden. |
| 1937 | Jansen, P., Frans van Mierisstraat 128, Amsterdam, Nether-
lands. |
| 1955 | Jovet, Dr. P., Laboratoire de Phanérogamie, Muséum National
d'Histoire Naturelle, 57 Rue Cuvier, Paris 5, France. |
| 1908 | Kükenthal, Dr. G., Untere Klinge 9, Coburg, Germany. |
| 1955 | Lawalrée, Dr. A., 3 Avenue van Elderen, Bruxelles, Belgium. |
| 1955 | Lid, J., Botanisk Museum, Oslo 45, Norway. |
| 1928 | Price, W. R., B.A., F.L.S., 64 Elsworth Road, London,
N.W.3. |

- 1928 Rechinger, Dr. K. H., Friedrichstrasse 6, Wein 1, Austria.
 1915 Ridley, H. N., C.M.G., M.A., F.R.S., 7 Cumberland Road,
 Kew, Richmond, Surrey.
 1920 Swanton, E. W., O.B.E., A.L.S., "Littleton", 3 Derwent
 Avenue, Whitton, Twickenham, Middlesex.
 1937 Vermeulen, Dr. P., Wodanstraat 14, Amsterdam-Zuid, Nether-
 lands.
 1955 Vilmorin, R. de, Etablissements Vilmorin-Andrieux, Herbier
 Vilmorin, Verrières-le-Buisson, Seine et Oise, France.

*ORDINARY, LIFE, JUNIOR, FAMILY AND SUBSCRIBER
MEMBERS*

- 1952 Abbott, W. E., M.Sc., 36 Patterdale Road, Woodthorpe, Not-
 tingham.
 1929 Abell, Miss L., Thorndale, Andoversford, Cheltenham, Glos.
 1943 Abell, Rev. R. B., M.A., Bussage Vicarage, Stroud, Glos.
 1954 S Aberystwyth, University College of Wales, Aberystwyth
 Library, Aberystwyth, Cards.
 1928 Ackerley, Miss M. E., 107 West View, Clitheroe, Lancs.
 1914 L Adair, G. S., M.A., F.R.S., Low Temperature Station, Down-
 ing Street, Cambridge.
 1951 Adams, F. W., 141 Sandygate Road, Sheffield, 10.
 1920 Adams, Rev. J. H., M.A., Llandulph Rectory, Saltash, Corn-
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 1928 Adams, L. T., 96 Burman Road, Shirley, Birmingham.
 1912 Adamson, Prof. R. S., M.A., Dept. of Botany, University of
 Cape Town, S. Africa.
 1953 J Adcock, John A., 50 Sandy Lane, Norwich.
 1949 Allen, D. E., 51 Oxford Road, Moseley, Birmingham, 13.
 1944 Allen, G. O., St. Oswalds, Enton Green, Godalming, Surrey.
 1955 J Allott, Miss Margaret C., "Newtonmore", 69 Downs Hill,
 Beckenham, Kent.
 1934 Alston, A. H. G., M.A., F.L.S., Dept. of Botany, British
 Museum (Natural History), Cromwell Road, London,
 S.W.7.
 1954 Alvin, K. L., 20 Highfield Road, Hornchurch, Essex.
 1951 Ambrose, F., Glendora, Cookham Rise, Maidenhead, Berks.
 1953 Amshoff, Dr. G. J. H., Utrechtseweg 194, Oesterbeek, Nether-
 lands.
 1955 S Amsterdam, Koninklijke Nederlandse Akademie van Weten-
 schappen, Kloveniersburgwal 29, Amsterdam, Netherlands.
 1951 S Amsterdam Universiteitz-Bibliotheek, Singel 421, Amsterdam,
 Netherlands.
 1953 Andrews, C. E. A., B.Sc., A.R.I.B.A., F.L.S., 114 Oxford
 Road, Moseley, Birmingham, 13.
 1953 Andrews, Miss Janet, B.Sc., Hillcrest, Southfield Road, Burley
 in Wharfedale, Yorks.

- 1955 Andrews, Miss Marjorie, B.Sc., County of Stafford Training College, Nelson Hall, near Stafford.
- 1954 J Angel, A., 72 St. Donatt's Road, London, S.E.14.
- 1951 Appleyard, Mrs. J., 98 Moore Avenue, Bradford, 6, Yorks.
- 1929 Ash, G. M., F.L.S., Alding, Grayswood, Haslemere, Surrey.
- 1951 Ashhurst, Miss D. E., 1 Heron Court, Alexandra Road, Epsom, Surrey.
- 1954 Ashton, Mrs. Mary R., Kingsbury, Dunstable, Beds.
- 1952 S Association of School Natural History Societies. See Harrow Weald.
- 1947 Atkinson, Robert, Rocky Lane, Henley-on-Thames, Oxon.
- 1951 Atkinson, W., F.R.A.S., 2 Duke Street, Penrith, Cumberland.
- 1952 J Attenborough, Miss S. J., 18 Forest Ridge, Keston, Kent.
- 1954 Bailey, A. G., 177 Langley Way, West Wickham, Kent.
- 1952 Baker, Dr. H. G., Botany Dept., The University, Leeds, 2, Yorks.
- 1954 J Baldry, A. F., 11a Parkside Way, N. Harrow, Middlesex.
- 1951 Balfour, A. P., A.H.R.H.S., F.L.S., "Cranford", Peppard Common, Oxon.
- 1947 Balfour, Mrs. E. J., B.Sc., Newton Hall, Windygates, Fife.
- 1951 Balme, Miss O. E., Cherry Trees, Rotherfield Greys, Henley-on-Thames, Oxon.
- 1949 Bangarter, E. B., 51 Springfield Avenue, London, N.10.
- 1949 S Bangor, University College of North Wales, Bangor, Caernarvon.
- 1948 Bannister, C. W., Northway Cottage, Ashchurch, near Tewkesbury, Glos.
- 1946 Bannister, H. E., The Red Cottage, Little Heath Lane, Potten End, Berkhamstead, Herts.
- 1946 Baring, Hon. Mrs. G., Empshott Grange, Liss, Hants.
- 1954 Barker, Rev. P. R., Woolpit Rectory, Bury St. Edmunds, Suffolk.
- 1954 Barling, D. M., Ammonite Cottage, Stroud Road, Cirencester, Glos.
- 1936 Barnes, Mrs. Egbert, Hungerdown, Seagry, Chippenham, Wilts.
- 1953 Barnes, Miss Ruth M., Castle Museum, Norwich, Norfolk.
- 1954 Barnsdale, Miss Marguerite E., 6 Orchard Drive, London, S.E.3.
- 1954 S Barnsley Naturalist & Scientific Society (Secretary: R. S. Atkinson, F.R.A.S.), c/o 46 White Hill Avenue, Barnsley, Yorks.
- 1955 Barrow, L. V. G., Black Buoy Cottage, Wivenhoe, Essex.
- 1949 S Barrow Naturalists' Field Club (Secretary: G. Wilson), 91 Yarlsdale Road, Barrow in Furness, Lancs.

- 1953 Bartle, Miss Joan E., B.Sc., Withybush, Manley Road, Ben Rhydding, Ilkley, Yorks.
- 1942 Barton, Miss F. M., 19 Park Street, Bath, Somerset.
- 1954 Barton, Mrs. M., c/o The British Council, 65 Davies Street, London, W.C.1.
- 1931 Basden, E. B., 7 Leyden Park, Bonnyrigg, Midlothian.
- 1947 Baylis, Miss D., Westwick, Barnhorn Road, Bexhill-on-Sea, Sussex.
- 1931 Beak, P. G., Commonwealth Forestry Institute, South Parks Road, Oxford.
- 1954 J Beaver, R. A., 9 The College, Keele, Staffs.
- 1954 Beetham, J. T. H., 50 Henley Road, Southsea, Hants.
- 1931 Bemrose, G. J. V., City Museum & Art Gallery, Hanley, Stoke-on-Trent, Staffs.
- 1952 Bendix, M., The Guards Club, 16 Charles Street, Berkeley Square, London, W.1.
- 1954 Benl, Dr. Gerhard, Botanische Staatssammlung, Menzingerstrasse 67, Munich, Germany.
- 1953 Benoit, P. M., Pencarreg, Barmouth, Merioneth.
- 1954 Benson-Evans, Miss K., M.Sc., F.L.S., Somerset Lodge, Merthyr-Mawr Road, Bridgend, Glamorgan.
- 1951 S Bergen Universitets Biblioteket, Bergen, Norway.
- 1954 Bergin, James, 20 Liffey Avenue, Crossacres, Wythenshawe, Manchester.
- 1953 Best, F. C., Vivod, Llangollen, Denbigh.
- 1951 Bexon, Miss D., M.Sc., F.L.S., The University, Nottingham.
- 1954 Biggar, Miss E. I., Corbieton, Castle-Douglas, Kirkcudbright.
- 1945 Bingley, F. J., M.A., Flatford Mill Field Centre, East Bergholt, near Colchester, Essex.
- 1947 Birkett, Lady D. M., c/o Coutts & Co., 1 Cadogan Place, Sloane Street, London, S.W.1.
- 1954 S Birmingham City Museum and Art Gallery (Keeper, Dept. of Natural History), Birmingham, 3.
- 1919 S Birmingham Natural History and Philosophical Society, 4 Greenfield Crescent, Birmingham, 15.
- 1919 S Birmingham Public Libraries, (The City Librarian), Birmingham, 1.
- 1950 S Birmingham, University of, Edgbaston, Birmingham, 16.
- 1953 Bitton, E. Q., Church Farm, Runhall, Norwich.
- 1929 Blackburn, K. B., D.Sc., Botany Dept., King's College, Newcastle upon Tyne, 1.
- 1952 Blaikley, Miss N. M., M.Sc., 14 Marion Road, Southsea, Hants.
- 1925 Bloomer, H. H., Longdown, Sunnysdale Road, Swanage, Dorset.
- 1949 S Bogor, Bibliotheca Bogoriensis, (Mrs. C. M. den Herder van Veen, Librarian), Djalan Raya 20, Bogor, Java, Indonesia.
- 1950 Bolitho, Mrs. A., All Saints House, Axminster, Devon.
- 1953 Bond, Dr. T. E. T., Horticultural Science Laboratories, Bracken Hill, Leigh Woods, Bristol, 8.

- 1950 Boniface, Ronald A., 5 Grosvenor Road, London, W.4.
 1952 Booth, Mrs. A., 18 Besom Lane, Millbrook, Stalybridge, Cheshire.
 1953 Booth, Miss E. M., Lucy's Wood, Newtownbarry, Co. Wexford, Irish Republic.
 1948 Bor, N. L., C.I.E., M.A., D.Sc., Royal Botanic Gardens, Kew, Richmond, Surrey.
 1950 Borrill, M., "Tradiddan", Ynyslas, Borth, Cardigan.
 1953 Bowden, B. N., B.Sc., University Dept. of Botany, South Parks Road, Oxford.
 1952 Bowen, H. J. M., Magdalen College, Oxford.
 1950 Boyd, R. A., Dept. of Botany, University of New England, Armidale, New South Wales, Australia.
 1952 Bradbury, J. F., A.L.S., 12 London Road, Pulborough, Sussex.
 1949 Bradshaw, A. D., B.A., Dept. of Agricultural Botany, Memorial Buildings, Bangor, Caernarvon.
 1952 Bradshaw, Miss E., 156 Appley Lane, Appley Bridge, Wigan, Lancs.
 1951 Bradshaw, Miss M. E., B.Sc., West Croft, Tibthorpe, Driffeld, E. Yorks.
 1926 Braid, Prof. K. W., O.B.E., M.A., B.Sc., 48 Buchanan Street, Milngavie, Glasgow.
 1933 Brennan, J. P. M., M.A., c/o The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.
 1952 Brett, D. W., 43 Penrhyn Avenue, London, E.17.
 1950 Brett, Miss O. E., B.Sc., 13 The Vale, Woodford Green, Essex.
 1914 S Brighton Public Library, Church Street, Brighton, 1, Sussex.
 1951 S Bristol Central Library (City Librarian), College Green, Bristol.
 1952 Bristow, Miss H. M., B.Sc., White Walls, 8 Shirley Avenue, Leicester.
 1950 S British Empire Naturalists' Association. See Guildford.
 1924 Britten, H., 21 Tollers Lane, Old Coulsdon, Surrey.
 1950 Broad, P. D., 59 Woodlark Road, Cambridge.
 1934 Brokenshire, F. A., 2 Rock Avenue, Barnstaple, Devon.
 1946 Brooke, Miss W. M. A., F.L.S., 300 Philip Lane, London, N.15.
 1928 S Brooklyn Botanic Gardens, 1000 Washington Avenue, Brooklyn 25, N.Y., U.S.A.
 1911 Brown, G. C., 16 Lion Walk, Colchester, Essex.
 1951 Brown, G. M., B.Sc., A.R.C.S., 176 Wricklemarsh Road, London, S.E.3.
 1943 Brown, John, 16 Stafford Road, Sheffield, 2.
 1951 Brown, Miss M. I., Gatehouse, Ditchingham, Bungay, Suffolk.
 1953 Bruce, Miss E. A., c/o The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.
 1950 Bruce, J. M., A.M.C.T., Gwydyr Forester Training School, Capel Curig, Bettws-y-Coed, Caernarvon.
 1928 Brunker, J. P., 28 Grosvenor Place, Rathgar, Dublin, Irish Republic.

- 1945 S Brussels, Jardin Botanique de l'Etat, 236 Rue Royale, Brussels, Belgium.
- 1950 Bruxner, C. J., Pippins, Newick, Lewes, Sussex.
- 1955 F Buckle, Mrs. G. E., Bank House, 105 Rowlands Road, Worthing, Sussex.
- 1947 Buckle, Oliver, Bank House, 105 Rowlands Road, Worthing, Sussex.
- 1951 Buckle, Miss W. F., 74 Sheepcot Lane, Watford, Herts.
- 1935 Bull, Mrs H., Upper House, West Burton, Pulborough, Sussex.
- 1951 Bull, K. E., 18 The Pantiles, Tunbridge Wells, Kent.
- 1955 Bullock, R. C., B.Sc., 3 Sunny Hill Villas, Bruton, Somerset.
- 1930 Bunker, H. E., 18 Abingdon Drive, Ashton-on-Ribble, Preston, Lancs.
- 1954 Bunting, William, 27 Alexandra Street, Thorne, via Doncaster, Yorks.
- 1954 Burford, Miss P. H., B.A., Rossholme, East Brent, near Highbridge, Somerset.
- 1952 Burges, Prof. A., Hartley Botanical Laboratories, The University, Liverpool, 3.
- 1931 Burges, R. C. L., M.A., M.B., B.C., F.L.S., 10 Pritchatts Road, Edgbaston, Birmingham, 15.
- 1952 Burnett, D. H., M.B.E., Tandridge Hall, near Oxted, Surrey.
- 1946 Burnett, Dr. J. H., Hartley Botanical Laboratories, The University, Liverpool, 3.
- 1954 Burrows, Dr. Elsie M., Hartley Botanical Laboratories, The University, Liverpool, 3.
- 1948 Burton, C. W., Maybank, Monkwood, Ropley, Alresford, Hants.
- 1948 Burt, B. L., B.Sc., Royal Botanic Gardens, Edinburgh, 4.
- 1921 Butcher, R. W., B.Sc., Ph.D., F.L.S., Cotherstone Cottage, Hillside Road, Burnham-on-Crouch, Essex.
- 1954 Butler, Miss G. M., Holme Dene, Upper Batley, Batley, Yorks.
- 1947 Butler, Miss K. I., 18 Morgan Road, Reading, Berks.
- 1936 L Cadbury, Miss Dorothy A., 73 Wellington Road, Edgbaston, Birmingham, 15.
- 1950 J Cadbury, C. J., Beaconwood, Rednal, Birmingham.
- 1952 Caddy, Dr. D., 16 Cypress Avenue, Crews Hill, Enfield, Middlesex.
- 1953 Cadell, Mrs. C. M. A., c/o Westminster Bank, Barnstaple, N. Devon.
- 1950 Cadman, J. R., 1 Park View, Barony, Nantwich, Cheshire.
- 1947 Calder, M. G., B.Sc., Ph.D., Botany Dept., The University, Manchester, 20.
- 1950 S California Academy of Sciences, Golden Gate Park, San Francisco, California, U.S.A.

- 1950 S California, Pomona College Library, Claremont, California, U.S.A.
- 1950 Callen, Dr. E. O., Faculty of Agriculture, McGill University, Montreal, Canada.
- 1910 S Cambridge, Gray Herbarium, Harvard University, Cambridge, Mass., U.S.A.
- 1954 S Cambridge, National Institution of Agricultural Botany, Huntingdon Road, Cambridge.
- 1931 S Cambridge, University of, Botany School, Downing Street, Cambridge.
- 1953 Campbell, Dr. Bruce, Hordley, Woodstock, Oxon.
- 1951 Cannon, J. F. M., B.Sc., F.L.S., Dept. of Botany, British Museum (Natural History), Cromwell Road, London, S.W.7.
- 1951 F Cannon, Mrs. M. J., B.Sc., 54 Westfield Avenue, Sanderstead, Surrey.
- 1954 S Canterbury and District Birdwatchers' Association, Botanical Section (Hon. Sec., Mrs. E. Brickenden), 23 The Crescent, Chartham, near Canterbury, Kent.
- 1934 Cardew, Major J. W., 44 Putnoe Lane, Bedford.
- 1917 S Cardiff, National Museum of Wales, Dept. of Botany (Keeper, H. A. Hyde, M.A., F.L.S), Cardiff.
- 1947 Carey, Miss R., Peakland P.N.E.U. School, Buxton, Derby.
- 1946 S Carlisle Public Library, Museum and Art Gallery, Carlisle, Cumberland.
- 1954 S Carmarthen, The West Wales Field Society, c/o Mrs. H. R. H. Vaughan, M.B.E., Nantymwyn, Rhandirmwyn, Llandovery, Carmarthen.
- 1954 Carr, John W., B.A., Windy Corner, Vicarage Hill, South Benfleet, Essex.
- 1945 Carrothers, E. N., 21 Linenhall Street, Belfast, Northern Ireland.
- 1951 Carter, J. E., 38 Kennington Road, Fulwood, Preston, Lancs.
- 1950 Castell, C. P., B.Sc., 52 Graham Road, London, S.W.19.
- 1954 Cave, B. V., 161 Grangehill Road, London, S.E.9.
- 1952 Chadwick, N. L., M.Sc., 37 Castle Road, Salisbury, Wilts.
- 1952 J Chamberlain, Miss Y. M., Dept. of Botany, British Museum (Natural History), Cromwell Road, London, S.W.7.
- 1950 Chambers, V. H., Ph.D., A.R.C.S., 47 Westbourne Road, Luton, Beds.
- 1948 Chambré, Mrs. C. B. M., Hawthorn Hill, Killeavy, Newry, Northern Ireland.
- 1950 J Chandler, M. R., 18 Hamlyn Avenue, Anlaby High Road, Hull, Yorks.
- 1950 Chandler, S. E., O.B.E., D.Sc., F.L.S., 59 Anerley Park, London, S.E.20.
- 1925 Chapman, Hon. Mrs. D. B., Dingley Hill, Bradfield, Berks.

- 1923 Chase, Capt. C. D., Campbell College, Belfast, N.I., Northern Ireland.
- 1949 S Cheltenham and District Naturalists' Society, (Hon. Secretary, M. G. Noll), 6 College Road, Cheltenham, Glos.
- 1951 Chidell, J. W. P., 93 Worcester Road, Cheam, Surrey.
- 1953 Child, Miss H., 42 Lowndes Street, London, S.W.1.
- 1955 S Chislehurst, County Grammar School for Girls, (The Headmistress), Beaverwood Road, Perry Street, Chislehurst, Kent.
- 1954 Christmas, M. J., 72 Northumberland Road, New Barnet, Herts.
- 1948 Churchman, Miss Nancy, Melton Lodge, Woodbridge, Suffolk.
- 1948 Churchman, Miss Violet, Melton Lodge, Woodbridge, Suffolk.
- 1953 S Cincinnati, Lloyd Library and Museum, (Mrs. Corinne M. Simons, Librarian), 309 West Court Street, Cincinnati, Ohio, U.S.A.
- 1945 Clapham, Prof. A. R., M.A., Ph.D., F.L.S., Dept. of Botany, The University, Sheffield, 10.
- 1937 Clark, William A., B.Sc., Ph.D., F.L.S., Dept. of Botany, King's College, Newcastle upon Tyne, 1.
- 1948 Clayton, Mrs. M. H., 8 The Boltons, London, S.W.10.
- 1953 Clokie, Mrs. Hermia N., B.A., B.Litt., 33 Chalfont Road, Oxford.
- 1949 Cobbett, Lt.-Col. W. O., Worton, Devizes, Wilts.
- 1954 Cocke, M. H., 21 Hornyold Road, Malvern Link, Worcs.
- 1950 Codrington, Lt.-Col. J., 22 Eaton Mews South, London, S.W.1.
- 1952 Cole, M. J., 5 Cranwich Avenue, London, N.21.
- 1946 Collenette, C. L., Hartsfield Manor, Betchworth, Surrey.
- 1953 Collett, G. W., 174 Sheldon Road, Chippenham, Wilts.
- 1950 Collett, T. G., 6 Kent Avenue, London, W.13.
- 1950 Collins, Brian E., B.Sc., 5 Tranmere Road, Whitton, Hounslow, Middlesex.
- 1954 Colthurst, Mrs. M. L., Stonecrop, Wembdon Hill, Bridgwater, Somerset.
- 1954 J Colyer, J. M., 3 Wyehurst Gardens, Bexhill-on-Sea, Sussex.
- 1945 Conder, P. J., 5 Bedales, Scaynes Hill, near Haywards Heath, Sussex.
- 1948 Conolly, Miss Ann C., Dept. of Botany, University College, Leicester.
- 1922 Cooke, R. B., Kilbryde, Corbridge, Northumberland.
- 1950 Coombe, David E., The Botany School, Downing Street, Cambridge.
- 1947 S Copenhagen, Botanisk Centralbibliotek, Gothersgade 130, Copenhagen, Denmark.
- 1951 Copithorne, Dr. R. E. C., Keri, Oulton Road, Lowestoft, Suffolk.
- 1954 Cordiner, Miss E. G., Trevelyan Cottage, Rosudgeon, Penzance, Cornwall.

- 1952 Corke, H. T., M.A., 87 Finborough Road, London, S.W.10.
 1951 Corner, J. H., 26 The Common, London, W.5.
 1933 Cory, Miss A. M., Fullerton Manor, Andover, Hants.
 1945 Cory, Mrs. C. M., The Grange, St. Brides-super-Ely, near Cardiff, Glamorgan.
- 1954 J Cotton, Miss Hana, Pershteen, The Drive, Longfield, Kent.
 1953 Cotton, Mrs. N. E., 77 Arnold Road, Shirley, near Birmingham.
 1952 Coulthard, C. E., 51 Henry Road, West Bridgford, Nottingham.
- 1953 F Cowling, D. W. M., B.Sc., Grassland Research Station, Hurley, Maidenhead, Berks.
 1953 Cowling, Mrs. M., B.Sc., Grassland Research Station, Hurley, Maidenhead, Berks.
- 1952 Cox, Sir Christopher, K.C.M.G., c/o Colonial Office, 15 Victoria Street, London, S.W.1.
 1954 Cox, Miss Peggy, "Wingfield House", 107 Marsh Road, Luton, Beds.
- 1946 Coxhead, G. W., 5 Rochester Avenue, Bromley, Kent.
 1954 Crabbe, J. A., Dept. of Botany, British Museum (Natural History), Cromwell Road, London, S.W.7.
- 1950 Crackles, Miss F. E., B.Sc., 143 Holmgarth Drive, Bellfield Avenue, Hull, Yorks.
- 1947 Cranbrook, Dowager Countess of, Snape Priory, Saxmundham, Suffolk.
- 1915 Creed, Dr. R. S., M.A., New College, Oxford.
- 1942 Crichton-Stuart, Lady Colum, c/o Coutts & Co., 440 Strand, London, W.C.2.
- 1954 J Cross, D. W., 124 Hampton Road West, Hanworth, Middlesex.
 1955 J Cross, P. J., 124 Hampton Road West, Hanworth, Middlesex.
 1935 Cross, Hon. Marjorie, Ash House, Millom, Cumberland.
- 1952 S Croydon Natural History and Scientific Society, 2 Lansdowne Road, Croydon, Surrey.
- 1947 Crundwell, A. C., B.A., Dept. of Botany, The University, Glasgow, W.2.
- 1918 Cruttwell, Rev. N. E. G., Dogurla, via Samarai, British New Guinea.
- 1951 Culshaw, Rev. J. C., Hartley, Fonthill Road, Bath, Somerset.
 1946 Cumming, Richard, 2 Windsor Street, Hillside, Edinburgh, 7.
 1951 Cunnell, G. J., 56 The Warren, Heston, Hounslow, Middlesex.
 1952 Cunningham, Miss M. H., Seabank, Campbeltown, Argyll.
 1952 Curnow, P. W., D.F.M., B.Sc., F.G.S., Casimir Place, Daliburgh, South Uist, Inverness-shire.
- 1953 Currie, Andrew, 134 Brunton Gardens, Edinburgh, 7.
- 1951 Dalby, D. H., 108 Gordon Road, Camberley, Surrey.
 1955 F Dalby, Miss G. W., 108 Gordon Road, Camberley, Surrey.
 1938 Dalby, Mrs Diana, 7 Lincoln House, Basil Street, London, S.W.3.

- 1938 Dandy, J. E., M.A., F.L.S., Dept. of Botany, British Museum (Natural History), Cromwell Road, London, S.W.7.
- 1923 S Darlington and Teesdale Naturalists' Field Club (T. N. Scaling, Secretary), 17 West Auckland Road, Darlington.
- 1950 David, R. W., c/o Cambridge University Press, 200 Euston Road, London, N.W.1.
- 1954 Davidson, D., B.Sc., University Dept. of Botany, South Parks Road, Oxford.
- 1947 Davie, J. H., B.Sc., Ph.D., Clifton College, Bristol, 8.
- 1947 Davies, Miss Elizabeth W., Ph.D., George's Plot, Abbots Leigh, Bristol.
- 1950 Davies, H. B., 3 West Road, Prestwich, near Manchester.
- 1951 Davies, H. I., Elidir, College Street, Ammanford, Carmarthen.
- 1944 Davies, Mrs. H. R., 112 Coleherne Court, London, S.W.5.
- 1950 Davies, Mrs. M. L., Little Stoke Farm, Patchway, near Bristol.
- 1953 Davis, Owen, 16 Park Road, Sheerness, Kent.
- 1954 Davis, Dr. P. H., University Dept. of Botany, Royal Botanic Garden, Edinburgh.
- 1937 Day, Miss E., 82 Strand Street, Sandwich, Kent.
- 1922 Day, Francis M., c/o Lloyd's Bank Ltd., Malvern, Worcs.
- 1946 Day, Miss Gwendoline H., Harrold, Beds.
- 1949 Deakin, R. H., Harvey Road, Canford Magna, Wimborne, Dorset.
- 1936 Dent, G., Speedwell, Wych Cross, Forest Row, Sussex.
- 1948 Dent, Miss H. S. A., J.P., Flass, Maulds Meaburn, Penrith, Cumberland.
- 1953 Dewey, Miss O. R., 14 Tootswood Road, Bromley, Kent.
- 1955 Dick, M. W., 6 Fairway, London, S.W.20.
- 1952 Diemer, Miss D., Arnewood, 178 Melton Road, West Bridgford, Nottingham.
- 1950 Diver, Capt. C., C.B., C.B.E., F.L.S., Rushmere Cottage, Frensham, Farnham, Surrey.
- 1950 Dodd, A. J., 9 Fullands Avenue, Taunton, Somerset.
- 1954 J Dodge, J. D., 49 Bradbourne Lane, Ditton, near Maidstone, Kent.
- 1952 Dolman, G., 221 The Causeway, Petersfield, Hants.
- 1937 Dony, J. G., Ph.D., 41 Somerset Avenue, Luton, Beds.
- 1952 Downer, C. S., 6 Mapperley Park Drive, Nottingham.
- 1951 Drummond, R. B., B.Sc., c/o The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.
- 1941 S Dublin, National Museum of Eire (The Acting Director), Kildare Street, Dublin, Irish Republic.
- 1950 S Dublin, Royal Irish Academy, 19 Dawson Street, Dublin, Irish Republic.
- 1931 L Duncan, Miss Ursula K., B.A., F.L.S., Parkhill, Arbroath, Angus.
- 1953 Dupree, T. W. J. D., Flat 3, 43 Clarence Parade, Southsea, Hants.

- 1941 S Durham Colleges, Science Library, South Road, Durham.
 1952 Dyce, J. W., Hilltop, 46 Sedley Rise, Loughton, Essex.
- 1952 Eagles, T. R., 32 Abbey Road, Enfield, Middlesex.
- 1955 S East Ham Grammar School for Boys' Natural History Society,
 Sussex Road, London, E.6.
- 1949 Eastwood, Mrs. J. F., 5 Sloane Court, London, S.W.3.
 1954 Eaton, Miss Lilian H., B.Sc., F.L.S., F.Z.S., Morden Cliff,
 107 Morden Hill, London, S.E.13.
- 1932 Edees, E. S., M.A., 19 Dartmouth Avenue, Westlands, New-
 castle, Staffs.
- 1950 S Edinburgh, Nature Conservancy, 12 Hope Terrace, Edin-
 burgh, 9.
- 1954 Eggeling, Dr. W. J., Brackness House, Anstruther, Fife.
 1931 Eliot, Lady Alethea, 8 Carlyle Square, London, S.W.3.
 1952 Elliot, Rev. E. A., South Stoke Vicarage, near Reading, Berks.
 1954 Elliott, Ronald J., M.C., B.Sc., Ph.D., Merlewood Research
 Station, Grange-over-Sands, Lancs.
- 1930 Ellis, A. E., M.A., F.L.S., Epsom College, Epsom, Surrey.
 1930 Ellis, E. A., Castle Museum, Norwich.
 1919 Ellis, Edgar W., Gedham, Ossett, Yorks.
- 1954 Entrican, Miss Mary C., 12 Southwood Lane, London, N.6.
 1950 Erith, Dr. A. G., 70 Highmoor Road, Caversham, Reading,
 Berks.
- 1947 Esplan, Mrs Ceres, The Dairy House, Mill Road, Arundel,
 Sussex.
- 1954 Evans, Miss Elizabeth M., B.Sc., Ph.D., Merlewood Research
 Station, Grange-over-Sands, Lancs.
- 1948 Evans, Ivor W., Hafod House, 46 Horfield Road, St. Michaels,
 Bristol, 2.
- 1950 S Exeter, Roborough Library, University College of the South
 West of England, Prince of Wales Road, Exeter, Devon.
- 1933 Eyre, Mrs. R. S. K., Allen's Farm, Five Ashes, near Mayfield,
 Sussex.
- 1937 Fanshawe, D. B., c/o Forest Dept., P.O. Box 228, Ndola, N.
 Rhodesia.
- 1950 F Farenden, Mrs. J., 83 Harewood Road, Isleworth, Middlesex.
 1950 Farenden, W. E., 83 Harewood Road, Isleworth, Middlesex.
 1945 Farmer, Dr. A. J., M.B., Ch.B., c/o Rev. L. J. Farmer, The
 Manse, Chatton, near Wooler, Northumberland.
- 1952 Farmer, C., 16 Woodberry Way, London, E.4.
 1954 Farnol, Mrs. E., Rook's Farm, Bishopswood, Chard, Somerset.
 1947 Farquharson, Mrs. J., The Manor, Homington, Salisbury,
 Wilts.
- 1949 Farquharson, Miss M. M., Craig Mount School, Scone Palace,
 Perth.
- 1948 Fawkes, F. S. E., Haresfield, Bessels Green, Sevenoaks, Kent.

- 1954 Ferreira, Robert E. C., St. Catherines, Windermere, Westmorland.
- 1955 Field, John A., 11 Oak Tree Gardens, Bromley, Kent.
- 1954 Fielding, J. L., The Gables, Lower Road, Little Hallingbury, Bishops Stortford, Herts.
- 1954 Fincher, Frederick, Randan Wood, Woodcote, Bromgrove, Worcs.
- 1954 Fisher, Dr. H. J. W., 25 Broomy Hill, Hereford.
- 1952 Fitter, R. S. R., Drifts, Chinnor Hill, Oxford.
- 1951 Fitzgerald, Mrs. V. H., 24 Castellain Road, London, W.9.
- 1941 Fleming, Dr. G. W. T. H., M.R.C.S., L.R.C.P., F.L.S., Barnwood House, Gloucester.
- 1953 J Fletcher, H. J., 51 Grenoble Gardens, London, N.13.
- 1955 J Foottit, A. C., Scredington Vicarage, Sleaford, Lincs.
- 1954 Forrest, J. T., Little Udston, Hamilton, Lanark.
- 1930 Frankland, J. N., "St. Leonards", Station Road, Giggleswick, Settle, Yorks.
- 1951 Franks, Miss H., 262 South Norwood Hill, London, S.E.25.
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- 1949 Gardiner, J. C., F.C.A., 61 Coleherne Court, London, S.W.5.
- 1952 Garlick, G. W., 147 Melrose Avenue, Yate, near Bristol.
- 1955 J Garnett, Miss G. A., 16 The Downs, London, S.W.20.
- 1952 Garnett, Rev. P. M., 16 Loane Road, Sholing, Southampton.
- 1947 Garratt, Mrs. B. E. M., High Chimneys, Battle, Sussex.
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- 1953 F Gay, Mrs. J., Dept. of Botany, University College, Gower Street, London, W.C.1.
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- 1946 S Genève Conservatoire et Jardin Botanique, (Directeur, Prof. C. Baehni), rue de Lausanne 192, Geneva, Switzerland.
- 1933 German, Mrs. P., Newlands, The Plantation, Durrington, Worthing, Sussex.
- 1946 Gibbons, Miss E. J., The Hall, Holton le Moor, Lincoln.

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- 1950 Gibson, Mrs G. C., The Old Rectory, Clapham, Worthing,
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- 1946 Gilbert, John L., "Riverside", Wansford, Peterborough,
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- 1954 J Gilbert, O. L., 46 Roundwood Park, Harpenden, Herts.
- 1950 Gilbert-Carter, Dr. H., M.A., M.B., Ch.B., Thatches, Hol-
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- 1949 Gill, Mrs. M. M., 7 Victoria Avenue, Cheadle Hulme, Cheshire.
- 1925 Gilmour, J. S. L., M.A., F.L.S., Cory Lodge, Hills Road,
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- 1951 Gilmour, Mrs. S., 48 Defoe Avenue, Kew, Richmond, Surrey.
- 1952 Gimmingham, Dr. C. H., Dept. of Botany, University of Aber-
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- 1955 Glaister, Mrs. E., 12 Grey Close, London, N.W.11.
- 1947 S Glasnevin Botanic Gardens (The Keeper), Dublin, Irish
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- 1953 Glendinning, D. R., c/o Foyer Farel, Passage Mon-Muron 4,
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- 1948 Goodman, Miss C. M., 2 Victoria Road, Harborne, Birming-
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- 1925 L Gordon, Seton, C.B.E., Upper Duntuiln, Portree, Isle of Skye.
- 1950 Gordon, Miss V., 23 Alder Grove, Waterloo, Liverpool, 22.
- 1946 S Göteborgs Botaniska Trädgård, Göteborg, Sweden.
- 1950 Gough, F. C. G., Gorse Cliff, Nevin, Pwllheli, Caernarvon.
- 1938 Gough, Mrs. H., Rossbeg, Rosscahill, Galway, Irish Republic.
- 1938 Gough, J. W., M.A., 43 Sandfield Road, Headington, Oxford.
- 1951 Gould, H. C. F., Accolade, Ham Road, Liddington, Wilts.
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- 1919 Graham, Commander R. D., Stawell House, Bridgwater, Somers-
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- 1951 Gray, Mrs. A. S., Weir Lodge, Kibworth, Leicester.
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 1945 Green, P. S., Royal Botanic Garden, Edinburgh, 4.
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 1951 Haines, R. N. G., 167 High Street, Bloxwich, Walsall, Staffs.
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 1951 S Halifax Scientific Society (Hon. Treasurer, Mrs. Shaw), 4 Royd Terrace, Saville Place, Halifax, Yorks.
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- 1953 Hanson, F. D., 39 Malvern Road, Acocks Green, Birmingham, 27.
- 1950 Hanson, M. K., 145 Staveley Road, Leicester.
- 1948 Harberd, D. J., Scottish Plant Breeding Station, Pentlandfield, Roslin, Midlothian.
- 1935 Hardaker, W. H., 451 City Road, Edgbaston, Birmingham, 17.
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- 1929 Hare, Dr. C. Leighton, Dept. of Botany, The University, Liverpool, 3.
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- 1953 J Harley, R., Broadwell Manor, Lechlade, Glos.
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- 1945 Harvey, F/O J. W., Ludbrook Cottage, Upper Raby Road, Neston, Wirral, Cheshire.
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- 1952 J Hatton, G. G., Elmcroft, Tiptree Road, Great Braxted, near Witham, Essex.
- 1953 Hawkes, Dr. J. G., Dept. of Botany, The University, Edgbaston, Birmingham, 15.
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- 1954 Haynes, Fred. N., Dept. of Botany, The University, Sheffield, 10.
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- 1952 Hemsley, J. H., c/o The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.
- 1955 Henderson, D. M., Royal Botanic Gardens, Edinburgh, 4.

- 1946 Hensler, Major E., B.Sc., Gilead Balm, 12 Knighton Close, Woodford Green, Essex.
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- 1950 Hepper, F. N., B.Sc., A.L.S., c/o The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.
- 1954 S Herefordshire Botanical Society (Hon. Secretary, Dr. B. G. Levy), Style House, Withington, Hereford.
- 1952 J Herniman, R. H., Shopwyke Grange, Shopwyke, Chichester, Sussex.
- 1933 Heron, Miss May, Erclands, Ercall Lane, Wellington, Shropshire.
- 1950 Herrick, A. C., 8 Craddock's Avenue, Ashted, Surrey.
- 1951 S Hertford, John Innes Horticultural Institution (The Librarian), Bayfordbury, Hertford.
- 1949 Heslop-Harrison, Prof. J., M.Sc., Ph.D., Dept. of Botany, The Queen's University of Belfast, Belfast, Northern Ireland.
- 1917 Heslop-Harrison, Prof. J. W., D.Sc., F.R.S., F.R.S.E., Dept. of Agriculture, King's College, Newcastle upon Tyne, 1.
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- 1933 Hill, S. Ashton, Hillside, Elgin Road, Parkstone, Dorset.
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- 1954 Hoare, Eustace B., 58 South Street, London, W.1.
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- 1952 Holbek, Miss O., 42 Gardens Walk, Cambridge.
- 1946 Holder, F. W., 17 Balmoral Drive, Southport, Lancs.
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- 1946 Hollick, Miss K. M., The Old House, Ashbourne, Derby.
- 1954 Holme, H. C., 23 Marlborough Place, London, N.W.8.
- 1952 Hope-Simpson, J. F., M.A., D.Phil., Dept. of Botany, The University, Bristol, 8.
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- 1954 J Hopper, J. I., "Chyngton", 3 West Way, Carshalton Beeches, Surrey.
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- 1955 Horwood, E. K., 48 Upperton Road, Leicester.
- 1953 Howard, Miss E. M., Springhill Cottage, Petworth Road, Haslemere, Surrey.
- 1918 Howarth, W. O., D.Sc., F.L.S., Botany Dept., The University, Manchester, 13.

- 1946 Howell, William, 13 Balgowan Road, Beckenham, Kent.
 1949 Howitt, R. C. L., Farndon, Newark, Nottingham.
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 1947 Hubbard, C. E., O.B.E., F.L.S., c/o The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.
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 1951 Hughes, Dr. R. E., The Nature Conservancy, c/o School of Agriculture, University College of North Wales, Memorial Buildings, Bangor, Caernarvon.
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 1950 Hunter, Mrs. M. S., Glen Grant, Rothies, Moray.
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 1946 Hurst, Miss Barbara, Rusper Nunnery, Horsham, Sussex.
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 1947 Isaac, Miss M., 30 Pond Place, London, S.W.3.
 1951 Isherwood, Miss E. M. C., 26 White Post Hill, Redhill, Surrey.
 1950 S Islington Public Libraries, (Chief Librarian and Curator), Central Library, 68 Holloway Road, London, N.7.
 1951 Jackson, Major J. P. A., B.A., 25 Addison Park Mansions, Richmond Way, London, W.14.
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- 1953 Jones, Inigo, 30 Norris Green Road, West Derby, Liverpool, 12.
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 1944 Kent, Douglas H., 75 Adelaide Road, London, W.13.
 1954 Kertland, Miss M. P. H., M.Sc., 9 Knockdene Park North, Belfast, Northern Ireland.
- 1947 S Kew, Herbarium and Library, Royal Botanic Gardens, Kew, Richmond, Surrey.
 1950 Kidd, L. N., F.R.E.S., 46 Eton Avenue, Coppice, Oldham, Lancs.
 1954 Kilby, Dr. B. A., Dept. of Biochemistry, 9 Hyde Terrace, Leeds, 2.
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 1946 Lambert, Dr. J. M., B.Sc., Dept. of Botany, The University, Southampton.
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 1950 Lawrence, Prof. G. H. M., Bailey Hortorium, Cornell University, Ithaca, N.Y., U.S.A.

- 1954 Lawrence, Ian, 60 Cambridge Road, Linthorpe, Middlesborough, Yorks.
- 1953 Lawrie, Miss J. R., 6 Beresford Road, Bedford.
- 1949 Laycock, T. R., B.Sc., 3 Bent Street, Longsight, Manchester, 12.
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- 1938 Leather, Miss V. M., M.B.E., Vine Cottage, Ewshott, near Farnham, Surrey.
- 1923 Lee, John R., 96 Finlay Drive, Dennistoun, Glasgow, E.1.
- 1954 Lee, W. H., 78 Barton Road, Kettering, Northants.
- 1944 S Leeds Central Library, The City Librarian, Central Library, Leeds, 1.
- 1924 S Leicester Museum and Art Gallery, Leicester.
- 1953 Le Mare, Derek V., 18 Astoria Mansions, Streatham High Road, London, S.W.16.
- 1951 Lemmon, R. A., 5 Tinwell Road, Stamford, Lincs.
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- 1950 Le Sueur, Mrs. K. H., 23 Rosary Gardens, London, S.W.7.
- 1931 L Lewis, J. S., Leckford Abbas, Stockbridge, Hants.
- 1946 Lewis, R., 54 Greenside, Kendal, Westmorland.
- 1943 Libbey, R. P., 143 Gaywood Road, Kings Lynn, Norfolk.
- 1953 Liger, Dr. J., 52 Rue de la République, Rouen, France.
- 1951 S Lincolnshire Naturalists' Union, (Hon. Secretary, F. T. Baker), City and County Museum, Lincoln.
- 1930 Lindquist, Prof. Bertil, Botanic Garden, Gothenburg, Sweden.
- 1951 Little, D. A. J., N.D.H., 25 Lannoweth Road, Penzance, Cornwall.
- 1935 Little, Miss K. D., 19 The Avenue, Hitchin, Herts.
- 1952 Littleboy, Miss S. M., Robin's Acre, Saffron Walden, Essex.
- 1952 S Liverpool Botanical Society, (Hon. Secretary, Miss S. Reeve), 4 Booker Avenue, Liverpool, 18.
- 1954 S Liverpool, The Library, The University, Liverpool, 3.
- 1955 Lloyd, V. E., M.C., M.B.B.S. (Lond.), 111 Highlands Heath, Portsmouth Road, London, S.W.15.
- 1951 S London, Birkbeck College Library (University of London), Malet Street, London, W.C.1.
- 1914 S London, British Museum (Natural History), Cromwell Road, London, S.W.7.
- 1951 S London, Forestry Commission, 25 Savile Road, London, W.1.
- 1932 S London, Linnean Society of, Burlington House, Piccadilly, London, W.1.
- 1930 S London Natural History Society, Botanical Section, (Hon. Secretary, F. E. Wrighton), 60 Evelyn Avenue, Ruislip, Middlesex.

- 1950 S London, Nature Conservancy, 19 Belgrave Square, London, S.W.1.
- 1923 S London, Royal Horticultural Society, Vincent Square, London, S.W.1.
- 1951 S London, Science Museum, London, S.W.7.
- 1922 S London, South London Botanical Institute, 323 Norwood Road, London, S.E.24.
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- 1954 Lunn, Miss Betty, 33 Jacksons Lane, London, N.6.
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- 1919 McLean, Prof. R. C., M.A., D.Sc., University College, Newport Road, Cardiff.
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- 1948 S Malham Tarn Field Centre (E. J. Douglas, Assistant Warden),
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- 1951 Mallinson, Mrs. M. B., The Rectory, Speldhurst, Kent.
- 1923 S Manchester Museum, The University, Manchester, 13.
- 1954 Manton, Prof. Irene, Dept. of Botany, The University, Leeds.
- 1930 Marks, C. E., Islington Cemetery, London, N.2.
- 1935 S Marlborough, The Wedgwood Herbarium, Marlborough College,
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- 1947 Marriott, Miss Mildred M., 63 Chalfont Road, Oxford.
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- 1947 Marshall, H. S., F.L.S., c/o The Herbarium, Royal Botanic
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- 1929 Milne-Redhead, E., M.A., F.L.S., 7 Ashley Gardens, Petersham, Richmond, Surrey.
- 1946 Milne-Redhead, Dr. H., Mainsriddle, Dumfries.
- 1955 Milsum, J. N., O.B.E., F.L.S., Grays, Tilford, Farnham, Surrey.
- 1930 Milvain, Mrs. M., Green Close, Snowhill, Broadway, Worcs.
- 1950 Milward, Miss M. E., The King's School, Canterbury.
- 1953 Minns, F. C., 42 Heaton Road, Manchester, 20.
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- 1952 Mitchell, M. R. S., Rookwood, Cuckfield, Sussex.
- 1947 Montgomery, Mrs. R., Birkwood, Thorntonhall, Glasgow.
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- 1952 Moor, J., Nichol Farm, Teynham, Sittingbourne, Kent.
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- 1951 Morgenroth, Mrs. W. J., 17 Bryanstone Close, Rydes Hill, Guildford, Surrey.
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- 1947 Mortis, Mrs. R. H., Cecil House, Hertford, Herts.
- 1948 Morton, J. K., The Manse, The Avenue, Birtley, Co. Durham.
- 1954 Moyse, Mrs. O. R., Veronica Lodge, St. Mary's, Isles of Scilly.
- 1952 Muirhead, Miss C. W., Kelsick Moss House, Abbeytown, Carlisle.
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- 1951 Murphy, Miss R. J., B.Sc., A.I.M.L.T., Shang-ri-la, Reskadinick, Camborne, Cornwall.
- 1934 Nannfeldt, Dr. J. A., Uppsala Universitets för Systematisk Botanik, Uppsala, Sweden.
- 1933 Nelves, E., c/o The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.

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- 1950 Newbould, Mrs. P. J., Botany Dept., University College, Gower Street, London, W.C.1.
- 1950 S Newcastle upon Tyne, King's College, (The Librarian), Newcastle upon Tyne, 1.
- 1950 Newey, P. M., 29a Roxborough Park, Harrow, Middlesex.
- 1928 S New York, Albert R. Mann Library, Acquisitions Division, Ithaca, New York, U.S.A.
- 1935 S New York Botanical Gardens, (J. W. Robbins, Director), Bronx Park, New York, U.S.A.
- 1952 Noble, Miss E. R., White House, Saham Toney, Thetford, Norfolk.
- 1951 J Norman, P. R., Branksome, 11 Linden Way, Shepperton, Middlesex.
- 1953 North, Miss Dorothy E., Swallow's Nest, Melling, Carnforth, Lancs.
- 1941 S Northamptonshire Natural History Society, (Hon. Secretary, Bot. Section, H. G. Allen, B.Sc.), Ivydale, Wootton, Northampton.
- 1950 Norton, Miss M., Nobles, Upper Easebourne, Midhurst, Sussex.
- 1919 S Nottingham Natural History Museum, Wollaton Hall, Nottingham.
- 1952 O'Connor, Miss W. M. T., B.Sc., Hartley Botanical Laboratories, The University, Liverpool, 3.
- 1952 O'Donovan, J. E., Union Hall, Skibbereen, Co. Cork, Irish Republic.
- 1948 Ogilvie, William B., Dunnichen, 8 Tayside Street, Carnoustie, Angus.
- 1954 Oldaker, Mrs. M. J., B.Sc., F.L.S., Milner Court, Sturry, near Canterbury, Kent.
- 1950 S Oldham, Central Public Library, (J. Simpson, Director), Werneith Park Study Centre, Frederick Street, Oldham, Lancs.
- 1953 O'Reilly, Dr. Helen, Botany Dept., University College, Upper Merrion Street, Dublin, Irish Republic.
- 1926 S Oslo, Universitetets Botaniske Museum, Trondhjemsvegen 23, Oslo, 45, Norway.
- 1952 J Oswald, P. H., The Rectory, Angmering, Sussex.
- 1950 S Ottawa, National Museum of Canada, Victoria Memorial Museum Building, Ottawa, Canada.
- 1947 Ounsted, John, M.A., Leighton Park School, Reading, Berks.
- 1938 S Oxford, University of, Dept. of Botany, (The Librarian), South Parks Road, Oxford.
- 1940 S Oxford, University of, Dept. of Forestry, (The Librarian), Oxford.

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- 1951 S Pittsburgh, Carnegie Museum, 4400 Forbes Street, Pittsburgh,
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- 1954 Plant, Kenneth G., Evesham Road, Stow-on-the-Wold, Glos.
- 1944 L Polunin, Prof. Nicholas, M.S. (Yale), M.A., D.Phil., D.Sc.
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- 1950 Proctor, M. C. F., The Nature Conservancy, c/o School of
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- 1946 Raison, C. E., Barnet Cottage, Westcott, Dorking, Surrey.
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- 1951 S Reykjavik Natturugripasafnid, P.O. Box 532, Reykjavik,
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- 1946 L Roberts, T. V., 27 The Grove, Gosforth, Newcastle upon Tyne, 3.
- 1950 Robertson, A. G., B.Sc., 2 Westfield Park, Redland, Bristol, 6.
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- 1951 Robinson, E. A., M.A., St. Mark's College, Mapanza, P.O. Choma, Northern Rhodesia.
- 1947 Robson, A. W., Perth Road, Dunning, Perthshire.
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- 1938 Roche, The Lady, Chadlington, Oxford.
- 1949 Roger, J. G., B.Sc., The Nature Conservancy, 12 Hope Terrace, Edinburgh, 9.
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- 1950 Rosser, Miss E. M., Ph.D., The Herbarium, Manchester Museum, The University, Manchester.
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- 1950 Rowlands, Dr. S. P., 44 Beckett Road, Doncaster, Yorks.
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- 1950 S Rugby School Natural History Society (Botanical Section), N.H.S. Museum, Lawrence Sheriff Street, Rugby, Warwick.
- 1950 Russell, Mrs. B. H. S., Manor Cottage, Jacksons Lane, Billericay, Essex.
- 1955 Russell-Smith, Dame Enid, 4 Stanhope Terrace, London, W.2.
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- 1915 F Sandwith, Mrs. Cecil, F.L.S., 26 Canynge Square, Clifton, Bristol, 8.
- 1934 Sandwith, N.Y., M.A., F.L.S., c/o The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey.
- 1953 Sanecki, Mrs. Kay N., Keeper's Cottage, Sheepridge, near Little Marlow, Bucks.
- 1954 Sargent, H. B., 8 Bay View Terrace, Porthleven, Helston, Cornwall.
- 1950 Saunders, Mrs. N., Orchard Cottage, Gretton, near Winchcombe, Glos.
- 1951 Savidge, J. P., Millwood, Spital, Wirral, Cheshire.
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- 1926 Shaw, G. A., 33 Temple Rhydding Drive, Baildon, Shipley, Yorks.
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- 1922 Simpson, N. Douglas, M.A., F.L.S., F.R.M.S., Maesbury, 3 Cavendish Road, Bournemouth, Hants.
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- 1946 Skene, Prof. Macgregor, D.Sc., The University, Bristol, 8.
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- 1951 Skinner, T. G., 112 Gurney Court Road, St. Albans, Herts.
- 1952 Slack, A., B.Sc., 195 Wilton Street, Glasgow, N.W.
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- 1912 Slater, Dan C., 30 Pembroke Road, Sevenoaks, Kent.
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- 1924 Sledge, W. A., Ph.D., B.Sc., 9 St. Chad's Drive, Headingley, Leeds, 6.
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- 1921 Smith, R.L., 24 Grand Avenue, Ely, Cardiff.
- 1919 Smith, Prof. Sir W. Wright, D.Sc., M.A., F.R.S., Royal Botanic Gardens, Edinburgh, 4.
- 1952 Smithson, Miss E., M.Sc., Ph.D., 56a Coniston Road, London, N.10.
- 1953 Somers, W. H., 468 Kedleston Road, Allestree, Derby.
- 1951 S Somerset Archaeological and Natural History Society, (Botanical Section), (A. D. Hallam, Representative), Taunton Castle, Taunton, Somerset.
- 1952 Souster, J. E. S., 193 Kew Road, Richmond, Surrey.
- 1917 L Southall, A. W., Cliffords Mesne, Newent, Glos.
- 1947 Southall, P. S. L., Greenlanes, Henley-in-Arden, Warwick.
- 1950 S Southampton, University College of, Library, Southampton.
- 1946 S Southport Botanic Gardens Museum (The Curator), Southport, Lancs.
- 1950 Southwell, Mrs. M., 85 Kingsway, Mildenhall, Suffolk.
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- 1954 Summers, P. G., Kingswood School, Bath, Somerset.
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- 1951 S Tromsø Museum Biblioteket, Tromsø, Norway.
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- 1946 Twist, A. F., Sheddings, Chettle, Blandford, Dorset.

- 1950 S Uppsala, Kungl. Lantbrukshögskolan Biblioteket, Uppsala, 7, Sweden.
- 1954 S Uppsala, Växtbiologiska Institutionen, Villavägen 14, Uppsala, 8, Sweden.
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DISTRIBUTOR'S REPORT FOR 1953

The number of gatherings contributed to the Exchange, though still substantial, showed a drop of rather over 12% on last year's total. The quality of the material sent in was, on the whole, good, though a few of the contributions were rather scanty. The number of plants which appeared to call for comment from referees was not large and it is to be hoped the contributions of 'critical' plants will increase in the future.

Special mention should be made of the interesting and excellent specimens of *Oxalis* contributed by Dr. D. P. Young which will undoubtedly be of great assistance in the naming of *O. corniculata*, *O. europaea*, *O. stricta* and their varieties.

Our thanks are due once more to the referees who have provided comments on the plants submitted to them and finally I should like to express my own thanks to Mr. E. K. Horwood for a great deal of help with making up and sending out the parcels.

T. G. TUTIN.

University College,
Leicester.
October 1954.

LIST OF PARCELS RECEIVED

	Gatherings.	Sheets.	Duplicates.
F. W. Adams	7	109	8
Botany School, Cambridge ...	14	166	
U. K. Duncan	4	36	
G. W. T. H. Fleming	1	7	
J. D. Grose	3	32	
J. E. Lousley	2	14	40
National Museum of Wales ...	1	10	
E. L. Swann	3	33	
University College, Leicester ...	13	106	1420
E. C. Wallace	5	47	16
	53	560	1484

IRISH NATURALISTS' JOURNAL

A Magazine of Natural History

Published Every Quarter by the I.N.J. Committee

EDITED BY MISS M. P. H. KERTLAND, M.Sc., with the assistance of
Sectional Editors.

Annual Subscription, 10/- post free. Single Parts, 3/6

All communications to be addressed to:—

The Editor, Department of Botany, Queen's University, Belfast

Ranunculus marginatus Urv. var. *trachycarpus* (Fisch. & Mey.) Aznavour. 1, W. Cornwall; Hort. Streatham, London, from root collected April 5, 1953, from arable field, St. Martin's, Isles of Scilly; material pressed June 7 and 25, 1953 (Fl. Scilly Exsicc. No. 573). This buttercup has been established for at least five years in arable fields and roadsides about Higher Town, St. Martin's. In early April it was just coming into flower, and a root was grown on to show the characteristic fruits.—J. E. LOUSLEY.

Viola odorata L. var. *dumetorum* (Jord.) Rouy & Fouc. 3, S. Devon; sheltered lane, Torbryan, near Newton Abbot (Grid Ref. 823667), March 21, 1953.—S. M. WALTERS. "Correct".—D. H. VALENTINE.

Silene anglica var. *sylvestris* (Schott) Aschers. & Graebn. 28, W. Norfolk; in 2-year old lucerne ley, Westacre, King's Lynn, June 17, 1953.—E. L. SWANN.

Chenopodium ficifolium Sm. 55, Leicester; garden weed, Home Farm, Knighton, Leicester, August 10, 1948.—T. G. TUTIN.

C. vulvaria L. 15, E. Kent; crack between base of brick wall and tarmac road, Davington, near Faversham, September 1953.—R. E. PARKER.

Oxalis corniculata L., erect-growing state. 38, Warwick; subsynchronous in garden of Westham House, Barford (Grid Ref. SP/262603), June 28, 1952 (Ref. No. 4417). I believe that this form has sometimes been mistaken for *O. stricta* auct. in the past. Seed from these plants sown in open ground gave normal creeping plants, so that these specimens only represent an updrawn state, probably caused by growing in crowded flower-beds near a house-wall.—D. P. YOUNG.

O. corniculata L. var. *microphylla* Hook. f. 16, W. Kent; gravelly sidewalk adjacent to gardens, Tunbridge Wells, August 15, 1953 (Ref. No. 4886).—K. E. BULL and D. P. YOUNG. "This very distinct miniature form of *O. corniculata* is a native of the mountains of New Zealand and Tasmania, and is often grown in rockeries. I know of several places where it is naturalised in similar situations".—D. P. YOUNG.

O. europaea Jord. (*O. STRICTA* auct., non L. sec. Wiegand) forma *villicaulis* Wiegand. 13, W. Sussex; garden weed at New Place, Pulborough, August 29, 1953 (Ref. No. 4900). I give the formal name for what it is worth; the present plant is hairier than the form distributed by the National Museum of Wales last year, but it is sometimes more extreme with long shaggy brown pubescence on the stem.—D. P. YOUNG.

O. europaea Jord., purple-leaved var. 17, Surrey; subsynchronous in a garden at Horley (Grid Ref. TQ/2941), September 7, 1953 (Ref.

No. 4923).—F. M. GURTEEN and D. P. YOUNG. "I have seen this var. called 'rubrifolia' and 'purpurea' but I know of no authority for the names. I have never seen it outside a garden, although as in the present instance it is usually no more than a weed. Compared with the parallel var. *purpurea* Parl. of *O. corniculata*, the purple suffusion of the leaves is weak and reddish in tint, and fades away in older leaves".—D. P. YOUNG.

O. stricta L. sec. Wiegand (*O. DILLENI* Jacq.). 13, W. Sussex; cultivated at Sanderstead, Surrey, August-October 1953 (Ref. No. 4893), from plants gathered in a sandy arable field near Pulborough by Mr. O. Buckle in 1951. Although this species has figured in the British list for some time, the earlier record for it (*B.E.C. 1919 Rep.*, 553) is based on a misidentification, and the present plant represents the first and so far the only British record. It is a native of the eastern United States and Canada, and although it has been grown in Europe for at least 200 years it is very rarely seen this side of the Atlantic. It is, however, naturalised in Paris. Whence or how the Pulborough plants were introduced is a mystery; they have persisted in the same field now for several years. The agrestal habitat is also unusual for an *Oxalis* in this country. A further account of the naturalised British *Oxalis* is in preparation.—D. P. YOUNG.

Lotus angustissimus L. 17, Surrey; sandy pasture by Derry's Wood, near Wonersh, August 16, 1953. Known here some twenty years, the plant was found to be flourishing still, when Mr. N. Y. Sandwith and I visited the locality to obtain specimens for illustration purposes.—E. C. WALLACE.

Onobrychis viciifolia Scop. (? Native form). 8, S. Wilts.; chalk grassland, Casterly Camp, June 24, 1953.—J. D. GROSE. Ref. 6318a.

The native form of *Onobrychis viciifolia* is far less common on the Wiltshire downs than the introduced strain which is now thoroughly established on chalk grassland in many places. The following characters may serve to separate the two forms:

	NATIVE	NATURALISED
Plant	Small, slender	Large, robust
Habit	Prostrate	Suberect
Stems	Few	Many
Leaflets	Usually obovate; often retuse	Usually oblong; rarely retuse
L/B ratio	c. 3.0	c. 4.5
Flowers	Bright red	Paler, pink to red
Calyx teeth	Half as long again as tube	Twice length of tube

It is possible that the specimens distributed are the products of crossing between the native and the cultivated strains, the influence of the latter being shown chiefly by the large size of the plants.—J. D. GROSE.

O. viciifolia Scop. (Naturalised form). 8, S. Wilts.; chalk grassland, Rushall, June 24, 1953.—J. D. GROSE. Ref. 6318.

Rubus ulmifolius Schott f. 55, Leicester; hedge, Home Farm, Knighton, Leicester, July 23, 1948.—T. G. TUTIN. $2n=14$. Identification confirmed by W. C. R. WATSON.

Potentilla thuringiaca Bernh. var. *nestleriana* (Tratt.) Schinz & Keller. 90, Angus; abundant near Leysmill, May 11, 1953.—U. K. DUNCAN.

Ribes alpinum L. 63, S.W. Yorks.; crevice on Magnesian Limestone, cliff near Roche Abbey, Maltby (Grid Ref. SK 547899). Presumably naturalised, April 1953.—F. W. ADAMS.

Bupleurum tenuissimum L. 15, E. Kent; on compacted gravel, often flooded with brackish water, head of Oare Creek near Faversham, September 1953.—R. E. PARKER.

Euphorbia hyberna L. H2, N. Kerry; Hort. Trinity College, Dublin, root from Derrycunihy wood, near Killarney, May 19, 1952.—D. A. WEBB.

Polygonum aviculare L. 39, Staffs.; Bass's Maltings, Burton-on-Trent, August 20, 1948.—R. C. L. BURGESS and T. G. TUTIN. "An unusual-looking erect form".—T. G. TUTIN.

Rumex \times *wrightii* Lousley (= *R. conglomeratus* \times *cuneifolius*). 4, N. Devon; Hort. Streatham, London, from a scrap of the root from material sent by Dr. F. R. Elliston Wright in August 1952 (see *Watsonia* 2, 394-7, 1953) from Braunton Burrows and pressed August 30, 1953. The plant grew luxuriantly and flowered freely, but, as is so often the case in hybrid docks, no fruit developed fully.—J. E. LOUSLEY.

Salix calodendron Wimm. 90, Angus; base of sea cliff, Auchmithie, July 15, 1953.—U. K. DUNCAN. "This is a hybrid of *S. viminalis* but the material is inadequate to decide the other parent or parents. Material for identification should include (1) catkins, (2) mature leafy shoots of normal branches, (3) in all hybrids in which *S. aurita*, *S. atrocinerea*, *S. cinerea* or *S. caprea* may be involved, a portion of a 2-year old (or older) branch with the bark removed to demonstrate the presence or absence of ridges ('striations') on the wood".—R. MELVILLE.

?*S. atrocinerea* Brot. \times *S. nigricans* Sm. 90, Angus; sea cliffs, Auchmithie, March 18, 1953.—U. K. DUNCAN. "Yes".—R. MELVILLE. "Whilst there is a suggestion of *S. atrocinerea* about the young leaves, I do not feel convinced that this is a hybrid and think it may be pure *S. nigricans*".—E. F. WARBURG.

Erica mackaiana Bab. H35, N. Donegal; Upper Lough Nacung, August 2, 1953.—D. A. WEBB. "A hydro-electric scheme will greatly

diminish the abundance of the plant here in the next year or two, though I hope it will be possible to save some".—D. A. WEBB.

E. × praegeri Ostenf. (*E. mackaiana* × *tetralix*). H35, N. Donegal; Upper Lough Nacung, with both parents, August 3, 1953.—D. A. WEBB. "Apart from the narrower leaf, it may be distinguished from *E. mackaiana* by the presence of downy hairs on the sepals, at least on the margins".—D. A. WEBB.

E. × praegeri Ostenf. H16, W. Galway; Craigamore, August 5, 1953.—D. A. WEBB.

Cuscuta europaea L. 17, Surrey; on nettles by the River Wey near Burpham, Guildford, September 5, 1953 (Ref. No. 9338).—E. C. WALLACE.

Veronica catenata Pennell. 56, Notts.; marshy bank of stream near the canal at Shireoaks near Worksop (Grid Ref. SK 551811), September 1953.—F. W. ADAMS.

Rhinanthus stenophyllus (Schur) Druce. 27, E. Norfolk; about the drainage channels in rough meadow-land of Brinton Common, August 8, 1953.—E. L. SWANN. Corolla dull yellow with violet teeth. Plant association: *Juncus inflexus* (a); *J. subnodulosus* (f); *Mentha aquatica* (a); *Pulicaria dysenterica* (f); *Galium palustre* (o); *Lotus uliginosus* (f).

Euphrasia brevipila Burnat & Gremli var. *notata* Pugsl. 88, Mid Perth; grassy bank by lane from road to pier, Lawers (Ref. No. E254), June 30, 1953.—P. F. YEO.

E. brevipila Burnat & Gremli var. *reayensis* Pugsl. 108, W. Sutherland; sandy slope between dunes and field, Farr Bay, Bettyhill. Flowers large, lilac, or white with upper lip lilac, 9-10 mm. long, 10 mm. across lower lip (Ref. No. E304), July 8, 1953.—P. F. YEO. "Considered as a population this is not quite like the Reay plant, which is more compact and robust with more and longer indumentum and larger flowers. Some individuals at Reay are, however, almost identical with these. It is therefore perhaps legitimate to extend the name *reayensis* to cover these plants".—E. F. WARBURG.

E. confusa Pugsl. f. *albida* Pugsl. 1, W. Cornwall; grassy track, Zela near Goonhaven (Ref. No. E357), August 10, 1953.—P. F. YEO. "Rather stiff and erect, but the nearest approach to characteristic *E. confusa* I have found in this neighbourhood".—P. F. YEO. "I agree that these are *confusa*, though I often find it difficult to know where to draw the line between *confusa* and *nemorosa*".—E. F. WARBURG.

Mentha longifolia (L.) L. 13, W. Sussex; roadside, North Stoke near Amberley, August 8, 1953. (Ref. No. 9339).—E. C. WALLACE.

Stachys × *ambigua* Sm. (*Stachys palustris* × *sylvatica*). 8, S. Wilts.; Warden's Down, Bratton (Ref. No. C334), August 4, 1953.—J. D. GROSE. "The L/B ratio of the leaves averages about 2.6—a value which is probably too small even for the robust broad-leaved form of *S. palustris*. The flower-colour was intermediate between *S. palustris* and *S. sylvatica*; it has darkened a little in drying".—J. D. GROSE.

Galeopsis angustifolia Ehrh. ex Hoffm. 41, Glamorgan; fixed shingle beach, The Leys, West Aberthaw, August 11, 1953.—A. E. WADE.

Galium erectum × *verum*. 90, Angus; Turfbeg near Forfar, with the parents, July 11, 1953.—U. K. DUNCAN.

Galinsoga ciliata (Rafin.) Blake. 29, Cambs.; weed in Botanic Garden allotments (loc. ab.), Cambridge, October 30, 1953.—S. M. WALTERS.

Senecio inaequidens DC. 30, Bedford; grown at Sanderstead, Surrey, October 1953 (Ref. No. 4977), from seed from a plant grown by Mr. Lousley and originally from Biggleswade Railway Sidings, October 1951 (Ref. No. 5110161). The parent has already been commented on in last year's Report (*Year Book, B.S.B.I.*, 1953, 107); the progeny showed some variation in leaf-shape, but the specimens distributed all came from one plant which most nearly resembled the parent. In others the leaf-auricles were not so well developed.—J. E. LOUSLEY and D. P. YOUNG. See also *Proc. B.S.B.I.*, 1, 256 (1954).

Filago apiculata G.E.Sm. 17, Surrey; sandy field by Derry's Wood, near Wonersh, August 16, 1953.—E. C. WALLACE

Hieracium vagum Jord. 63, S.W. Yorks.; rather common in wood clearing and margin by Killamarch Pond, July 1951.—F. W. ADAMS. "Grows on waste ground and woodland rides in the region. The capitula are frequently attacked by *Noëta pupillata* (Fallén). In some cases there may be 100% infection. 'Galled' capitula are readily recognisable in fruit, as the involucre is much broader towards the base and often triangular in outline. The involucre of 'ungalled' capitula is much narrower".—F. W. ADAMS. "Correct".—P. D. SELL and C. WEST. [*Noëta pupillata* is a species of fly belonging to the Dipterous family *Trypetidae*—the "fruit flies".—H. K. AIRY SHAW.]

Juncus effusus L. × *inflexus* L. (*J.* × *diffusus* Hoppe). 17, Surrey; margin of Britten's Pond near Worplesdon, September 5, 1953. (Ref. No. 9343).—E. C. WALLACE.

Orchis ericetorum (Linton) Marshall. 98, Argyll; Ben Laoigh, 2000 ft., June 8, 1953.—G. W. T. H. FLEMING. "*O. maculata* L. subsp. *ericetorum* Linton (= *O. ericetorum* (Linton) Marshall). Pressed under great pressure, and stem thus appearing thicker than usual. White-flowered individuals are not uncommon in this species".—J. HESLOP-HARRISON.

Glyceria declinata Bréb. 57, Derby; margin of duck-pond by main road near Winster, Matlock (Grid Ref. SK 238600), August 10, 1953.—F. W. ADAMS. "Variable, tending to form a floating mat at the water's edge. Some specimens have suffered attack from 'insects' and *Claviceps purpurea* Tul. Other species of *Glyceria* are absent from the locality".—F. W. ADAMS.

× *Festulolium loliaceum* (Huds.) P. Fourn. (*Festuca pratensis* × *Lolium perenne*). 57, Derby; abundant in pasture beside River Bradford between Alport and Yougholgreave (Grid Ref. SK 218643), July 16, 1953.—F. W. ADAMS. "Very variable in size, and both the number of spikelets and the number of florets per spikelet. It is of locally frequent occurrence in the neighbourhood, but is by no means generally frequent in Derbyshire, although both parents occur. Many specimens wither before they are fully developed".—F. W. ADAMS.

Puccinellia distans (L.) Parl. 56, Notts.; abundant on waste ground by canal, Shireoaks, Worksop (Grid Ref. SK 551811), July 28, 1953.—F. W. ADAMS. "Introduced with ballast from the nearby canal? Thrives on remains of lime heaps from the former burning of Magnesian Limestone. Has spread to calcareous regions nearby, and may grow on almost pure lime".—F. W. ADAMS.

Poa bulbosa L. Root from wall top, near Colico, Lake Como, N. Italy. July 1948; Hort. University College, Leicester, April 28, 1949. $2n=35$.—T. G. TUTIN. "A 'viviparous' race but larger than that from N. Europe, which has $2n=45$ ".—T. G. TUTIN.

P. compressa L. 29, Cambs.; Norman Cement Works Chalk Pit (loc. ab.), Cambridge (Grid Ref. 480575), June 30, 1953.—S. M. WALTERS.

Bromus ferronii Mabilie. 1, W. Cornwall; grassy places on cliff near the Lizard, more or less sheltered from S.W., and abundant within $\frac{1}{4}$ mile of sea, June 3, 1948.—T. G. TUTIN.

B. lepidus Holmb. var. *micromollis* (Krösche) C. E. Hubbard. 28, W. Norfolk; borders of arable land and old stack sites, Appleton, King's Lynn (Ref. No. 2396), June 26, 1953.—E. L. SWANN.

Bromus (1). 29, Cambs.; arable field near Little Abington (Grid Ref. 52539494), June 1953.—R. E. PARKER. "*B. commutatus* Schrad.".—A. MELDERIS and T. G. TUTIN.

Bromus (2). 29, Cambs.; arable field near Little Abington (Grid Ref. 52539494), June 1953.—R. E. PARKER. "*B. interruptus* Druce".—A. MELDERIS and T. G. TUTIN.

Bromus (3). 29, Cambs.; arable field near Little Abington (Grid Ref. 52539494), June 1953.—R. E. PARKER. "*B. secalinus* L. var. *hirtus* (Schultz) Aschers. & Graebn. ex Hegi".—A. MELDERIS and T. G. TUTIN.

B. arvensis L. 26, W. Suffolk; near Newmarket, August 8. 1913.—C. E. MOSS.

Phalaris minor Retz. 13, W. Sussex; uncultivated allotment, Worthing, June 1, 1953 (Ref. No. 4779).—D. P. YOUNG, conf. N. L. BOR.

Cynodon dactylon (L.) Pers. 1, W. Cornwall; very abundant between Penzance and Marazion on sandy shore (Grid Ref. SW 4931), July 22, 1953.—F. W. ADAMS. "Very abundant, reproducing vegetatively. The specimens are much smaller than those from similar habitats on the continent".—F. W. ADAMS.

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**JOURNAL OF THE BOTANICAL
SOCIETY OF THE BRITISH ISLES**

Published Twice Yearly

Price 15/- per part

Obtainable from Mr E. B. BANGERTER,
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PROCEEDINGS

OF THE
BOTANICAL SOCIETY OF THE BRITISH ISLES

Editor : D. H. KENT

Vol. 1

OCTOBER 1955

Pt. 4

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PUBLISHED AND SOLD BY THE
BOTANICAL SOCIETY OF THE BRITISH ISLES

c/o DEPARTMENT OF BOTANY, BRITISH MUSEUM (NATURAL HISTORY),
LONDON, S.W.7

PRICE TEN SHILLINGS

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Continued on inside of back cover

NOTES ON THE FLORA OF CAMBRIDGESHIRE (V.C. 29)

By F. H. PERRING, P. D. SELL and S. M. WALTERS

The botanical vice-county 29 comprises Cambridgeshire proper and the Isle of Ely. The latter is flat, almost entirely arable, drained silt and fenland, and, compared with the more accessible and more diversified country in the Cambridge district, is very much neglected botanically and badly under-recorded. There are no recent records for many species formerly recorded in the Cambridgeshire fens, and whilst it is reasonable to suppose that many of these (particularly species of neutral to acid fen or bog such as *Potentilla palustris*) have in fact disappeared, some (e.g. aquatic species such as *Potamogeton friesii*) are very probably still to be found, though perhaps reduced in quantity. Also the information on the distribution of *common* species in the Isle of Ely is seriously inadequate, and assistance with recording in the March-Chatteris-Wisbech areas would be most welcome.

Cambridgeshire is well documented botanically. The series of County Floras begins with Ray (1660), and continues at intervals of roughly a century with Relhan (1785), Babington (1860) and Evans (1939). Unfortunately, the last of the series does not keep up the high standard of its predecessors, and a taxonomically satisfactory revision of the Cambridgeshire flora, correcting a number of Evans' statements, particularly for the grasses and sedges, is now overdue. It is hoped that some reasonably complete revision might be ready for publication in 1960, the tercentenary of Ray and the centenary of Babington. In the meantime, these notes are offered as an indication of "work in progress".

In such a highly arable county as Cambridgeshire, decline and extinction of certain classes of species due to improved agriculture is very marked. Some of these changes, particularly those affecting bog, fen and marsh plants, due to drainage and cultivation, were already apparent to Babington, and have, of course, proceeded much further since his day. Thus, the fen orchid, *Liparis*, is apparently extinct in the county (last recorded at Wicken in 1945); and there are no recent records for several other species such as *Sagina nodosa* and *Stellaria palustris*. Other species such as *Parnassia*, *Pinguicula vulgaris*, *Epipactis palustris* and *Menyanthes trifoliata* survive in a very few relict fen habitats. Another category of "agricultural casualties" are the species of old pasture, including several orchids (e.g. frog orchid, *Coeloglossum viride*) very much reduced in numbers. In recent years

the progress of ploughing up and re-seeding has further seriously reduced this class of species, and permanent pasture with a rich variety of grasses and other herbs is now quite a rarity in the Cambridge district. The most recent threat to floristic diversity—the use of hormone weed-killers—is undoubtedly having a quick and serious effect, particularly on hedgerow and roadside affected by drifting spray, although it is as yet too early for much detailed evidence to have accumulated.

In the weed flora, changes since Babington's time may be attributed firstly to cleaning of agricultural seed (decline of e.g. cornflower, *Centaurea cyanus*, and thorum-wax, *Bupleurum rotundifolium*), and more recently to the use of selective weed-killer (decline of the field poppies has been a most striking post-war change in arable Cambridgeshire). One or two interesting cases suggest, however, that the elimination of the main dicotyledonous weeds may give certain monocotyledonous species a great advantage. The most obvious cases are the increased abundance of wild oat (*Avena fatua*—the allied *A. ludoviciana* is still apparently rare in the county), and the extraordinary spread of that supposedly rare annual grass, *Bromus diandrus* (*Anisantha gussonii*), which was unrecorded in Cambridgeshire before 1952, but which now appears to be occasional or frequent in hedgerows, roadsides and waste ground over a large part of the east of the county, between the Breckland border and Cambridge. In part this "spread" may be due to the species having been previously overlooked; but it seems unlikely to be wholly attributable to this cause, as a well-grown clump of the grass looks very different from its common relative *Bromus* (*Anisantha*) *sterilis*.

A rather different reason for decline is shown by a number of species, particularly ferns, which occur principally or wholly on walls and buildings in the county. Re-pointing of brickwork or re-building seems to have caused a general diminution. Ray's locality for *Polypodium vulgare*, in Garret Hostel Lane, Cambridge, survived till the whole wall was pulled down for a new building in 1947; but *Asplenium ruta-muraria* still survives on the Senate House steps, and that famous alien crucifer, *Arabis turrita*, on a few feet of old wall in the grounds of St. John's College.

Some few species, in addition to the grasses already mentioned, appear to be actively extending their range in the county. The most spectacular spread is that of *Epilobium adenocaulon*, first recorded in 1945, and now abundant in one or two localities where woodland has been partially cleared, and recorded for seven localities in all. Another willow-herb, *E. lanceolatum*, seems likely to spread in the near future: at present it has merely a single Cambridgeshire record, but it is obviously extending its

range in Britain and is no longer strictly a south-western species. *Veronica filiformis* has recently successfully escaped from cultivation in several Cambridgeshire localities and may well spread quickly. *Cardaria draba* (first recorded 1857) is apparently still increasing on roadsides and waste ground, and is achieving some importance as a potentially serious agricultural weed. *Lactuca serriola* has become a common wayside plant in the last twenty or thirty years. *Senecio squalidus* is now well-established in several places around Cambridge, but does not yet show signs of active spread in the City itself. *Crepis taraxacifolia*, *Diplotaxis muralis*, *Erigeron canadensis* and *Matricaria matricarioides* seem to have finished their main expansion which began in the last century.

With all this change, it is pleasant to record that several rare species persist in their classical localities—*Linum anglicum* on the Gogs, *Dianthus deltoides* on the Furze Hills, and *Seseli* at Cherry Hinton. Ray's locality for *Veronica spicata*, which survived war-time ploughing up, was unfortunately lost in 1953; but a fragment of the plant was rescued from the ploughed field, propagated vegetatively, and used to re-plant the stock in chalk grassland on the margin of the now arable field in December 1954. A welcome re-discovery of a supposedly extinct plant was that of *Alchemilla vestita* in 1953, in one of its nineteenth century localities.

No fewer than 12 new county records are here published, all of them made since 1946. Not one of these species can be considered "critical", and although most of them are probably fairly recent arrivals in the county, others, such as *Glyceria declinata* and *Poa palustris*, are almost certainly native species which have been overlooked. It is clear that the floristic possibilities of Cambridgeshire are by no means exhausted; and 1955 has already yielded one new county record in the shape of *Barbarea intermedia*.

The following records are extracted from the card index of the Cambridgeshire Flora, the property of the Cambridge Natural History Society, kept in the University Herbarium. This consists of a separate card for each species of vascular plant, listing all Cambridgeshire records, historical and recent, and indicating which are represented by specimens in the University Herbarium; in addition, since 1950, a considerable amount of data has been added in the form of lists, principally of common species, for particular Cambridgeshire localities, on special printed record cards, giving the National Grid Reference. The Society is attempting to cover the county by making at least one list in each 1 kilometre grid square. For the B.S.B.I. Distribution Maps Scheme, these data are being extracted on a 10 kilometre square basis.

SOME ADDITIONS AND CORRECTIONS TO EVANS'
FLORA OF CAMBRIDGESHIRE

†Not native *New County Record §Record new to *Comital Flora*

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4/1. *ADONIS ANNUA* L. There are specimens in Herb. Cantab. from Coton, 1852 (C. C. Babington), Cherry Hinton, 1862 (Rev. S. Hiley) and Newnham allotments, 1944 (C. E. Raven). In addition notes in Babington's manuscript give between Hinton Church and Fulbourne, 1868 (Rev. S. G. Phear) and Odsey (A.M.B.).

5/1. *MYOSURUS MINIMUS* L. Abundant in a field of beans by Gamlingay Wood, 1949 (C.D.P.).

†17/2. *MAHONIA AQUIFOLIUM* (Pursh) Nutt. Abundant on the Fleam Dyke, 1947 (W. Jones). Now fast becoming well established in many places in the east of the county.

†31/4. *CORYDALIS LUTEA* (L.) DC. Grantchester, 1886 (A. Shrubbs); Shelford, 1900 (F. R. Tennant); Willingham and Earith (E. A. George); Cambridge, Waterbeach, Ely and Elsworth (J. Rishbeth).

35/1(2). *NASTURTIUM MICROPHYLLUM* (Boenn.) Reichb. Many records from most parts of the county by H. W. Howard.

35/1(2)×1. *N. MICROPHYLLUM* × *OFFICINALE*. With parents, Coldham's Common, 1951 (S.M.W.).

§*36/5. *BARBAREA INTERMEDIA* Bor. Arable fen near Over, 1955 (F.H.P. and S.M.W.).

37/6. *TURRITIS GLABRA* L. The plant still occurs in the locality given by Evans (1939). Also in a felled part of Gamlingay Wood (M. E. D. Poore).

§*†45/7. *COCHLEARIA DANICA* L. Railway-line near Hayley Wood, 1946 (E. G. Jeffreys). This and *Cerastium tetrandrum* are interesting railway-track weeds (see Dony (1953) for further comment).

†49/4. *SISYMBRIUM ORIENTALE* L. Grantchester (G. W. Chapman); Chesterton Ballast Pits (J. S. L. Gilmour); Shepreth (H.G.-C.); Roswell Pits (—); Barnwell (H.G.-C. and E. F. Warburg), and Barrington Cement Works, 1949 (C.D.P.).

§*55/1. *DIPLTAXIS TENUIFOLIA* (L.) DC. Devil's Dyke, 1946 (J. Rishbeth); Fleam Dyke, 1946 (P. W. Richards) and 1950 (S.M.W.).

65/1. *IBERIS AMARA* L. Still at the Morden locality, 1951 (W. H. Mills); railway cutting between Meldreth and Royston, abundant, 1954 (P.D.S.).

†74/2. *BUNIAS ORIENTALIS* L. Well established in waste-ground by the railway in Cambridge; also on roadside near Devil's Dyke.

§*100/9. *CERASTIUM TETRANDRUM* Curt. Railway by Hayley Wood, 1947 (Miss Duval); and 1951 (S.M.W.).

101/8. *STELLARIA ALSINE* Grimm. Still on Coe Fen, 1951 (M. C. F. Proctor).

§*†133/2. *IMPATIENS CAPENSIS* Meer. As yet a single record only from "The Backs", Cambridge, 1946.

†133/3. *I. PARVIFLORA* DC. Has spread a great deal in and around Cambridge recently.

185. Notes on *RUBUS* (by W. H. Mills). *R. CONJUNGENS* is very common in the county, coming next in abundance after *R. ULMIFOLIUS* and *R. CAESIUS*. *R. TUBERCULATUS* is well distributed. *R. BABINGTONIANUS* is frequent. (Asterisk * indicates specimens in Hb. Mills.) *R. BABINGTONIANUS* W. Wats. Cambridge*, Colon*, Linton*, etc.; *R. BELLARDII* Weihe. Longstone Wood*; *R. CAESIUS* L. Widespread; *R. CARDIOPHYLLUS* L. & M. Gamlingay*; *R. CONJUNGENS* (Bab.) W. Wats. Abundant. (Specimens Wicken Fen*, Linton*, 1, Madingley Road, Cambridge*); *R. CONSPICUUS* P.J.M. (?) Lt. Chishall Wood*; *R. CRINIGER* E. F. Linton. Gamlingay (Cinques, Great Heath Wood*, Gamlingay Wood*); *R. DISCERTUS* P.J.M. Morden Grange Plantation*; *R. FALCATUS* Kalt. Gamlingay*; *R. FLEXUOSUS* L. & M. Gamlingay (roadside by White Wood and in Gt. Heath Wood*); *R. IDAEUS* L. Here and there. Probably always of garden origin; *R. INSECTIFOLIUS* L. & M. Lt. Chishall Wood*; *R. LINDLEIANUS* Ed. Lees, Gamlingay, Hayley Wood*, Doddington Wood; *R. MERCICUS* Bagn. Borley Wood*; *R. MYRIACANTHUS* Focke. Willingham (also in University Botanic Garden and Salisbury Road, no doubt introduced); *R. NEMORALIS* P.J.M. (*R. SELMERI* Lindeb.). Wilberforce Road, Cambridge, near the end of the Coton foot-path*. Evidently introduced; *R. POLYANTHEMOS* Lindeb. Gamlingay*, Borley Wood; *R. PYRAMIDALIS* Kalt. Gamlingay (road-sides near White Wood*, in Great Heath Wood*); *R. RADULA* Weihe. Eversden*, Kingston, and Swansley Woods. Hatley St. George. Hayley*, Longstowe, Borley, Lt. Chishall* Woods, Lt. Abington, Morden Grange Plantation; *R. RHOMBIFOLIUS* Weihe. Gamlingay (Cinques* and roadside opposite Great Heath Wood*); *R. RUFESCENS* L. & M. Borley Wood*, Sparrow's Grove*; *R. SUBLUSTRIS* Ed. Lees. Gamlingay; *R. TUBERCULATUS* Bab. Frequent as at Dry Drayton*, Caldecot, by the Wool Street*, Longstowe, etc.; *R. ULMIFOLIUS* Schott. Abundant; *R. VESTITUS* W. & N. Balsham, Borley*, Gt. Chishall, Lt. Chishall* and

Wood Ditton Park Woods. Also in and about Cambridge (introduced) as in garden of 30 Storey's Way, on the Rockefeller Field, and the hedge between the Sewage Farm and the Railway Ballast Pits; R. WARRENI Sud. Gamlingay*.

190/4. *ALCHEMILLA VESTITA* (Buser) Raunk. Old pasture, outskirts of Balsham Wood, 1953 (J. Rishbeth and S.M.W.). A very interesting re-discovery of a supposedly extinct plant, in a locality probably known to Ray.

190(2)/2. *APHANES MICROCARPA* (Boiss. & Reut.) Rothm. Furze Hills and Gamlingay (S.M.W.). The expected localities for a calcifuge plant in Cambridgeshire. *A. arvensis* is a common weed.

193/4. *SANGUISORBA OFFICINALIS* L. Many localities in Babington (1860). Only records this century are from the edge of Hayley Wood, 1940 (W. H. Mills and others), near Conington on the road to Knapwell, 1944 (R. P. Scase), and Cottenham Fen, 1954 (S.M.W.).

205/1. *PARNASSIA PALUSTRIS* L. Two localities still known, but a small quantity only in each.

§*+220/7(2). *EPILOBIUM ADENOCALON* Hausskn. First record on waste ground, Mill Lane, Cambridge, 1946 (J. N. Mills). Since 1950 recorded for Ditton Park, Borley, Balsham and Hardwick Woods, also at edge of Madingley Wood and in grounds of Abington Hall.

220/9. *E. LANCEOLATUM* Seb. & Mauri. Morden Grange Plantation, 1953 (S.M.W.). See *Proceedings B.S.B.I.*, 1, 89 (1954).

247/5. *APIUM INUNDATUM* (L.) Reichb. f. In Wicken and Monk's Lode, first recorded here 1946 (H.G.-C.).

§*+252/1. *FALCARIA VULGARIS* Bernh. Chalk rubble by Cherry Hinton chalk pits, 1949 (D.E.C. and C.D.P.).

272/1. *SELINUM CARVIFOLIA* (L.) L. Still common at Chippenham Fen and Fordham Abbey grounds, also in damp meadow, Sawston Hall, 1949 (S.M.W.).

†383/7. *SENECIO SQUALIDUS* L. Evans' (1939) note on this species is misleading. The plant was grown in the Botanic Garden in the last century, but the supposed hybrids with *S. vulgaris* were almost certainly the radiate form of the latter species and their presence had nothing to do with *S. squalidus*. Until recently when some plants were brought from Coldham's Common *S. squalidus* had not been in the Botanic Gardens for many years. During the last ten years, however, the plant has spread considerably in and around Cambridge.

428/2. *TRAGOPOGON PRATENSIS* L. Evans' (1939) statement '... always as the long-rayed form' is so obviously wrong that one suspects an accidental error in writing "long" for "short". Subsp. *minor* (Mill.) Rouy is undoubtedly the common plant, but subsp. *pratensis* has been recorded from several localities.

481/1. *MENYANTHES TRIFOLIATA* L. Persists in two localities only.

†527/1. *VERBASCUM PHLOMOIDES* L. Plentiful in a chalk pit between Kneesworth and Royston, 1950 (P.D.S. det. J. E. Lousley).

†527/4. *V. VIRGATUM* Stokes. Ely Road, Cambridge, 1863 (W. Walton) and waste ground, Cambridge, 1946 (J. N. Mills).

†527/5. *V. BLATTARIA* L. Kirtling (Pryor); Chatteris and Firelots (Fryer); railway line, Cambridge (H.G.-C.); Harston (J. L. Browne) and Laboratory grounds, Cambridge (H.G.-C. and S.M.W.).

553/2. *PINGUICULA VULGARIS* L. Still at Chippenham; recorded since 1947 at Dernford also.

558/2. *MENTHA ALOPECUROIDES* Huds. Chippenham, Chesterton and Caxton Gibbet (C. E. Moss), Hinxton Hall (A. Shrubbs), Linton (A. J. Crosfield), Coe Fen (H.G.-C.), and Fordham Abbey (S.M.W.). There are no specimens referable to *M. rotundifolia* (L.) Huds.

558/6. *M. PIPERITA* var. *OFFICINALIS* Sole. R. Graham has so named the Barrington plant.

558/9. *M. × VERTICILLATA* L. Specimens from Dry Drayton (C. C. Babington), Madingley (Henslow), and Upware (C. E. Moss) are so named by R. Graham.

558/12. *M. × SMITHIANA* R. Graham. The plant growing between Longstowe and Bourne and known for many years as *M. rubra* Sm. is now so named.

The Cambridgeshire *Thymus* material has been carefully revised by C. D. Pigott, with the following result:—

561/1. *THYMUS PULEGIODES* L. Chalk pits at Haslingfield and Barrington; strip lynchets above Harston station; Cherry Hinton chalk pits; Gamlingay Cinques; chalky field between Gt. Wilbraham and Fulbourn; ride in Chippenham Fen.

561/8. *T. DRUCEI* Ronn. em. Jasas. Hildersham; Little Trees Hill; Babraham; Gogs; Devil's Dyke; Fleam Dyke; Heydon; Morden Grange Plantation; Dernford Fen; Bottisham; Kneesworth; Litlington.

586/2. *TEUCRIMUM SCORDIUM* L. Still at one of Evans' localities, 1951 (P. M. Garnett).

587/4. *AJUGA CHAMAEPITYS* (L.) Schreb. Field at Morden Grange Plantation, 1951 (C.D.P.).

†628/9. *EUPHORBIA VIRGATA* Waldst. & Kit. Many records, including railway station, Cambridge, and roadside, Toft (C.D.P. and S.M.W.). Obviously increasing.

669/5. *ORCHIS MORIO* L. Rough grassland on the Greensand near Gamlingay, 1949 (C.D.P.) and two plants, Main Drove, Wicken Fen, 1951 (P.D.S.). Obviously much rarer nowadays.

669(3)/1. *HIMANTOGLOSSUM HIRCINUM* (L.) Spreng. Has flowered at one spot in the county every year since 1946. A new locality was found in 1954.

671/1. *ACERAS ANTHROPOPHORUM* (L.) Sm. Still (1953) in the locality given by Evans (1939). A second locality was discovered in 1954 by J. C. Faulkner.

674(3)/1. *COELOGLOSSUM VIRIDE* (L.) Hartm. Soham, 1954 (*per* J. C. Faulkner). The only recent record.

§*†710/1. *TULIPA SYLVESTRIS* L. In old pasture, Kirtling Towers, 1952 (Miss Rhodes). A very interesting locality, apparently very long-established, but unknown to Babington.

718/9×10. *JUNCUS ACUTIFLORUS* × *ARTICULATUS*. Dernford Fen and Hauxton, 1949; Sawston Hall, 1950 (S.M.W.). (*J. acutiflorus* Hoffm. is apparently no longer present in these places.)

718/12. *J. BULBOSUS* L. Evans' (1939) statement is quite wrong. The only recent record of this markedly calcifuge species is from Gamlingay.

§*†718/16. *J. TENUIS* Willd. Wet meadow, Coton, 1954 (R. E. Hardy). An interesting addition to the County flora.

719/4. *LUZULA MULTIFLORA* (Retz.) Lejeune. Dernford Fen, 1955 (S.M.W.). The only 20th century record; Evans' (1939) estimate 'not common' is an understatement!

745/1. *ELEOCHARIS PALUSTRIS* (L.) Roem. & Schultes. Subsp. *PALUSTRIS*. The common plant, Fulbourn Pond, Wicken Lode, etc. (S.M.W.). Subsp. *MICROCARPA* Walters. Coe Fen, Vickers Brook, Swavesey, Earith (S.M.W.).

745/2. *E. UNIGLUMIS* (Link) Schultes. Main Drove, Wicken; wet meadows, Hauxton (S.M.W.).

746/2. *SCHOENOPLECTUS TABERNAEMONTANI* (C. C. Gmel.) Palla. Pond on Teversham Fen, 1948 (D.E.C. and C.D.P.). An interesting inland record.

746/4. *SCIRPUS MARITIMUS* L. Pond on Teversham Fen, 1948 (D.E.C.). An interesting inland record.

746/8. *ELEOCHARIS PAUCIFLORA* (Lightf.) Link. Main drove, Wicken, abundant. Evans' (1939) record for *Scirpus caespitosus* at Wicken may refer to this plant (S.M.W.).

746/14. *BLYSMUS COMPRESSUS* (L.) Link. Dernford Fen, 1946 (S.M.W.). The only known Cambs. locality.

747/2. *ERIOPHORUM ANGUSTIFOLIUM* Honck. A small patch in wet fenland on Teversham Fen near Quy, 1947 (C.D.P.). Abundant on part of Stow-cum-Quy Fen, 1948 (D.E.C.); but ploughed up in 1954.

753/21. *CAREX LEPIDOCARPA* Tausch. This is the common '*C. flava*' of the fens. Abundant at Wicken.

753/22. *C. SEROTINA* Mérat. Spring at Fulbourn, Sept. 1949 (T. G. Tutin and S.M.W.); Wicken Fen, 1950 (S.M.W.).

753/59. *C. OTRUBAE* Podp. This is the common species especially about ponds on the boulder clay. *C. vulpina* L. has not yet been discovered in the county.

753/59×57. *C. OTRUBAE* × *REMOTA*. With the parents in a ditch at Eltisley, 1948 (C.D.P.); near Dullingham, 1953 (F.H.P.).

753/60. *C. CONTIGUA* Hoppe. Common on road verges especially to the south-west of Cambridge.

753/61. *C. PAIRAEI* F. Schultz. Gt. Heath Wood, Gamlingay, and Hildersham Furze Hills, 1948 (C.D.P.).

753/61(2). *C. POLYPHYLLA* Kar. & Kir. Abundant in Hildersham village and near Pampisford, 1948 (C.D.P.). Verges of main road over the Gogs Hills near Wandlebury, 1948 (W. H. Mills), and Kneesworth, 1951 (P.D.S.).

753/62. *C. DIVULSA* Stokes. Roadside hedgebanks at Linton, Toft and Caldecote, 1948 (C.D.P.). Bryon's Pool, Grantchester, 1954 (S.M.W.).

753/63. *C. PANICULATA* L. Abundant on Teversham Fen, 1947 (C.D.P.); by the river Cam around Bottisham Lode, 1954 (S.M.W.).

753/74. *C. PULICARIS* L. Still survives at Chippenham Fen. Plentiful in wet turf on Stow-cum-Quy Fen, 1948 (D.E.C.).

†766/2. *ANTHOXANTHUM PUELI* Lecoq & Lamotte. Abundant at Gamlingay near the Great Heath Wood, 1949 (C.D.P.).

780/3. *AGROSTIS TENUIS* Sibth. Evans' (1939) statement 'probably our most plentiful grass' is hopelessly wrong, and there is no reason to think that it ever was true of Cambridgeshire. There are in fact remarkably few records. The only common *Agrostis* species in the county are *A. stolonifera* L. and *A. gigantea* Roth.

§*794/5b. *AVENA LUDOVICIANA* Durieu. First record Lolworth, 1952. Still apparently rare in the county.

818/2. *MELICA UNIFLORA* Retz. West Wickham Wood, 1950 (C.D.P.), and Sparrow's Grove, 1950 (D.E.C.).

§*824/5. *POA PALUSTRIS* L. Wicken Fen, 1953 (S.M.W.). The discovery of this plant in quantity at Wood Walton (Hunts) in 1951 stimulated a search at Wicken. This was successful, a herbarium specimen collected in 1941 and labelled "? *Agrostis*" providing the necessary clue. There seems to be only a small quantity of the plant at Wicken, confined so far as is yet known to some 100 sq. yds. of the fen; but there is no reason to think it is a recent introduction.

825/2×3. *GLYCERIA* × *PEDICELLATA* Townsend. Grantchester; Sutton Meadlands; Whittlesford; Wicken Lode; Hauxton (S.M.W.).

825/3(2). *G. DECLINATA* Bréb. Ponds at Barton, Comberton, Toft, Caldecote, Hauxton, Grantchester, Swavesey (S.M.W.).

*†827/1. *BROMUS DIANDRUS* Roth (*ANISANTHA GUSSONII* (Parl.) Nevski). First recorded at side of cornfield, Gogs, 1952 (C.D.P.). Since then discovered to be locally abundant in Fordham-Chippenham area and apparently rapidly increasing.

850/1. *PHYLLITIS SCOLOPENDRIUM* (L.) Newm. Many plants on Baitsbite Lock, 1949 (C.D.P.). A few plants on a wall near Barrington, 1949 (C.D.P.).

853/1. *ATHYRIUM FILIX-FEMINA* (L.) Roth. A single plant in Forty Acres Wood on Chippenham Fen, 1948 (C.D.P.).

856/4. *DRYOPTERIS AUSTRIACA* (Jacq.) Woyнар. Longstowe Wood, 1947; Wood by the Chronicle Hills at Triplow; Buff Wood; Forty Acres Wood, Chippenham Fen; Wood near Gamlingay Cinques and Great Heath Wood, 1948. Marmers Wood near Stetchworth, Sparrow's Grove near Burrough Green, 1950 (C.D.P.).

The nomenclature used in this paper is that of Clapham, Tutin & Warburg (1952), except in the case of *Bromus diandrus*.

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JOHN CLARE AND NORTHAMPTONSHIRE PLANT RECORDS

By F. H. PERRING

In Druce (1930) many of the first records for Northamptonshire are credited to John Clare, the county poet-naturalist. The records are taken from the poems of John Clare, fairly complete editions of which had been published by 1930, the date of Druce's "Flora". If this procedure is botanically justifiable then some parts of Druce (1930) require revision as a result of the publication in 1951 of *The Prose of John Clare* edited by J. W. & Anne Tibble who have devoted many years to a study of Clare's work.

The prose falls into three main parts: the autobiography, written in 1824 and covering the years 1793-1824; a journal, referred to the years 1824 and 1825; some natural history letters, written during the same two years as the journal. In addition there are a few notes made in later years when Clare was confined to an asylum; none of these are of great botanical importance and are not further referred to here.

In a historical preface to the "Flora" Druce gives a list of plants which are mentioned by Clare. He assumes that they were seen growing within the county boundaries, though, as Clare lived in the N.E. of Northamptonshire either at Helpstone or Northborough, both of which are less than 3 miles from Lincolnshire, this assumption may not always have been justified. This assumption is continued here, though occasionally, not being bound in his prose by the metre of the poetry, Clare is more informative about localities and some can be placed in Northamptonshire with certainty. To Druce's list must be added species which are mentioned in Clare's prose which had not been referred to in his poetry. These additions are of two kinds: they may be of no further interest, merely adding to our knowledge of Clare's knowledge of Northamptonshire plants; or they may be records which antedate any other known records for certain species within the county. A third type of record is for species which are in Druce's list but which are mentioned some years earlier in the prose than in the poetry. Other records are included which seem of particular interest.

Clare used English names in most cases and, where necessary, Britten & Holland (1886) and Prior (1870) have been consulted. The species are arranged in the order used in Clapham, Tutin & Warburg (1952) and symbols used to indicate the type of record. The species name is followed by a letter indicating the section of Clare's prose in which it is mentioned: A=autobiography,

J=journal, N=natural history letters; the number following refers to the page in Tibble, J. W. & A. (1951). When Britten & Holland (1886) or Prior (1870) have been used (B. & H.) or (P.) follow the page number. The actual quotation is preceded by the date of the note where this is known. Amendments to Druce (1930) and comments are at the end.

N.B.—Clare's writings were unpunctuated: Clare's spelling is retained.

A. ADDITIONS TO DRUCE'S LIST; EARLIER COUNTY RECORD.

1. BERBERIS VULGARIS J.133 Mon. 31 Jan. 1825. "Went to Simon's Wood (53/12-03-) for a sucker of the Barberry Bush to set in my Garden"

First record in Druce (1930): Notcutt, *Phytologist*, 1843. 501

2. BUXUS SEMPERVIRENS J. 134 Fri. 4 Feb. 1825. "... on the third of this month I found an hedge-sparrows nest in Billings Bostrees . . ." (neighbour Billings; see D.6)

Druce (1930) gives no first record for the county. This may be the first record, but for a species undoubtedly planted here.

N.170 6 Mar. 1824.* "The hedgesparrow is very early at building its nest I found one last year in a box tree with three eggs on the 3rd of February . . ."

Placing these two entries side by side it seems reasonable to suppose that the second refers to the first and that the date of that Natural History Letter was possibly 1826.

3. FRANGULA ALNUS J. 140 (P.) Weds. 16 Mar. 1825. "—Went to visit an old favorite spot in Oxy Wood (53/12-03-) that used to be smothered with ferns—got some willow trees to set in Billings close & a stoven of Black Alder to set in my garden" Prior (1870) suggests that Black Alder is *Frangula alnus*. It is not certain whether Clare was referring to this species which is rare in the county or to *Rhamnus catharticus* which is frequent. However *Frangula alnus* has been recorded from Helpstone Heath (53/11-03-) which is adjacent to Oxy Wood.

First record Druce (1930): Rev. M. J. Berkeley c. 1850.

See also N.163 7 Feb. 1824 "... the darker mottled sorts of hazle & black alder . . ."

4. GEUM URBANUM J. 131 Mon. 10 Jan. 1825. "... the Avens (a common hedge-row plant) has never lost its leaves but appears as green as at Spring"

First record Druce (1930): Gulliver, *Banbury Cat.*, 1841.

5. CORNUS SANGUINEA J. 133 (B. & H.) Mon. 31 Jan. 1825. "—saw the Corn tree putting out into leaf—"

First record Druce (1930): Rev. M. J. Berkeley in Hooker, *British Flora*, 5, 1836.

*Date surmised by Prof. & Mrs. Tibble.

6. *SCROPHULARIA AQUATICA* A. 37 (P.). "Waspweed is the water betony growing by brooksides which gained their name by the wasps being invariably attracted to its blossoms . . ." First record Druce (1930): Gulliver, *Banbury Cat.*, 1841.
7. *GALANTHUS NIVALIS* J. 133 Mon. 31 Jan. 1825. "Saw . . . (in Simons Wood 53/12-03-) a bunch of single snowdrops in full flower" Druce (1930) gives no first record; this may be the first.

B. ADDITIONS TO DRUCE'S LIST NOT EARLIER COUNTY RECORD.

1. *BLECHNUM SPICANT*.
2. *PHYLLITIS SCOLOPENDRIUM*
3. *POLYPODIUM VULGARE* (?) J. 120 (B. & H.) Wed. 3 Nov. 1824 " . . . went into Hilly Wood (53/11-44-) . . . there are 5 sorts (of ferns) growing about the woods here the common brake of the fox fern (*Bechnum spicant*) the hart's tongue and the polypody 2 sorts the tall & the dwarf"
4. *DRYOPTERIS SPINULOSA/AUSTRIACA* J. 127 Wed. 15 Dec. 1824 " . . . find that my fern which I found in Harrisons close dyke by the wood lane is the thorn pointed fern . . ." This reference might equally well be to *Polystichum lobatum* or *P. setiferum* though Druce (1930) gives very few localities for the latter in the county.
5. *EUONYMUS EUROPAEUS* N. 163 (B. & H.) 7 Feb. 1824. "—the foulroyce twigs kindle into a vivid color at their tops as red as wood piegons claws . . ." (Foul Rush = *Enonymus* in Bucks.)
6. *SORBUS TORMINALIS* J. 138 Tues. 8 Mar. 1825. "— went to Royce Wood (Rice Wood: 53/12-04-) to get some Service trees to set in Billings close"
7. *POPULUS ALBA* (?) A. 25 " . . . the different greens of the woodland trees the dark oak the paler ash the mellow lime the white poplar peeping above the rest like leafy steeples . . ."

C. PLANT MENTIONED IN DRUCE'S LIST BUT AT AN EARLIER DATE IN THE PROSE.

1. *RANUNCULUS FICARIA* N. 186 25 Mar. 1825. " . . . the green is covered with daisies and the little Celandine . . ." Druce (1930) gives 1835 as the date of the first county record quoting from Clare's "Rural Muse":
" And Pilewort flares about the hill."

D. INTERESTING RECORDS.

1. *ANEMONE PULSATILLA*. N. 187 25 Mar. 1825 "— you have often wished for a blue Anemonie the *Anemonie pulsatilla* of botanists & I can now send you some for I have found some in

flower today which is very early but it is a very early spring the heathen mythology is fond of indulging in the metamorphosing of the memory of lovers & heroes into the births of flowers & I could almost fancy that this blue *Anemone* sprung from the blood or dust of the romans for it haunts the roman bank in this neighbourhood & is found no were else it grows on the roman bank agin Swordy well & did grow in great plenty but the plough that destroyer of wild flowers has rooted it out of its long inherited dwelling it grows also on the roman bank agin Burghley Park in Barnack Lordship it is a very fine flower & is easily cultivated by transporting some of its own soil with it a heathy sandy soil seems to suit it best—"

The 'roman bank agin Swordy well' is King Street where it crosses the modern road from Ufford to Marholm. Mrs. Tibble says that Swordy Well is at the N.E. of these cross roads, and that *Anemone pulsatilla* grew there in 1925; it is now, however, partly quarried and partly a refuse dump, and *Anemone* may be extinct. The Grid Reference is 53/113033. There is a specimen in the Herbarium of the Botany Department at Oxford, collected by Druce and labelled "Swordy Well, 1911" but this locality does not appear in the flora.

The "roman bank agin Burghley Park" is probably Ermine Street. It runs N.W. from Southorpe to Stamford passing through Burghley Park. At the present day it is only marked as a footpath over this stretch, but it seems likely that at some time in the past, before Enclosure, the remains of Ermine Street were visible as a grassy bank. The bank would have had a S.W. aspect where *Anemone* might be expected to flourish. The locality was probably in 1 kilometre square 53/04-05- (N.B. Hills and Holes, Barnack, is 53/07-04-).

2. *LYTHRUM SALICARIA* A. 26 (B. & H.) "I lovd the meadow lake with its flags and long purples crowding the waters edge . . ." Professor and Mrs. Tibble, from local knowledge, believe the plant referred to is 'Purple bugle' (*Ajuga reptans*). Mrs. Tibble, in correspondence, says that the flowers are called by this name round Helpston, where they are still in the flood meadows by Lolham Bridges, where Clare found them. *Orchis mascula* has been put forward by B. & H. as the species meant in Somerset and Sussex and they suggest it is the species Shakespeare had in mind when he gave Ophelia the following lines in Hamlet Act iv, sc. 7.

" Long Purples,
That liberal shepherds give a grosser name,
But our cold maids do Deadmen's fingers call them."

Mrs. Tibble points out that neither *Lythrum salicaria* nor *Orchis mascula* look like 'Deadmen's fingers' (though surely the underground parts of the latter do have that appearance)

whereas *Ajuga reptans* does. However, in the quotation from the Prose above and in another from Clare's "The Village Minstrel",

"Gay long purples with its tufty spike :
She'd wade o'er shoes to reach it in the dyke,"

I would agree with B. & H. that *Lythrum salicaria* fits the description better than the other two species mentioned.

3. SALIX CAPREA

S. CINEREA J. 136 (B. & H.) Sun. 27 Mar. 1825. "This is Palm Sunday—I went to the woods to seek some branches of the sorrow palm for the children called by them 'geese & goslings' and 'Cats & Kittens'—"

Both names are recorded for Northamptonshire by Britten & Holland (1886) but refer to two *Salix* species. Either would be an earlier county record but we cannot tell which Clare meant.

4. PULMONARIA OFFICINALIS J. 136 (B. & H.) Thurs. 17 Feb. 1825. "Saw a large bunch of blue violets in flower and a root of the Bedlam cowslip"

Britten & Holland (1886) believe that *Pulmonaria officinalis* is intended which Langham (*Garden of Health*, 1597) calls Cowslips of Bedlam, and which is known as Bedlam Cowslip in Oxfordshire. However Druce (1930) identified the plant as *Primula veris* × *vulgaris* relying on the interpretation of Baker (1854) which Britten & Holland (1886) discuss. Baker supports her interpretation by quoting from one of Clare's poems :

"Bedlam Cowslips and Cuckoos
With freck'd lip and hooked nose.
Growing safe near the hazle of thicket & woods."

This evidence alone seems insufficient to be certain that Clare was referring to *Primula veris* × *vulgaris*, in fact, as Dr. S. M. Walters has pointed out, the quotation from the prose makes *Pulmonaria officinalis* more likely. A root of the hybrid would be very difficult to distinguish from Cowslip or Primrose whereas, in an early spring when Violets were in flower in mid-February, the leaves of *Pulmonaria* would be showing and could be identified by their characteristic white spots even if the plant was not yet in flower. If this is the correct interpretation then it is probably a first county record, though the species is a naturalised garden escape in this country.

5. CAMPANULA ROTUNDIFOLIA J. 116 (B. & H. and P.) Thur. 21 Oct. 1824 " . . . the little heath-bell or harvest-bell Quakes to the wind under the quick banks and warm furze—"

Britten & Holland (1886) suggest that the Heath-bell is *Erica tetralix*, a name by which it is known in Hampshire. This plant is rare in Northamptonshire according to Druce. Both

Britten & Holland (1886) and Prior (1870) suggest that that the Harvest-bell is *Gentiana pneumonanthe* because it flowers at harvest time. This is not recorded from Northamptonshire so that it is not likely to be the species meant, moreover *Erica tetralix* flowers at the same time and might equally well be called the Harvest-bell. From Clare's description of the habitat and the associated plants neither *Erica* nor *Gentiana* suggest themselves as 'quaking to the wind under quick banks and warm furze', both being plants of wet heaths. It could be that Heath and Harvest, particularly the latter, are cognate with Hare and the plant to which Clare referred was *Campanula rotundifolia*. Druce was also of this opinion and, in his list of Clare plants, he includes under *Campanula rotundifolia* two lines from "The Village Minstrel" of 1821, very similar in content to the extract from the prose quoted above:

"And where, last lingering of the flowery kind,
Blue Heathbells tremble 'neath the sheltering furze."

6. ARUM MACULATUM A. 40 (B. & H.) "He (John Billings*) is fond of getting 'cuckoos' bluebells primroses & any favorite flowers from the fields & woods to set in his garden . . ."

Britten & Holland suggest *Arum maculatum* as the identity of "cuckoos" quoting the following poem:

"Where peep the gaping speckled cuckoo flowers,
Prizes to rambling school-boys' vacant hours."

This poem is not in Druce's list where he quotes from poems containing references to 'Arum' and 'Lords & Ladies'.

E. UNIDENTIFIED PLANTS ABOUT WHICH SUGGESTIONS WOULD BE WELCOME.

A. 37 ' . . . a little plant with a hard stem that grows in villages & waste places one sort bearing yellow flowers & another purple ones these they called burvine & reckoned famous for the scurvy . . .'

This is a reference to the Gypsies' names for plants.

[These two plants are undoubtedly *Sisymbrium officinale* (L.) Scop.† and *Verbena officinalis* L. Dr. T. A. Sprague has pointed out (e.g., in 1928, *Journ. Linn. Soc. Bot.*, **48**, 89, 94-5; 1931, *ibid.*, 557, 559, 612) that in the days of the herbalists the hedge mustard and the vervain were both included in the genus *Verbena* (or *Verbenaca*), being distinguished, after the common manner of the time, as *V. foemina* and *V. mas* (or *mascula*) respectively. Dr. Sprague comments on the great

*Billings was a neighbour of Clare's. They often went fishing together and, whilst Clare read Cowper and Walton, Billings apparently enjoyed more practical works, for example one entitled "The Pleasant Art of Money Catching".

†The record for *Sisymbrium officinale* would be a new first county record. Druce gives Gulliver, *Banbury Cat.*, 1841. Clare's record therefore takes precedence by 17 years

superficial similarity in the habit of the two species: they often occur, too, in similar habitats, such as waste places in villages. It is interesting to find that one of the characters mentioned by Clare, viz., the hard stems, was already noted by the herbalist Albertus Magnus as distinctive as long ago as 1250 (quoted by Sprague, 1928, 89). The popular name "bur-vine", mentioned by Clare, is evidently a variant of "ver-vain".—H. K. AIRY SHAW.]

J. 150. Sun. 29 May. 1825. "—Found a very scarce & curious orchis of an iron grey color or rather a pale rusty tinge with a root like the pilewort I cannot make out its name—I found last week a fine white piegon orchis which is seldom found" Possibly *Neottia nidus-avis* and *Anacamptis pyramidalis*. If this were a reference to *Neottia* it would be an earlier county record than that in Druce (1930): Irvine, *Lond. Fl.*, 1838.

J. 127 Wed. 8 Dec. 1824. "Found . . . a small fern in Hilly Wood (53/11-44-) scarcely larger than some species of moss & a little resembling curld parsley I have named it the dwari maidenhair & I believe it is very scarce here"

F. SOME RECORDS FOR WHITTLESEY MERE, HUNTINGDONSHIRE.

1. *THELYPTERIS PALUSTRIS*. N. 188 25 Mar. 1825. ". . . there is a beautiful one which a friend of mine calls the 'Lady fern' growing among the boggy spots on Whittlesea Mere . . ." Druce (1932) names two counties from which *Athyrium filix-foemina* has not been recorded: one of these is Huntingdonshire. Moreover a fern of "boggy spots" is more likely to be *Thelypteris palustris*.
Earliest county records: Holme Fen, Newbould, 1846.
Whittlesey Mere, Paley, 1862.
N.B. First record 1824: see under *Melandrium album*.
2. *MELANDRIUM ALBUM* J. 126 Sat. 27 Nov. 1824. ". . . the Lady fern growing at Whittlesea Meer & tall White Lychnis . . ." Earliest county records: Somersham, Newbould.
Orton, 1876.
3. *SALIX REPENS* N. 188 25 Mar. 1825. ". . . a dwarf willow grows there about a foot high which it never exceeds . . ." Earliest county records: Holme Fen, Newbould (1846?).
Wood Walton Fen, Druce, 1908.
1. *OXYCOCCUS PALUSTRIS* N. 188 25 Mar. 1825. ". . . it is also a place very common for the cranberry that trails by the brink of the mere . . ." Earliest county records: Holme Fen, rare and probably extinct, Newbould (1846?).
Whittlesey, Paley (1862?).

N.B. Mr. J. Gilbert says the species is undoubtedly extinct in the county.

I am indebted to Mr. Gilbert for all information on Huntingdonshire records. I would also like to express my thanks to Mrs. Anne Tibble and Dr. S. M. Walters for reading the text and making many valuable suggestions.

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A HERBARIUM OF SIR JOHN BENNETT

By D. P. YOUNG

In the recent obituary notice of R. R. Hutchinson (C. T. Prime and D. P. Young, 1953: *Year Book B.S.B.I.*, 1953, 92) it was mentioned that his herbarium, bequeathed to the Croydon Natural History Society, included the herbarium of a much earlier collector referred to as "I.J.B." Further examination of these sheets showed that their original owner had been a botanist of some calibre, since he received specimens from many well-known collectors of a century ago such as Roberts Leyland, J. E. Smith, J. E. Gray, Curtis (presumably Samuel), and Nathaniel Winch. Unfortunately the sheets had no proper labels, and much of the data was written by the various correspondents, so that very little of the owner's handwriting was available for study. Two clues led finally to his identification: several specimens were collected by "E.T.B."—presumably E. T. Bennett—and one sheet was ascribed (in Hutchinson's hand) to "J. J. Bennett". This suggested Sir John Joseph Bennett (1801-1876), who was E. T. Bennett's brother. Comparison of "I.J.B.'s" handwriting with Sir John's (e.g. in Hooker's correspondence at Kew) left no doubt that they were the same; furthermore, he regularly signed his name with the first initial like an "I".

As Bennett's herbarium had already been incorporated in Hutchinson's, and many sheets were either completely unlabelled or without sufficient data to link them with Bennett with any certainty, it is difficult to estimate the size of the latter's collection. The number of more or less undoubted sheets is of the order of 500. It is remarkable more for rarities than for any wealth of critical material. How it came into Hutchinson's possession cannot now be ascertained, but it may have been sold by auction; he had some books from the library of J. B. Carruthers, the son of Bennett's friend and successor, William Carruthers. Bennett had retained and added to his collection whilst he was on the staff of the British Museum, thereby breaking the rules of that institution, consequently it would have been indecorous for any public herbarium to have accepted the collection after his death.

In a separate parcel amongst Hutchinson's collection were 85 sheets (British and foreign) which appear to have come from the herbarium of the Marchioness of Huntly (1821-1893). According to Druce (1930: *Flora of Northants*, cxx), her collection was in "46 handsome volumes at Orton Hall", but its present where-

abouts is unknown (Mr. J. Gilbert and Mr. D. H. Kent have kindly made enquiries after it). The 85 sheets only cover the *Compositae* to *Thymelaeaceae* inclusive (*London Catalogue* sequence). They show no signs of bookbinding, and may have been duplicates.

PLANT NOTES

176/21. *Vicia monantha* Retz. 1783, *Obs. Bot.*, **3**, 39; *V. calcarata* Desf., 1799, *Fl. Atlant.*, **2**, 166. Recently Burtt and Lewis (1949, *Kew Bull.*, **1949**, 497-515) examined the Kew herbarium material of this species by biometric methods, and found support for the long-standing view (Murbeck, 1897, *Contr. Fl. nord-ouest Afr.*, **1**, 74-76; Maire, 1932, *Bull. Soc. Hist. nat. Afr. Nord*, **23**, 184; 1940, *ibid*, **31**, 17) that it comprised two segregates differing in size and geographical distribution. These are regarded by most authors as subspecies, and according to Burtt and Lewis they are distinguishable as follows:

	<i>Vicia monantha</i> Retz. :	
	subsp. <i>monantha</i>	subsp. <i>triflora</i> (Ten.)
	(subsp. <i>cinerea</i> (Bieb.)	Burtt & Lewis
	Maire)	
	(1-2)	(2-4)
Flowers per inflorescence		
Length of standard	10-14.5 mm.	14.5-19 mm.
Length of wings	9-12.5 mm.	14-16.5 mm.
Length of keel	9-11.5 mm.	12-14 mm.
Mature pod	23-33 × 6.8-5 mm.	32-49 × 8.5-12 mm.
Seed, diameter	<3.5 mm.	>3.5 mm.
Seed, colour	brownish	blackish
Distribution	Mainly E. Medit.	Near and Middle
	to India	East

The assignment of Retz' type to the "smaller" subsp. was made by Burtt and Lewis on rather slender evidence (the type-specimen is inadequate), but under the International Rules it is necessary to assign the subspecific epithet *monantha* to whichever segregate includes the type.

V. monantha has occurred in this country sporadically as an alien, usually associated with grain refuse. I have looked through the material from Britain at Kew, the British Museum, Oxford, and in herb. R. C. L. Burges, and so far as can be determined it is all subsp. *triflora*, or at least there is no unequivocal subsp. *monantha* amongst it. As often happens with adventive aliens, the majority of specimens were so retarded or stunted from growing under unfavourable conditions that biometric measurements were unreliable or impossible. The flower-length is a particularly unsatisfactory character here, since the flowers seem to enlarge rapidly during anthesis, and also since late in the season the plant is prone to produce stunted diminutive flowers. Two plants which I found, in company with Dr. R. C. L. Burges and Messrs. R. Graham, J. E. Lousley, and B. T. Ward, in October 1953 on the rubbish-tip at Barking (v.c. 18) had pods 32-40 × 9 mm., standard (only one flower available, past anthesis) 12 mm. and giving preference to the pod character thus came just inside subsp. *triflora*. Seed from these sown in the garden the following spring germinated readily, and the resultant

plants had the flower standard 15-17 mm. long and mature pods 39-44 × 10-11 mm., leaving no doubt that they fell under subsp. *triflora*. Although the garden-grown plants were robust and healthy, the inflorescences were never more than 1-flowered. The flowers are usually described as "purple"; the present ones were a bright carmine reminiscent of *Lathyrus nissolia*, turning greenish-blue after fertilisation.—D. P. YOUNG.

220/17. *EPILOBIUM PEDUNCULARE* A. Cunn. In 1947 a few small plants of this species appeared in the shrubbery at Parkhill, near Arbroath, v.c. 90, probably imported with ornamental shrubs. At my request these plants were carefully preserved. By the summer of 1954 it was somewhat disconcerting to find that they had multiplied into hundreds, perhaps thousands, of plants covering an area of approximately 50 square yards. All the common weeds had been crowded out with the exception of a few tough plants of *Viola riviniana*. The only other species able to hold its own was another alien, *Mentha requienii*, which had taken possession of a few square feet of ground in competition with the *Epilobium*. The latter is spreading not only by its roots but also by seed, and fresh colonies have been noted within a radius of 150 yards, but so far (curiously perhaps) no further afield.—U. K. DUNCAN.

435/14. *Campanula lactiflora* Bieb., 1808, *Fl. Taur.-Cauc.*, 1, 153. 92, S. Aberdeen; by River Dee at Dess (two places) and Ballater, thoroughly established, 1954, D. McCLINTOCK (Hb. Lousley).

Perennial, stem 90-150 cm., branched above, with a few stiff reflexed hairs. Cauline leaves ovate-lanceolate, 7.5-10 cm. long, serrate, sessile, glabrous except for a few stiff hairs on the nerves beneath, rather pale green. Flowers in a much branched, loose, terminal panicle, usually three on each peduncle. Calyx lobes ovate, acute, veined, hispid. Corolla open campanulate to nearly saucer-shaped, about one inch long, and across. Capsule opening at the base. Caucasus, Armenia, Asia Minor and north Persia.

This ornamental garden plant was introduced in 1814, but is grown more in Scotland than in England. Bieberstein described the colour of the flowers as milky suffused with blue, but in the countries where it is native, and in cultivation, there is much variation and it is sometimes pale blue (as at Ballater) or a much brighter blue (as at Dess). Excellent illustrations will be found in Bieberstein's *Cent. Pl. Rar. Ross.*, 1, t. 10, 1810 and Edwards' *Botanical Register*, 3, t. 241, 1817, but the one in *Bot. Mag.*, t. 1973 is not representative.—J. E. LOUSLEY.

615/37. *Polygonum senegalense* Meisn., 1826, *Mon. gen. Polygoni prodr.*, 54. 37, Worcs.; as a wool adventive in field of beet, Charlton, 1953, Miss C. M. GOODMAN and J. E. LOUSLEY (Hb. Lousley, 53110152).

Stem robust, erect, little branched, glabrous, over 2 metres tall. Leaves shortly petioled, ovate-lanceolate, up to 23 cm. in length, and

7 cm. wide, acute, glabrous except for strigose hairs on the margins and on the nerves on the undersurface. Ochreae large, truncate, not ciliate. Flowers in elongated spike-like raceme. Perianth pink. Native throughout tropical Africa, and extending north to Egypt. and south through temperate Africa to the Cape.

The single plant found superficially somewhat resembled a giant *P. lapathifolium*. It was observed for several weeks by Miss Goodman but no fruits had set by November 1st when specimens were collected. I am grateful to Mr. E. Milne-Redhead for kindly confirming the name so far as is possible on immature material.

J. E. LOUSLEY.

+754(2)/2. *Eriochloa contracta* Hitchc., 1928, *Proc. Biol. Soc. Wash.*, **41**, 163. Based on *Helopus mollis* C. Muell., 1861, *Bot. Zeit.*, **19**, 314, non Kunth (1829). 34. W. Glos.; Avonmouth Docks, Bristol, September 1952, Rev. R. B. ABELL, C. W. BANNISTER and C. C. TOWNSEND, det. C. E. HUBBARD. See "Bristol Botany in 1952" (*Proc. Bristol Nat. Soc.*, **28**, 312 (1953)).

The genus *Eriochloa* belongs to the tribe *Paniceae*, of which four other genera—*Panicum*, *Digitaria*, *Echinochloa* and *Setaria*—occur frequently as aliens in Britain. It may be distinguished from all of these and other genera of the *Paniceae* by the swollen (subglobose) lowest internode of the spikelet which is covered by the minute lower glume. *Setaria* is at once distinguished by the presence of one or more long bristles (modified branchlets) from the spikelet pedicels; *Digitaria* by the flat *hyaline* margins of the fertile lemma and the somewhat thinner fruit; *Echinochloa* by the frequently awned glumes and sterile lemma and the dense secund racemes which comprise the paniculate inflorescence; *Panicum* by the paniculate inflorescence, not secund as in *Eriochloa*. *Paspalum* is distinguished by having the back of the fertile lemma *towards* the rachis, not away from it as in *Eriochloa*.

E. contracta is a simple or sparsely branched plant 30-70 cm. tall, with a soft appearance somewhat reminiscent of a *Holcus* sp. when both are beginning to expand their inflorescence. Leaves flat and pubescent; panicle usually less than 15 cm., with villous rachis; spikelets pilose, about 3.5-4 mm. long, falling very easily when ripe. Second glume and sterile lemma acuminate. Fertile lemmas with margins rigid and in-rolled.

Native of the southern and central United States of America (Nebraska to Colorado, Louisiana and Arizona, introduced into Missouri and Virginia, ex Hitchcock).

PLANT RECORDS

Compiled by E. C. WALLACE

Records are for the year 1954 when no date is given.

The following signs are used:—

- § before the *B.P.L.* number: to indicate that the paragraph contains information necessitating a correction to an annotated copy of the *Comital Flora*.
- † before the *B.P.L.* number: to indicate that the plant is not a native species in the British Isles.
- † before the record: to indicate a species which, though native in some parts of the British Isles, is not so in the locality recorded.
- * before the record: to indicate a new vice-county record, not published previously to this issue of the *Proceedings*.
- ‡ before the record: to indicate a record additional to an annotated copy of *Comital Flora*, but published elsewhere prior to the issue of the *Proceedings* in which it appears.
- [] enclosing a record: to indicate doubt as to the validity of the record, either of identification or locality.

It will be useful if, in future, National Grid Co-ordinates, made as accurate as is thought advisable, are added to all records.

†21/11. *PAPAVER ORIENTALE* L. 49, Caern.; well-established on waste ground, Bangor, 1953, K. E. BULL.

§35/1. *RORIPPA NASTURTIUM-AQUATICUM* (L.) Hayek. *45, Pembs.; damp spot near Parrog sands, Newport; streamlet by St. Nan's Chapel, St. Davids; stream running down to Manorbier sands; stream near Folly Woods, Tenby, C. C. TOWNSEND.

35/1(2)×1. *RORIPPA* × *STERILIS* Airy Shaw. *45, Pembs.; streamlet by St. Nan's Chapel, St. Davids; abundant in the river Alan north of Dowrog Moor; stream running down to Manorbier sands, C. C. TOWNSEND.

§36/5. *BARBAREA INTERMEDIA* Bor. *45, Pembs.; several plants on a wall by the road ascending from the Goodwick causeway to Fishguard, C. C. TOWNSEND.

76/1. *CRAMBE MARITIMA* L. H.20, Wicklow; about halfway from Newcastle to Five Mile Point, thought to be extinct but rediscovered by Mr. L. H. Williams and Mr. and Mrs. Stelfox, comm. J. P. Brunner (1955, *Irish Nats. J.*, 11, 250).

92/2. *DIANTHUS DELTOIDES* L. †4, N. Devon; small patch at edge of cliff between Croyde Bay and Baggy Point, a garden escape here, K. E. BULL. 16, W. Kent; disused ragstone quarry south of Chipstead, 1953, F. S. E. Fawkes (1955, *Lond. Nat.*, **34**, 3).

100/8. *CERASTIUM SEMIDECANDRUM* forma *STENOPETALUM* (Beck) Hegi. 31, Hunts.; on a mole-hill near Wansford Quarries, Stibbington, 1951, J. L. GILBERT, det. W. MÖSCHL. 54, N. Lincs.; Manton Common, 1950, B.S.B.I. EXCURSION, det. W. MÖSCHL, comm. J. L. GILBERT.

101/2b. *STELLARIA NEMORUM* subsp. *GLOCHIDISPERMA* Murb. 48, Mer.; wood near Hongwrt, Dolgelly, 1933, Mrs. M. RICHARDS; 1954, P. M. BENOIT.

†102/14. *ARENARIA BALEARICA* L. 14, E. Sussex; old wall near Tunbridge Wells West station, 1950-1954, K. E. BULL.

§103/2. *SAGINA SUBULATA* (Sw.) C. Presl. 45, Pembs.; a little on dry slopes facing the sea near Manorbier, C. C. TOWNSEND. ‡66, Durham; limestone ridge near Marsden; also sparingly on Widdy Bank Fell, J. W. Heslop Harrison & J. A. Richardson (1954, *Proc. Univ. Durham Phil. Soc.*, **12** (5), 37).

§109/2. *MONTIA FONTANA* subsp. *CHONDROSPERMA* (Fenzl) Walters. 48, Mer.; in a dried-up dune-slack below Plâs Mynach, Barmouth, P. M. BENOIT, det. S. M. WALTERS. *81, Berwick.; damp rut in track, near St. Abbs Head, P. S. GREEN, conf. S. M. WALTERS.

112/1. *HYPERICUM ANDROSAEMUM* L. 104, N. Ebudes; limestone outcrop south of Broadford, J. RUSSELL & N. SAUNDERS, comm. M. McCALLUM WEBSTER.

§127/11. *GERANIUM ROTUNDIFOLIUM* L. ‡66, Durham; Mainforth, a single plant on the edge of a field, J. W. Heslop Harrison & J. A. Richardson (1954, *Proc. Univ. Durham Phil. Soc.*, **12** (5), 37).

128/2. *ERODIUM MOSCHATUM* (L.) L'Hérit. 45, Pembs.; several plants on a grassy bank at the south end of Tenby esplanade with *Lavatera cretica* L. Thought by Mrs. Rees (*List of Pembrokeshire Plants*) to be gone from Tenby. Also found in great profusion in a field of oats on the cliffs just immediately west of the railway establishment on Skrinkle Head, near Manorbier, C. C. TOWNSEND.

§132/2. *OXALIS CORNICULATA* L. *31, Hunts.; roadside weed, Elton Village, 1951, J. L. GILBERT.

§133/3. *IMPATIENS PARVIFLORA* DC. *31, Hunts.; abundant as a weed, Hilton, 1952, W. T. K. GARNETT, comm. J. L. GILBERT.

†189/13. *POTENTILLA RECTA* L. 14, E. Sussex; large patch, chalky railway-bank near Eastbourne station, K. E. BULL.

§190/2. *ALCHEMILLA XANTHOCHLORA* Rothm. *81, Berwick.; grassy cliff, Coldingham Bay, P. S. GREEN, conf. S. M. WALTERS.

190/18. *ALCHEMILLA CONJUNCTA* Bab. *†33, E. Glos.; (7b) established on rocky bank near Air Balloon Inn, 1950, K. E. BULL, det. S. M. WALTERS.

§190(2)/2. *APHANES MICROCARPA* (Boiss. & Reut.) Rothm. *45, Pems.; open spots along the stream, on bare sandy soil, Gwawr Valley, near Fishguard, C. C. TOWNSEND. *81 Berwick.; track near St. Abbs Head: *82, Haddington; damp sandy woodland track, Tynninghame Links, P. S. GREEN, both conf. S. M. WALTERS.

199/17. *SAXIFRAGA GRANULATA* L. 52, Anglesey; plentiful, sandy ridges at Newborough Warren, 1953, K. E. BULL.

199/21. *SAXIFRAGA NIVALIS* L. 104, N. Ebudes; Quirang, 1,500 ft., Skye, C. M. ROB, J. RUSSELL and N. SAUNDERS, comm. M. McCALLUM WEBSTER.

220. *EPILOBIUM*. All records determined or confirmed by G. M. ASH.

220/4×8. *EPILOBIUM PARVIFLORUM* × *ROSEUM*. 24, Bucks.; garden shrubbery, Bourne End, A. F. WOOD.

220/5×8. *EPILOBIUM ADNATUM* × *ROSEUM*. 24, Bucks.; garden shrubbery, Bourne End, A. F. WOOD.

220/7×4. *EPILOBIUM OBSCURUM* × *PARVIFLORUM*. 14, E. Sussex; grounds of Saxonbury Lodge, Frant, K. E. BULL. 32, Northants.; (7) stone quarries, Yarwell, 1951, J. L. GILBERT.

220/7×8. *EPILOBIUM OBSCURUM* × *ROSEUM*. 24, Bucks.; garden shrubbery, Bourne End, A. F. WOOD.

§†220/7(2). *EPILOBIUM ADENOCAULON* Hausskn. 14, E. Sussex; West's Wood, Flimwell, K. E. BULL. 38, Warwick.; Clifford sidings, near Stratford, C. C. TOWNSEND: Umberslade Park, near Earlswood, 1954, C. E. A. ANDREWS and C. C. TOWNSEND. *45, Pems.; fine plants in two spots along the stream, Gwawr valley, Fishguard, C. C. TOWNSEND.

220/7(2)×4. *EPILOBIUM ADENOCAULON* × *PARVIFLORUM*. 32, Northants.; (7) stone quarries, Yarwell, 1951, J. L. GILBERT.

220/7(2)×5. *EPILOBIUM ADENOCAULON* × *ADNATUM*. 24, Bucks.; garden shrubbery, Bourne End, A. F. WOOD.

220/7(2)×6. *EPILOBIUM ADENOCAULON* × *LAMYI*. 24, Bucks.; rubbish-tip, Burnham Beeches, A. F. WOOD.

220/7(2)×7. *EPILOBIUM ADENOCAULON* × *OBSCURUM*. 32, Northants; (7) stone quarries, Yarwell, 1951, J. L. GILBERT.

§+220/17. *EPILOBIUM PEDUNCULARE* A. Cunn. *94, Banff.; quarry near Kirkmichael, M. McCALLUM WEBSTER.

250/1. *CARUM CARVI* L. †92, S. Aberdeen; field near farm buildings, Cock Bridge: †94, Banff.; field near buildings, Tomintoul, M. McCALLUM WEBSTER.

†252/1. *FALCARIA VULGARIS* Bernh. S, Jersey; meadow south of St. Ouens Pond, M. McCALLUM WEBSTER.

†301/4. *VALERIANA PYRENAICA* L. 95, Elgin; greatly increasing on banks of the Mosset burn, south of Forres, M. McCALLUM WEBSTER.

†327/1. *ANAPHALIS MARGARITACEA* (L.) Benth. *95, Elgin; established on railway embankment between Dava and Grantown-on-Spey, 1953, M. McCALLUM WEBSTER.

§+368/1. *ANTHEMIS TINCTORIA* L. *31, Hunts.; along a cart-track, Holywell, 1953, J. S. MORTON, comm. J. L. GILBERT.

†383/7. *SENECIO SQUALIDUS* L. 27, E. Norfolk; waste ground near Holt station, plentiful, K. E. BULL.

383/7×8. *SENECIO* × *LONDINENSIS* Lousley. 24, Bucks.; rubbish tip, Burnham Beeches, A. F. WOOD, conf. J. E. LOUSLEY.

383/8. *SENECIO VISCOSUS* L. 38, Warwick.; Clifford sidings, near Stratford, C. C. TOWNSEND.

419. *HIERACIUM*. All records determined or confirmed by P. D. SELL & C. WEST.

§419/2. *HIERACIUM PELETERIANUM* Mérat. *9. Dorset; abundant, but flowering very sparingly, on clifftops between Lulworth Cove and Durdle Bay, 1953, C. C. TOWNSEND.

419/157. *HIERACIUM SUBAMPLIFOLIUM* (Zahn) Roffey. 41, Glam.; disused quarry, near Porthkerry, B. A. MILES.

419/166. *HIERACIUM ANGLORUM* (A. Ley) Pugsl. 37, Wores.; by the canal, Tardebigge, 1953, C. C. TOWNSEND: roadside between Ombersley and Great Witley, 1953, C. E. A. ANDREWS & C. C. TOWNSEND. 38, Warwick; railway bank near Bracebridge Pool, Sutton Park. 1953, C. C. TOWNSEND.

119/191. *HIERACTIUM CALCARICOLA* (F. J. Hanb.) Roffey. *41, Glam.; abundant on old wall and nearby rocks near Treorchy, B. A. MILES.

419/245. *HIERACIUM VAGUM* Jord. *9, Dorset; Slepe Heath, Wareham, 1953, C. C. TOWNSEND.

†425/8. *CICERBITA MACROPHYLLA* (Willd.) Wallr. 16, W. Kent; large patch by river Medway, Tonbridge: 33, E. Glos.; (7a) waste ground, Bourton-on-the-Water, 1950: 34, W. Glos.; (5) near Vine House, Henbury, 1951, K. E. BULL.

468/1. *CENTUNCULUS MINIMUS* L. 16, W. Kent; wet track in Joyden's Wood, Bexley, F. Rose, P. C. & J. Hall (1955, *Lond. Nat.*, 34, 3).

†472/2. *LIGUSTRUM OVALIFOLIUM* Hassk. 45, Pembs.; several isolated bushes among native vegetation on cliff tops above Lower Fishguard, C. C. TOWNSEND.

478/4. *CENTAURIUM PULCHELLUM* (Sw.) Druce. 38, Warwick.; one colony of about 80 plants in a damp sandy ride in Oversley Wood, Alcester, with *Centunculus*, *Peplis*, etc., C. C. TOWNSEND.

486/1. *POLEMONIUM CAERULEUM* L. †33, E. Glos.; (7b) gravelly waste ground, Charlton Kings, 1950, K. E. BULL.

†497/3. *SYMPHYTUM ORIENTALE* L. *31, Hunts.; Huntingdon Grammar School Spinney, 1950, J. L. GILBERT, det. A. E. WADE.

§506/7. *MYOSOTIS SYLVATICA* Hoffm. *†31, Hunts.; gravel pits, Stibbington, 1950, J. L. GILBERT, det. A. E. WADE.

†511/1. *CALYSTEGIA SEPIUM* (L.) R. Br. 83, Edinburgh; hedgerow, Orchard Brae, Edinburgh, P. S. GREEN.

†527/1. *VERBASCUM PHLOMOIDES* L. 95, Elgin; several plants by roadside, Dallas, 1953, M. McCALLUM WEBSTER, det. A. MELDERIS.

543/8×9. *VERONICA ANAGALLIS-AQUATICA* × *CATENATA*. 9, Dorset; meadows near Wareham, 1953, C. C. TOWNSEND, det. J. H. BURNETT.

†543/41. *VERONICA FILIFORMIS* Sm. 104, N. Ebudes; rough ground outside the kirkyard, Uig, Skye, M. McCALLUM WEBSTER.

550/3. *OROBANCHE ALBA* Steph. ex Willd. 104, N. Ebudes; bank above Uig, Skye, C. M. ROB, J. RUSSELL & N. SAUNDERS, comm. M. McCALLUM WEBSTER.

558. *MENTHA*. All specimens determined or confirmed by R. A. GRAHAM.

558/1. *MENTHA ROTUNDIFOLIA* (L.) Huds. H.12, Wexford; by river Slaney, Newtownbury: H.14, Queen's County; dry bank, Castle-town, M. McCALLUM WEBSTER.

558/1×4. *MENTHA* × *CORDIFOLIA* Opiz. 3, S. Devon; rubbish-tip, Topshap; S, Jersey; roadside above St. Ouen's Pond, M. McCALLUM WEBSTER.

558/3×1. *MENTHA* × *NILIACA* var. *WEBBERI* J. Fraser. 95, Elgin; waste ground near the Haugh, Elgin, 1953, M. McCALLUM WEBSTER.

§558/10. *MENTHA* × *GENTILIS* L. 95, Elgin; by river Lossie: *H.12, Wexford; lane leading to river Slaney one mile north of Newtownbarry. M. McCALLUM WEBSTER.

+600/7. *CHENOPODIUM* *OPULIFOLIUM* Schrad. ex Koch & Ziz. 16. W. Kent; garden weed, Tunbridge Wells, K. E. BULL, det. J. P. M. BRENAN.

§600/8(2). *CHENOPODIUM* *RETICULATUM* Aellen. *32, Northants.; (7) old rubbish-tip near the river Nene, Peterborough, 1948, J. L. GILBERT, det. J. P. M. BRENAN.

600/13. *CHENOPODIUM* *GLAUCUM* L. +14, E. Sussex; coal yard, Horam station, many stunted plants, K. E. BULL, det. J. P. M. BRENAN.

§618/13. *RUMEX* *MARITIMUS* Sm. ‡H.25, Roscommon; near the margin of the Boyle River below Lough Gara: about a mile downstream from Cuppanagh Bridge, 1953, Dr. Luther, comm. D. A. Webb (1955, *Irish Nats. J.*, 11, 252).

§625/1. *HIPPOPHAE* *RHAMNOIDES* L. *+48, Mer.; sand-dunes, Morfa, Harlech, origin unknown, 1953, P. M. BENOIT.

+639/1. *HELVINE* *SOLEIROLII* Req. 45. Pems.; Tenby, established by a stream running from the cliffs at Saundersfoot, just where it falls to the beach, C. C. TOWNSEND.

§669/3. *ORCHIS* *SIMIA* Lam. 16. W. Kent; rough mowing grass on chalk south of Shoreham, a single plant, 1951-54, Rev. A. E. Elder, det. V. S. Summerhayes (1955, *Lond. Nat.*, 34, 3). Remove from brackets in C.F.

+676/10. *IRIS* *VERSICOLOR* L. 18. S. Essex; naturalised in a swampy area near High Beach, Epping Forest. B. T. Ward (1954, *Essex Nat.*, 29, 196).

+683/1. *CROCOSMIA* × *CROCOSMIFLORA* (Lemoine) N.E.Br. 1. W. Cornwall; several patches well established above Camborne North Cliffs, between Godrevy and Portreath: 45. Pems.; well established on the cliffs above Lower Fishguard, 1954, C. C. TOWNSEND.

§689/1. *RUSCUS* *ACULEATUS* L. *31. Hunts.; Lower Winttringham, 1950, Mrs G. R. F. Rowley (1950, *Rep. Hunts. Fauna & Flora Soc.*, 3, 21).

§702/9. *ALLIUM OLERACEUM* L. *24, Bucks.; field hedgerow, Bourne End, well established, 1946-54, A. F. WOOD, conf. J. G. DONY.

§707/2. *ORNITHOGALUM UMBELLATUM* L. *†31, Hunts.; S.E. corner of Monks Wood, 1950, C. Blackie (1950, *Rep. Hunts. Fauna & Flora Soc.*, 3, 21).

711/1. *GAGEA LUTEA* (L.) Ker-Gawl. †95, Elgin; two colonies in Greshop Wood, Forres, refound by the Misses MURRAY & PROCTOR, not having been seen for many years; originally planted (cf. Burgess, J. J., 1935, *Flora of Moray*), M. McCALLUM WEBSTER.

§740/3. *ZOSTERA HORNEMANNIANA* Tutin. *52, Anglesey; salt marshes, Four Mile Bridge, near Holyhead, 1952, C. C. TOWNSEND, conf. T. G. TUTIN.

753/8. *CAREX LASIOCARPA* Ehrh. 48, Mer.; bog near Creigenen Lakes, Arthog, 1951, Mrs. M. RICHARDS.

753/13. *CAREX LAEVIGATA* Sm. 38, Warwick; frequent in one small area of Umberslade Park, near Earlswood, C. E. ANDREWS and C. C. TOWNSEND.

753/17. *CAREX DISTANS* L. 38, Warwick.; in small quantity in a field near Wimptone, with *Sanguisorba*, *Filipendula hexapetala* and *Serratula*, none of which were to be found in any adjacent field, C. C. TOWNSEND.

753/42. *CAREX HALLERI* Gunn. 88, Mid Perth; between An Stuc and Meall Garbh (Glen Lyon) at 3,300 ft., M. McCALLUM WEBSTER.

753/61. *CAREX PAIRAEI* F. Schultz. 45, Pems.; roadside between Dowrog and St. Davids; Gwawr Valley, near Fishguard, C. C. TOWNSEND.

†766/2. *ANTHOXANTHUM PUELII* Lecoq & Lamotte. 17, Surrey; waste ground near Guildford, 1952, I. H. WILLIAMS, det. C. E. HUBBARD.

§826/15. *VULPIA MEMBRANACEA* (L.) Dum. *49, Caern.; stabilised sand dunes, Conway, T. APREES, conf. A. MELDERIS.

†826(2)/1. *NARDURUS MARITIMUS* (L.) Fiori.. *22, Berks.; near dewpond, Fair Mile, near Moulsoford, W. M. M. BARON, det. E. F. WARBURG.

§827/19(2). *BROMUS LEPIDUS* Holmb. *31, Hunts.; side of river Nene, etc., Stibbington, 1952, J. L. GILBERT, det. S. M. WALTERS and T. G. TUTIN. *38, Warwick; Newbold-on-Stour, 1953, C. E. A. ANDREWS and C. C. TOWNSEND, conf. C. E. HUBBARD.

§856/1(2). *DRYOPTERIS BORRERI* Newm. *38 Warwick; Umberslade Park, near Earlswood, C. E. A. ANDREWS and C. C. TOWNSEND: Alcester, C. C. TOWNSEND. *82, Haddington; damp wood, Tynninghame Links, P. S. GREEN, conf. J. P. NEWBOULD.

864/1. *OSMUNDA REGALIS* L. S., Jersey; several plants in quarry near Corbiere, M. McCALLUM WEBSTER.

870/4. *LYCOPODIUM ANNOTINUM* L. 95, Elgin; moor above Lochindorb, 1953, R. RICHTER, comm. M. McCALLUM WEBSTER.

CHAROPHYTA, all det. by G. O. ALLEN.

§872/5. *NITELLA TRANSLUCENS* (Pers.) Ag. ‡108, W. Sutherland: Lochan an Smuraich, Lochan an Daimh Beag and Lochan a' Bhàgh Ghainmhich, Scourie, A. V. Holden (1954, *Scot. Nat.*, **66**, 154).

§876/7. *CHARA CONTRARIA* Kuetz. ‡89, E. Perth; Loch Moraig: 108, W. Sutherland; Loch Croispol, A. V. Holden (1954, *Scot. Nat.*, **66**, 154).

ABSTRACTS FROM LITERATURE

Compiled by D. H. KENT

Thanks are due to D. E. Allen, E. B. Bangerter and A. E. Wade for their help.

SYSTEMATIC, Etc.

6, *RANUNCULUS*. Harper, J. L. & Sagar, G. R., 1954, Some aspects of the ecology of buttercups in permanent grassland, *Proc. British Weed Control Conf.*, **1953**, 256-265. Statistical studies on *Ranunculus acris*, *R. bulbosus* and *R. repens* in two areas of permanent grassland near Oxford with special reference to the germination of the species and the relationship between the plants and grazing animals. Details of transplant experiments are also given.—[D.H.K.]

6/33. *RANUNCULUS FICARIA* L. Andreas, C. H., 1954, Notes on *Ranunculus ficaria* L. in the Netherlands, 1. Introduction—reductional trends as a possible interpretation of flower types, *Acta Bot. Neerl.*, **3**, 446-453.

6/33. *RANUNCULUS FICARIA* L. Perje, A. M., 1953, The variation within and between clones in *Ranunculus ficaria* L., *Proc. 7th Intern. Bot. Congr., Stockholm*, 271-272.

33→ *CRUCIFERAE*. Genty, P., 1954, A propos de Crucifères, *Bull. Soc. Bot. France*, **101**, 5-6. A short note on *Cochlearia austriaca* R. Br., *Sisymbrium loeselii* L. and *Brassica elongata* Ehrh. The author considers that the name *Rorippa* should not be kept up, and he places *Nasturtium austriacum* and *N. amphibium* under *Cochlearia*.—[E.B.B.]

35. *RORIPPA*. Howard, H. W., 1953, Induced and natural polyploidy in *Nasturtium* and *Rorippa*, *Proc. 7th Intern. Bot. Congr. Stockholm*, 331-332. Five species of *Rorippa* are native to Britain, of these *R. sylvestris* is a hexaploid, $2n=32$, but a diploid form probably exists. *R. amphibia* has diploid, $2n=16$, and tetraploid, $2n=32$, forms.—[D.H.K.]

39. *CARDAMINE*. Lövkvist, B., 1953, Polyploidy and differentiation in the *Cardamine pratensis* complex, *Proc. 7th Intern. Bot. Congr., Stockholm*, 333-335.

39/7. *DENTARIA BULBIFERA* L. Banach-Pogan, E., 1954, *Badania kariologiczne nad gatunkami rodzaju Dentaria L., występującymi w Polsce*, *Acta Soc. Bot. Pol.*, **23**, 375-382. *Dentaria bulbifera* in Poland has been found to have $2n=96$ which agrees with earlier counts made on Swiss material.—[D.H.K.]

43/1. *DRABA AIZOIDES* L. Eberle, G., 1954, Das Felsen-Hungerblümchen, *Natur und Volk*, **84**, 47-49. An ecological account of the species in Germany.—[D.H.K.]

54. *BRASSICA*. Olsson, G., 1954, Crosses within the *campestris* group of the genus *Brassica*, *Hereditas*, **40**, 398-418. Crosses have been made between different *Brassica* forms with the haploid chromosome number $n=10$. The vitality and fertility of the hybrids obtained have been determined, and considering the results obtained the taxonomy within the group is discussed. *B. tournefortii*, which usually cannot be crossed with *B. campestris* sens. lat., is considered to be a separate species. Wild *B. campestris*, turnip rape, turnip, toria, sarson and different types of "chinese cabbage" are easily intercrossed and the hybrids are fertile, except when yellow-seeded sarson is one of the parents. These types therefore are all considered to be subspecies of *B. campestris* sens. lat.; yellow-seeded sarson (*B. campestris* subsp. *trilocularis*) is somewhat more different from the others than these are *inter se*.—[Author's summary.]

65/1. *IBERIS AMARA* L. Bateman, A. J., 1954, Self-incompatibility systems in angiosperms. 2, *Iberis amara*, *Heredity*, **8**, 305-332.

88. *VIOLA*. Rasmussen, S. M., 1954, Euphorbiaceernes, Malvaceernes og Violaceernes udbredelse i Danmark, *Bot. Tidssk.*, **50**, 239-315. The distribution of the various species of *Violaceae*, *Malvaceae* and *Euphorbiaceae* in Denmark is discussed and illustrated by maps.—[D.H.K.]

88/33. *VIOLA LUTEA* Huds. Balme, O. E., 1954, *Viola lutea* Huds. (Biological Flora), *J. Ecol.*, **42**, 234-240.

92. *DIANTHUS*. Carolin, R. C., 1954, Stomatal size, density and morphology in the genus *Dianthus*, *Kew Bull.*, **1954**, 251-258.

98(2)/1. *MELANDRIUM ALBUM* (Mill.) Garcke. Takenaka, Y., 1954, Sex relations in artificially produced tetraploids of *Melandrium album*, *Ann. Rep. Nat. Inst. Genetics (Japan)*, **4**, 39-41.

98(2)/2. *MELANDRIUM DIOICUM* (L.) Coss. & Germ. Hardy, G. E. M., 1954, Variation in flower colour in the Red Campion, *Vasc. (Subst.)*, **39**, 15.

98(2)/2. *MELANDRIUM DIOICUM* (L.) Coss. & Germ. Harrison, J. W. Heslop, 1954, A note on flower colour in the Red Campion, *Melandrium rubrum*, *Vasc. (Subst.)*, **39**, 15.

100. *CERASTIUM*. Sollner, R., 1954, Recherches cytotaxonomiques sur le genre *Cerastium*, *Bull. Soc. Bot. Suisse*, **64**, 221-354. The chromosome numbers of 43 species of *Cerastium*, determined from 270 specimens, are given in tabular form with a detailed account of the experimental work involved. Particular reference is given to the *C. arvense* group.

The principle basic number of the genus appears to be $x=9$. The study is illustrated with tables, photographs, and diagrammatic plates.—[E.B.B.]

100. CERASTIUM. Whitehead, F. N., 1954, An example of taxonomic discrimination by biometric methods, *New Phyt.*, **53**, 496-510. The author shows that discriminant analysis of six quantitative floral characters can be used to distinguish between three species of *Cerastium*.—[D.H.K.]

115→ MALVACEAE. See 88. VIOLA.

123. TILIA. Petri, C., 1954, Zomerwaarnemingen aan de krimlinde, *De Levende Natuur*, **57**, 210-214.

133/2. IMPATIENS CAPENSIS Meerb. Allen, H. G., 1954, The Orange Balsam—why this rapid spread?, *J. Northants. N.H.S. & F.C.*, **33**, 249. Briefly discusses the history of the species in Britain, especially in Northants.—[A.E.W.]

142/1. ACER PSEUDOPLATANUS L. Bartle, J. E., 1954, Variation in Sycamore seedlings, *The Nat.*, **1954**, 1-2.

149/1. ULEX EUROPAEUS L. Quantrill, A. E. M., 1954, The distribution of Gorse and Broom on Foxhall Heath, *Trans. Suffolk Nats. Soc.*, **8**, 197. From studies on *Ulex europaeus* and *Sarothamnus scoparius* at Foxhall Heath, Suffolk, the author concludes that the seeds are probably dispersed by ants.—[D.H.K.]

150/1. SAROTHAMNUS SCOPARIUS (L.) Wimm. ex Koch.—See 149/1. ULEX EUROPAEUS.

155/16. TRIFOLIUM REPENS L. Daday, H., 1954, Gene frequencies in wild populations of *Trifolium repens*, 1. Distribution by geography, *Heredity*, **8**, 61-78; 2. Distribution by altitude, *op. cit.*, **8**, 377-384.

176. VICIA. Ryka, C., 1954, Studia cytologiczne nad *Vicia cracca* L. i *V. tenuifolia* Rth., *Acta Soc. Bot. Pol.*, **23**, 321-333. Material of *Vicia cracca* from southern Poland has been cytologically examined; the diploid form ($2n=14$) is frequent, but the tetraploid ($2n=28$) has been found in only one place despite the fact that it is apparently widespread in Europe. *V. tenuifolia* was found to have $2n=24$.—[D.H.K.]

183. PRUNUS. Haskell, G., 1954, Stamen number and variation in diploid and tetraploid cherries, *Ann. Bot.*, **18**, 95-111.

185. RUBUS. Haskell, G., 1954, The genetic detection of natural crossing in Blackberry, *Genetica*, **27**, 162-172.

185. RUBUS. Haskell, G., 1954, The history and genetics of the Raspberry, *Discovery*, **15**, 241-246. The Red European Raspberry (*Rubus idaeus*) has been in cultivation for centuries, and was mentioned by Turner in 1548. There are many kinds of Raspberries, and their centre of origin is believed to have been eastern Asia. The history of the cultivated forms and strains is given.—[D.H.K.]

185. RUBUS. Kerr, E. A., 1954, Seed development in blackberries, *Canad. J. Bot.*, **32**, 614-622.

188. FRAGARIA. Barnes, B., 1954, Strawberries: cultivated and wild, *Discovery*, **15**, 325-329.

194. ROSA. Harrison, J. W. Heslop, 1954, The wild Roses of Northumberland and Durham, *Hist. Trans. Consett Nat. Field Club*, **1**, 1-11. Although much of the variability of the section *Caninae* of the genus *Rosa* may be explained as the result of ancient hybridisation, the taxonomy has not been made easier by the exaggerated importance attached to determinations of British material by Continental authorities. Of reliable British workers only Barclay lived in northern Britain and was able to give sufficient attention to the critical northern forms. The treatment of the genus in the *Flora of the British Isles* is criticised, in particular the "telescoping" of *Rosa caesia* (*R. coriifolia*) into *R. dumalis* (*R. glauca*) and of *R. dumetorum* into *R. canina*. The members of each of these pairs possess different distributions and ecological preferences and must be regarded as distinct species. The present extensive hybridisation in the genus, alleged by certain recent workers to be taking place, is denied. *R. obtusifolia* is doubtfully distinct, and more probably is only a form of *R. dumetorum*. *R. villosa*, after a period of decrease, has become an aggressive and abundant colonist of sand dunes, roadsides and waste land. *R. tomentosa*, recently detected in one locality in Durham, is not known for certain to occur in Scotland, all records hitherto having proved to be *R. sherardi*. *R. micrantha* is likewise not Scottish, having been confused with *R. caesia*. *R. agrestis* was extinguished in its only Durham station during the war.—[D.E.A.]

194. ROSA. Harrison, J. W. Heslop, 1954, A new subspecies of rose occurring in Durham, *Vasc. (Subst.)*, **39**, 32-33. A rose found growing in quantity on the Magnesian Limestone of Durham is described as *Rosa dumalis* subsp. *dolomitica* subsp. nov. The full description is as follows:—

Frutex aculeatus, aculei sub-debiles; foliola ovata, apex apiculata; serra profunda aperta, dentibus subsimplicibus; pedunculi breves, nudi; petala rosea; sepala post anthesin fortissime reflexa, subpersistencia; receptacula fructifera oblonga, 2.4 cm. longa, 1.1 cm. lata. Type in Heslop Harrison collection: habitat, Fishburn, Co. Durham.—[D.H.K.]

194. ROSA. Wulff, H. D., 1954, Cytologische Untersuchungen an einer fertilen triploiden Rose, *Pflanz*, **44**, 472-502.

194. ROSA. Wylie, A. P., 1954-55, The history of garden roses, *J. Roy. Hort. Soc.*, **79**, 555-571 & **80**, 8-24 & 77-87.

195 (2). SORBUS. Dillemann, G. & Poucques, M.-L. de, 1954, Le pollen du *Sorbus latifolia* Pers. et son origine hybride, *Bull. Soc. Bot. France*, **101**, 239-240. Examination of pollen grains of *Sorbus latifolia* indicates that it is of hybrid origin with an as yet irregular chromosomal constitution.—[E.B.B.]

195 (2). SORBUS. Liljefors, A., 1953, Studies on propagation, embryology and pollination in *Sorbus*, *Acta Hort. Berg.*, **16**, 277-329.

197. COTONEASTER. Sax, H. J., 1954, Polyploidy and apomixis in *Cotoneaster*, *J. Arnold Arb.*, **35**, 334-365.

199/1. SAXIFRAGA AIZOIDES L. Widder, F., 1954, Die Nomenklatur von *Saxifraga aizoides* Linné, *Phyton*, **5**, 204-210.

211. SEDUM. Deschatres, M. R., 1954, Recherches sur la phyllo-taxie du genre *Sedum*, *Rev. Gen. Bot.*, **61**, 501-570.

211/1. SEDUM TELEPHIUM L. Jalas, J., 1954, Populationsstudien an *Sedum telephium* L. in Finland, *Ann. Bot. Soc. 'Vanamo'*, **26** (3), 1-47.

213. DROSERA. Kalela, E., 1954, Über Land- und Wasserform bei *Drosera*, *Mem. Soc. pro Fauna et Flora Fenn.*, **29**, 80-98.

220/1. CHAMAENERION ANGUSTIFOLIUM (L.) Scop. Emery, A. E. H., 1954, Buds on the roots of the Rosebay Willow-herb, *Nature*, **173**, 546-547.

238. UMBELLIFERAE. Gardé, E. & Malheiros-Gardé, N., 1954, Contribuição para o estudo cariológico da família Umbellifereae, 3, *Broteria*, **23**, 5-35. A table is given showing the results of chromosome counts made on many species of *Umbelliferae*.—[D.H.K.]

238. UMBELLIFERAE. Robinson, R. W., 1954, Seed germination problems in the Umbelliferae, *J. Exper. Bot.*, **5**, 531-550.

284. HEDERA. Jacobson, P., 1954, Chromosome numbers in the genus *Hedera* L., *Hereditas*, **40**, 252-254. *Hedera helix* f. *typica* has $2n=48$, and is distributed over the greater part of Europe and Asia Minor. It ranges between southern Norway in the north and the Mediterranean in the south, between Ireland in the west and the region around the Black Sea in the east. *H. helix* var. *hibernica* Kirchn. has $2n=96$, and has been found with certainty in Ireland only. Morphologically it is closely related to *H. helix* and may perhaps be considered a Post Glacial species originated from *H. helix* by autopolyploidy followed by a change of chromosome structure.—[D.H.K.]

296/1. *GALIUM BOREALE* L. Löve, A. & D., 1954, Cytotaxonomic studies on the Northern Bedstraw, *Amer. Midl. Nat.*, **52**, 88-105. The collective circumpolar species *Galium boreale* has been divided into a few varieties based on the hairiness of the fruits, as well as into two different species not recognised by authors of recent manuals.

It is shown that the two species concerned differ in some minor morphological characters such as puberulence of the nodes, the form of the bracts, the type of the panicle, the size of the flower, anthers, and seeds, and the colour of the corolla. These characters are always found to be strictly associated and do not mix freely.

The geographical distribution of both the taxa is found to differ considerably, since one of them occurs all over northern and central Europe west to Iceland, as well as eastwards to central Siberia, while the other grows in central Asia and eastwards to Gaspé and Nova Scotia in North America.

Cytological investigations showed that the Eurasiatic taxon is a tetraploid with $2n=44$ chromosomes, while the American-Asiatic one is a hexaploid with $2n=66$ chromosomes.

Taxonomical studies of the type revealed that the tetraploid is identical with the Linnean species *Galium boreale* in its strict sense as described from northern Europe, while the hexaploid species should be named *G. septentrionale* according to a description of eastern North American material given by Roemer & Schultes. Both species are assumed to be of ancient origin.—[Authors' summary.]

301. *VALERIANA*. Skalińska, M., 1954, Meiosis in a polyhaploid twin plant and a hexaploid hybrid of *Valeriana sambucifolia* Mikan. *Acta Soc. Bot. Pol.*, **23**, 359-373. A pair of dissimilar twins which appeared among seedlings of *Valeriana sambucifolia* ($2n=56$) represented a very small polyhaploid ($2n=28$) presumably developed from a synergid and a hexaploid hybrid ($2n=42$) which originated from a spontaneous cross probably with a tetraploid *V. eraltata*. In addition in the same group of seedlings a second hexaploid hybrid has been detected.

The author's opinion expressed in 1947 that the British *V. officinalis* sens. lat. represents a non-uniform polyploid complex of hybrid origin is supported by the well-marked similarity of the spontaneous hybrid to British intergrading forms assigned to that species.—[Author's summary, p.p.]

306. *DIPSACUS*. Snow, R., 1954, Phyllotaxis of flowering Teasels, *New Phyt.*, **53**, 99-107.

309. *COMPOSITAE*. Arènes, J., 1954, Les Composées-Cynarocéphales de Belgique, *Bull. Jard. Bot. Brux.*, **24**, 241-327. This section of *Compositae* in the Belgian flora comprises the 12 genera *Echinops*, *Carlina*, *Silybum*, *Arctium*, *Cirsium*, *Carduus*, *Onopordum*, *Cnicus*, *Carthamus*, *Gentaurea*, *Microlophus*, *Serratula*. A key to the genera is provided and to species under each genus; subspecies and taxa of lower rank are

also keyed out. Under each taxon is given synonymy, exsiccata distribution, habitat and world range. The arrangement involves some new combinations particularly in *Cirsium* but no new taxa are described.—[E.B.B.]

312/1. *SOLIDAGO VIRGAUREA* L. Prell, H. H., 1954, A case of abnormal flower structures connected with reduced fertility in *Solidago virgaurea*, *Acta Bot. Neerl.*, **3**, 454-458.

314/1. *BELLIS PERENNIS* L. Kräusel, R., 1954, Missbildungen an Gänseblümchen (*Bellis perennis*), *Natur und Volk*, **84**, 127-130. The author discusses the problems of the "hen and chickens" form and other abnormal states of the species.—[D.H.K.]

371. *MATRICARIA*. Nehou, J., 1954, Étude comparative de *Matricaria inodora* L. et de *M. maritima* L. (Composées Radiées), *Bull. Soc. Sci., Bretagne*, **28**, 133-153. The differences between these two taxa in habit, ecology and morphology, here given and analysed in detail, are considered sufficient to give both specific status. The bushier aspect, thicker fleshier leaves, more elongated oil-glands of the achenes in *M. maritima* together with many minor differences are discussed and illustrated with line diagrams. Results of experimental work tend to confirm this conclusion.—[E.B.B.]

383. *SENECIO*. Davies, A. J., 1954, The Ragwort problem in Wales, *Proc. Brit. Weed Control Conf.*, **1953**, 203-210. Of the nine species of *Senecio* recorded from Wales only *S. jacobaea* and *S. aquaticus* are considered as agricultural pests. *S. jacobaea* is widely spread and is a very serious weed of grassland in south-west and north-west Wales. *S. aquaticus*, though not so prevalent, occurs widely in Carmarthenshire, Cardiganshire and Pembrokeshire. The poisoning effects of the plants on farm stock and methods of control are discussed.—[D.H.K.]

383. *SENECIO*. Fryer, J. D., 1954, The use of 2, 4-D. for the control of Ragwort, *Proc. British Weed Control Conf.*, **1953**, 211-227.

401/1. *SAUSSUREA ALPINA* (L.) DC. Friden, L., 1954, *Saussurea alpina* på Falbygden, *Bot. Not.*, **1954**, 304-317. Population studies on *Saussurea alpina* in southern Sweden. Much ecological information and full lists of associated species are given.—[D.H.K.]

405/13. *CENTAUREA SCABIOSA* L., Czapik, R., 1954, *Badania cytoembriologiczne nad Centaurea scabiosa* L., *Acta Soc. Bot. Pol.*, **23**, 175-194.

416/5. *CREPIS CAPILLARIS* (L.) Wallr. Östergren, G., 1954, Polyploids and aneuploids of *Crepis capillaris* produced by treatment with nitrous oxide, *Genetica*, **27**, 54-64. When plants of *Crepis capillaris* are treated with nitrous oxide of ten atmospheres pressures for four to

six hours, at the time when the first or second zygotic divisions are passing in their pollinated flowers, a fair yield of polyploid and aneuploid plants is obtained in their progeny.—[Author's summary.]

416/5. *CREPIS CAPILLARIS* (L.) Wallr. Petit, E., 1954, Bijdrage tot de kennis der chromosoom-variabiliteit bij natuurlijke populaties van *Crepis capillaris* Wallr., *Verh. Koninkl. Akad. Wetenschapp.*, **45**, 3-75. Studies on the karyotypic variability in natural populations of *Crepis capillaris*.—[D.H.K.]

419. *HIERACIUM*. Omang, S. O. F., 1954., *Descriptiones specierum novarum e stirpe Hieracii alpini*, 3, *Nytt Mag. Bot.*, **2**, 61-100. 56 new species, 1 new subspecies and 7 new varieties of *Hieracium* are described from Norway.—[D.H.K.]

421/2. *HYPOCHOERIS RADICATA* L. Hagerup, O., 1954, Thrips pollination in *Hypochoeris radicata*, *Nytt Mag. Bot.*, **3**, 55-58.

423. *TARAXACUM*. Haglund, G. E., 1954, A new remarkable *Taraxacum* species from Norway, *Nytt Mag. Bot.*, **3**, 59-61. Describes *Taraxacum nordhagenii* sp. nov.—[D.H.K.]

423. *TARAXACUM*. Kappert, H., 1954, Experimentelle Untersuchungen über die Variabilität eines Totalapomikten (*Taraxacum officinale* Weber), *Ber. Deutsch. Bot. Ges.*, **67**, 325-334.

423. *TARAXACUM*. Marzocca, A., 1954, "Taraxacum erythrospermum" adventicio en la Argentina, *Rev. Argent. Agron.*, **21**, 80-83.

428. *TRAGOPOGON*. Ownbey, M. & McCallum, G. D., 1954, The chromosomes of *Tragopogon*, *Rhodora*, **56**, 7-21.

435/5. *CAMPANULA ROTUNDIFOLIA* L. Harrison, J. W. Heslop, 1954, Variation in flower size in the Common Harebell (*Campanula rotundifolia*), *Vasc. (Subst.)*, **29**, 24. Plants with flowers similar in size to those of the Irish *Campanula rotundifolia* var. *speciosa* Moore are reported from the Isle of Harris and Widdy Bank Fell.—[D.H.K.]

445/1. *CALLUNA VULGARIS* (L.) Hull. Holmes, G. D. & Barnsley, G. E., 1954, The chemical control of *Calluna vulgaris* Salisb., *Proc. Brit. Weed Control Conf.*, **1953**, 289-296.

446. *ERICA*. Scannell, M. J. P., 1954, An unusual *Erica* from Dunlewy, Co. Donegal, *Irish Nat. J.*, **11**, 206-207.

446. *ERICA*. Webb, D. A., 1954, Notes on four Irish Heaths, *Irish Nat. J.*, **11**, 187-192 and 215-219. Gives the history and distribution of *Erica mackaiana* in Ireland, and discusses the evidence for and against *E. stuartii* being a hybrid between *E. mackaiana* and *E. mediterranea*. Accounts of *E. vagans* and *E. mediterranea* are also given.—[D.H.K.]

453/3. *PYROLA MINOR* L. Willeke, J., 1954, De zaadverspreiding van Stofzaad en Wintergreen, *De Levende Natuur*, **57**, 9-11.

460/5. *PRIMULA SCOTICA* Hook. Ritchie, J. C., 1954, *Primula scotica* Hook. (Biological Flora), *J. Ecol.*, **42**, 623-628.

478. *CENTAURIUM*. Robyns, A., 1954, Essai d'étude systématique et écologique des *Centaurium* de Belgique, *Bull. Jard. Bot. Brux.*, **24**, 349-398. Three species of *Centaurium* occur in Belgium: *C. minus* Gars., *C. vulgare* Rafn. and *C. pulchellum* (Sw.) Druce. Each is very polymorphic, particularly in branching habit and flower number; a table illustrates the parallel intraspecific variation. Only *C. minus* has so far produced a white-flowered form in Belgium although such forms are recorded for the other two elsewhere. Hybrids, also recorded elsewhere, have not yet been found in Belgium.

The author describes each species in detail, providing a plate of each nomenclatural type and giving general and local distribution, illustrated by maps, as well as much general information on uses, common names, etc.

New combinations are: *C. minus* f. *albiflorum* (W. L. Schmidt) A. Robyns; *C. minus* var. *fasciculare* (Duby) A. Robyns; *C. minus* var. *fasciculare* f. *albiflorum* (Magne) A. Robyns; *C. vulgare* var. *uniflorum* (W. L. Schmidt) A. Robyns; *C. pulchellum* var. *intermedium* f. *palustre* (van Hall) A. Robyns and f. *contractum* (Wittr. ex Corb.) A. Robyns. The comb. nov. *C. vulgare* var. *uniflorum* involves a new name for f. *uniflorum* of *C. minus*, which is given as *C. minus* var. *Jonkerianum* A. Robyns.

The ecological account is only preliminary: *C. minus* is widespread with no clearly defined ecological preferences; *C. vulgare* (*C. littorale*) is a maritime species characteristic of *Centaureteto-Saginetum*, occasionally met with in others; *C. pulchellum* is mainly characteristic of *Nanocyperion flavescentis* but also appears in other associations. Two habitat photographs are provided.

The key to the species and infraspecific taxa is reproduced below:

Plant with rosette; fl. subsessile to v. shortly pedicelled, usually 5-merous; cor-tube scarcely contracted at top; cor-limb 12-15 mm. diam. with oval lobes: Lvs. herbaceous bright green; basal elliptic-oboval to spatulate, cauline oval to elliptic, all obtuse to \pm acute at apex, usually glabrous, 3-5-7-nerved; calyx $\frac{1}{2}$ - $\frac{3}{4}$ length of cor-tube at anthesis; cor. lobes oval and obtuse at tips: Cymes corymbiform; bracts glabrous-edged; stem simple to branched:

Flowers pink *C. minus*

Flowers white f. *albiflorum*

Cymes \pm compact and capituliform; bracts with \pm finely papillose margins at least towards base; stem usually simple:

Flowers pink var. *fasciculare*

Flowers white f. *albiflorum*

Lvs. \pm fleshy and dark green; basal elliptic-lanceolate or broadly to narrowly oblong; cauline linear-lanceolate to linear-oblong, all obtuse at apex, finely papillose, 1- rarely 3-nerved; calyx \pm = cor-tube at anthesis and finely papillose; cor. lobes oval-oblong and \pm attenuate at tips:

Flowers more than one:

Cymes lax to \pm corymbiform, few- to many-flowered: flowers of different heights: stem simple to branched with rosette withering at flowering time *C. vulgare*

Cymes \pm compact to subcapituliform, few-flowered, stem simple arising 1 to several from a leafy dense and persistent rosette f. *rosulatum*

1-flowered: stem simple var. *uniflorum*

Plant without rosette; fl. \pm long-pedicelled, 4- or 5-merous: cor.-tube distinctly contracted at top: cor. limb 6-11 mm. diam. with oblong to lanceolate lobes: lvs. from broadly elliptic to broadly oval, bright green, 3-5-nerved.

Flowers distinctly pedicelled:

1-flowered; stem simple and filiform: lvs. shorter to longer than internodes and somewhat fleshy in the smallest plants *C. pulchellum*

Many-flowered; stem simple to branched: cymes lax:

Plant erect; lvs. equal to shorter than internodes: stem with slender open branches var. *intermedium*

Plant low-growing; lvs. longer than internodes: stem with short, close branches f. *palustre*

Flowers subsessile; stem short, simple to little-branched: lvs. much longer than internodes; cymes \pm compact and capituliform f. *contractum*

[E.B.B.]

497. SYMPHYTUM. Bangerter, E. B. & Welch, B., 1954, The Comfrets of the London Area, *Lond. Nat.*, **33**, 55-58. *Symphytum officinale*, *S. peregrinum*, *S. asperum*, *S. orientale*, *S. tuberosum* and *S. grandiflorum* are described and a key is given to their identification.—[D.H.K.]

527→SCROPHULARIACEAE. Hamblen, D. J., 1954, Cytology of the Scrophulariaceae and Orobanchaceae, *Nature*, **174**, 836. The size of chromosomes in *Rhinanthus*, *Melampyrum* and *Euphrasia* is discussed. The following counts are cited:—*Melampyrum cristatum*, $2n=18$ and *Parentucellia viscosa* $2n=48$. The following counts on British *Orobanche* species are also given: *Orobanche minor*, *O. elatior*, *O. reticulata*, *O. picridis*, *O. hederaceae*, *O. rapum-genistae* and *O. caryophyllacea*, all $2n=38$, *O. purpurea*, $2n=24$.—[D.H.K.]

535. SCROPHULARIA. Hui-Lin-Li, 1954, The genus *Scrophularia* in China, *Lloydia*, **16**, 165-179. All the species known to occur in China are keyed and described. The author has not seen authentic material of *Scrophularia nodosa* from China and the records require confirmation.—[D.H.K.]

543/41. VERONICA FILIFORMIS Sm. Lehmann, E., 1954, Ein Ehrenpreis erobert Westeuropa, *Orion*, **9**, 389-392. An account of the spread of *Veronica filiformis* in western Europe, illustrated by photographs and a map.—[D.H.K.]

547/2. PEDICULARIS SYLVATICA L. Berg, R. Y., 1954, Development and dispersal of the seeds of *Pedicularis sylvatica*, *Nytt Mag. Bot.*, **2**, 1-60.

547/2. PEDICULARIS SYLVATICA L. Webb, D. A., 1954, A western subspecies of *Pedicularis sylvatica*, *Irish Nat. J.*, **11**, 235. While most

European Floras describe *Pedicularis sylvatica*, and especially its calyx, as glabrous, the majority of plants in western Ireland have the upper part of the stem, and especially the calyx, covered with fairly numerous and very conspicuous shaggy white hairs.

In Portugal there occurs a variety (var. *lusitanica* (Hoffg. & Link) Fic.), which has usually a hairy calyx; it differs however in other respects from the Irish plants. The known distribution of the Irish form is given; it has a restricted geographical distribution but shades into the type at the margins of its area. After further study the author hopes to describe the taxon as a new subspecies. In the meantime he requests information on plants with a hairy calyx from parts of Ireland other than those included in the known range.—[D.H.K.]

550. OROBANCHE. See 527. SCROPHULARIACEAE.

550/3. OROBANCHE ALBA Steph. ex Willd. Sledge, W. A., 1954, *Orobanche alba* Steph. in west Yorkshire, *The Nat.*, 1954, 3. A short historical account of the species in west Yorks.—[D.H.K.]

552. UTRICULARIA. Troll, W. & Dietz, H., 1954, Morphologische und histogenetische Untersuchungen an Utricularia-Arten, *Österr. Bot. Zeitschr.*, 101, 165-207.

561. THYMUS. Pigott, C. D., 1954, Species delimitation and racial divergence in British Thymus. *New Phyt.*, 53, 470-495. British *Thymus* is shown to be divisible into at least three units on the basis of external morphology; the evidence for considering these separate species is set out. The chromosome numbers are:—*Thymus serpyllum*, $2n=24$, *T. pulegioides*, $2n=28$ and *T. drucei*, $2n=52-56$. *T. drucei* appears to be completely isolated genetically from *T. serpyllum* and *T. pulegioides*, while hybrids between the latter two species can be made artificially. The morphological discontinuity, however, is complete between these species and *T. drucei*. The intraspecific variation is described; *T. drucei* includes several morphologically distinct races. The relation of the British plants to Continental spp. is discussed and the phytogeographical interest of these distributions is described.—[Author's Summary.]

581. LAMIUM. Bernström, P., 1953, Species relationships in *Lamium*, *Proc. 7th Intern. Bot. Congr., Stockholm*, 280.

594. SCLERANTHUS. Rössler, W., 1954, Neues aus dem *Scleranthus* Nachlass Reichenbach's, *Phyton*, 5, 222-227.

600. CHENOPodium. Wahl, A., 1954, A preliminary study of the genus *Chenopodium* in North America, *Bartonia*, 27, 1-46. Nearly fifty species of *Chenopodium*, and a number of hybrids and varieties, found in the United States are described and keyed. Some new varieties are also described.—[D.H.K.]

611. *SALICORNIA*. Hambler, D. J., 1954, Chromosome numbers in British *Salicornia*, *Nature*, **173**, 547. Counts have been made on material from localities on the estuary of the river Medway and the following chromosome numbers have been determined:—*Salicornia perennis* var. *radicans* Moss & Salisb., $2n=18$, *S. ramosissima* Woods (form agreeing closely with the habit illustration in the *Cambridge British Flora*), $2n=18$, *S. ramosissima* Woods (dwarf red form), $2n=18$, *S. stricta* Dum. sec. Moss (form agreeing closely with the illustration in Butcher & Strudwick's *Further Illustrations of British Plants of S. europaea*), $2n=36$, *S. dolichostachya* Moss (erect form with long tapering fertile branches; upper nodes each bearing four branches), $2n=36$, *S. disarticulata* Moss, $2n=16$ (?).—[D.H.K.]

615/3. *POLYGONUM BISTORTA* L. Porsch, O., 1954, Geschlechtgebundener Blütenduft, *Österr. Bot. Zeitschr.*, **101**, 359-372. The protandrous flowers of *Polygonum bistorta* emit an unpleasant smell when the stamens mature, but become scentless when the ovaries mature. The effects of the scent upon insect visitation are discussed.—[D.H.K.]

617/1. *OXYRIA DIGYNA* (L.) Hill. Wilson, J. W., 1954, The influence of "midnight sun" conditions on certain diurnal rhythms in *Oxyria digyna*, *J. Ecol.*, **42**, 81-94.

618. *RUMEX*. Rechinger, K. H., 1954, Monograph of the genus *Rumex* in Africa, *Bot. Not. Supp.*, **3**: **3**. 47 species of *Rumex* are described from Africa. Of these, 26 are endemic; 21 species are spread over two or more continents. *R. angiocarpus* is widespread and all earlier African records of *R. acetosella* are referred to it. *R. crispus* and *R. conglomeratus* are widespread, while *R. obtusifolius* subsp. *agrestis* and *R. pulcher* subsp. *eu-pulcher* are recorded as introductions. *R. palustris* has been once reported from Morocco but the record requires confirmation.—[D.H.K.]

628. *EUPHORBIA*. See 88. *VIOLA*.

638/1. *PARIETARIA DIFFUSA* Mert. & Koch. Paclt, J., 1954, Nachtrag zu meiner *Parietaria*-Studie, *Phyton*, **5**, 242-246.

642. *BETULA*. Black, P. M. & Wareing, P. F., 1954, Photoperiodic control of germination in seed of birch (*Betula pubescens* Ehrh.), *Nature*, **174**, 705-706.

646. *QUERCUS*. Hadfield, M., 1954, The Durmast Oak, *Gard. Chron.*, **135**, 16-17. The view has recently been expressed that *Quercus robur* is wholly an introduced tree in Britain, having largely replaced *Q. petraea* through selective planting. The latter bears fruit less regularly and usually far less copiously than *Q. robur*. In ancient times, those trees lacking both in acorns, an important animal food, and in the crooked branching required by house-builders and shipwrights, would

be the first to be felled; and there is historical evidence that *Q. petraea* was purposely eliminated by foresters from the New Forest. Although mediaeval carvings of oak foliage depict mainly *Q. robur*, the pollen and timber of the two species are indistinguishable. It is therefore unlikely that the problem of the status of *Q. robur* will ever be solved.—[D.E.A.]

650. SALIX. Nilsson, H., 1945, Über hochkomplexe Bastardverbindungen in der Gattung Salix, *Hereditas*, **40**, 517-522.

659→ ORCHIDACEAE. Meyer, D. E., 1954, Über unterirdische Blüten und blasse Individuen bei einheimischen Orchideen, *Ber. Deutsch. Bot. Ges.*, **67**, 128-133.

659→ ORCHIDACEAE. Tatewaki, M., 1954, Phytogeographical studies on Orchidaceae in the islands of the north Pacific, *Acta Hort. Got.*, **19**, 51-112. Many species also found in Britain are included in this account which is illustrated by distribution maps.—[D.H.K.]

659/1. HAMMARBYA PALUDOSA (L.) O. Kuntze. Chevalier, A., 1954, A propos de la disparition de nombreuses stations de *Malaxis paludosa* dans le N.-O., *Bull. Soc. Bot. France*, **101**, 139-141. Owing to man's activities, land drainage, etc., many habitats for fen and bog plants have disappeared in N.W. France; *Hammarbya paludosa* is now extinct in Normandy.—[E.B.B.]

666/1. EPIPOGIUM APHYLLUM Sw. Anon, 1954, The rarest British wild flower, *Quart. Bull. Alp. Gard. Soc.*, **22**, 6-7. Comments on the recent discoveries of the species in Oxfordshire and Bucks., and gives a short description of the plant and its history in Britain. A correspondent claims to have discovered six plants in flower near Ross, in the Forest of Dean, in July 1930, though he failed to report it at the time, being unaware of the exceptional rarity of the species in Britain.—[D.H.K.]

668. EPIPACTIS. Young, D. P., 1954, A key to the Danish Epipactis, *Bot. Tidssk.*, **50**, 140-145. Includes most of the species also found in Britain.—[D.H.K.]

668/2. EPIPACTIS HELLEBORINE (L.) Crantz. Richardson, J. A. 1954, Variation in Durham plants of the Broad-leaved Helleborine (*Epipactis helleborine*), *Vasc. (Subst.)*, **39**, 24.

668/3 (6). EPIPACTIS PHYLLANTHES G. E. Sm. Sipkes, C., 1954, *Epipactis phyllanthos* G. E. Sm. in County Wicklow, *Irish Nat. J.*, **11**, 113-115.

669. ORCHIS. Duplessis, L., 1951, Notes sur quelques Orchidées de Seine-et-Oise, *Bull. Trim. Union Soc. France d'Hist. Nat.*, **2**, 24-27. A large population of *Orchis*, predominantly *O. morio*, had colonised a

field near Bullion; a distinctive pattern of alignment was shown. Care should be taken to collect typical specimens of any *Orchis* population and notes made of all features of the habitat to facilitate comparisons with other populations. An atypical specimen from the Bullion colony (a hybrid between *O. morio* and *O. mascula*) is figured.—[E.B.B.]

669/14. *ORCHIS MASCULA* (L.) L. Métron, J., 1954, *L'Orchis mascula* (L.) var. *foetens*, *Cahiers des Naturalistes*, **9**, 105-106.

675. *CYPRIPEDIUM*. Curtis, J. T., 1954, Annual fluctuations in rate of flower production by native *Cypripediums* during two decades, *Bull. Torr. Bot. Club*, **81**, 340-352.

702/19. *ALLIUM PARADOXUM* (Bieb.) G. Don. Barling, D. M., 1954, Distribution and chromosome number of *Allium paradoxum* in Gloucestershire, *Nature*, **173**, 877. A population of *Allium paradoxum* at Bartonbury (Cirencester) has been investigated ecologically and cytologically. The chromosome number has been found to be $2n=16$.—[D.H.K.]

706/3. *ENDYMION NON-SCRIPTUS* (L.) Garcke. Blackman, G. E. & Rutter, A. J., 1954, *Endymion nonscriptus* (L.) Garcke (Biological Flora), *J. Ecol.*, **42**, 629-638.

713/1. *COLCHICUM AUTUMNALE* L. Butcher, R. W., 1954, *Colchicum autumnale* L. (Biological Flora), *J. Ecol.*, **42**, 249-257.

718. *JUNCUS*. Campbell, S., 1954, "The control of rushes by 2, 4-D.", *Proc. Brit. Weed Control Conf.*, **1953**, 190-198.

718. *JUNCUS*. Davies, T. H. & Harris, D. J., 1954, Rush control in the southwest province, *Proc. Brit. Weed Control Conf.*, **1953**, 198-203. An account of control measures used in Somerset, Devon and Cornwall.—[D.H.K.]

718. *JUNCUS*. Elliott, J. G., 1954, The use of growth regulator herbicides for the control of rushes, *Proc. Brit. Weed Control Conf.*, **1953**, 184-190.

718. *JUNCUS*. Lazenby, A., 1954, Some aspects in the life-history of the common rush, with special reference to the seed and seedling stages, *Proc. Brit. Weed Control Conf.*, **1953**, 174-184.

718/2. *JUNCUS ACUTUS* L. Jones, V. & Richards, P. W., 1954, *Juncus acutus* L. (Biological Flora), *J. Ecol.*, **42**, 639-650.

719. *LUZULA*. Nordenskiöld, H., 1953, Cyto-taxonomic studies in the genus *Luzula*, *Proc. 7th Intern. Bot. Congr., Stockholm*, 282-283.

719/6. *LUZULA CAMPESTRIS* (L.) DC. Brown, S. W., 1954, Mitosis and meiosis in *Luzula campestris* DC., *Univ. California Publ. in Bot.*, **27**, 231-278

721. *TYPHA*. Gröntved, J., 1954, Typhaceernes og Sparganiaceernes udbredelse i Danmark, *Bot. Tidsk.*, **50**, 211-238. The distribution of *Typha angustifolia* and *T. latifolia* in Denmark is discussed: the former is scattered through the country, apparently preferring the moraine clay areas, while the latter is widely and evenly distributed. The distribution of the various species of *Sparganium* in Denmark is also given. *S. angustifolium* and *S. simplex* are rather frequent. *S. ramosum* is regarded as a collective species comprising *S. neglectum*, *S. oocarpum*, *S. microcarpum* and *S. polyedrum*; to these may be added the records from literature of "*S. erectum*". The aggregate plant is frequent in most parts of Denmark; the distribution of the segregates is also given.—[D.H.K.]

722. *SPARGANIUM*. See 721. *TYPHA*.

723/1 (2). *ARUM NEGLECTUM* (Townsend) Ridl. Prime, C. T., 1954, *Arum neglectum* (Townsend) Ridley (Biological Flora), *J. Ecol.*, **42**, 241-248.

734/1. *BUTOMUS UMBELLATUS* L. Lohammer, G., 1954, Bulbils in the inflorescences of *Butomus umbellatus*, *Svensk Bot. Tidsk.*, **48**, 485-487. Plants of *Butomus umbellatus* bearing bulbils in their inflorescences have been detected in Sweden and Finland. The role of these aerial bulbils for the vegetative dispersal of the plant is not known.—[D.H.K.]

746. *SCIRPUS*. Bakker, D., 1954, Miscellaneous notes on *Scirpus lacustris* L. sensu lat. in the Netherlands, *Acta Bot. Neerl.*, **3**, 426-445. In literature quite different opinions have been developed regarding the species-concept of *Scirpus palustris* L. and *S. tabernaemontani* Gmel. In the 19th century several authors regarded these species as modifications of *S. lacustris*, but in the 20th century they have usually been regarded as distinct taxa.

An examination of specimens in the Netherlands has shown that in one locality a highly fertile intermediate grows. It has the same chromosome number as the other two forms, and plants raised from its seeds are morphologically the same as those of the preceding generation. It is suggested that the plant has originated as a result of "introgressive hybridisation" sensu Anderson & Hubricht (i.e. by the crossing of *S. lacustris* and *S. tabernaemontani*, followed by back crossings with the parents). In some localities in the Netherlands the boundaries between the two species have been obliterated. The intermediate is described as *S. lacustris* subsp. *flevensis*, subsp. nov. A number of other new varieties of *S. lacustris* and *S. tabernaemontani* are also described.—[D.H.K.]

747/2. *ERIOPHORUM ANGUSTIFOLIUM* Honck. Phillips, M. E., 1954, *Eriophorum angustifolium* Roth. (*E. polystachion* L.) (Biological Flora), *J. Ecol.*, **42**, 612-622.

747/2. *ERIOPHORUM ANGUSTIFOLIUM* Honck. Phillips, M. E., 1954, Studies in the quantitative morphology and ecology of *Eriophorum angustifolium* Roth., 2. Competition and dispersion, *J. Ecol.*, **42**, 187-210.
3. The leafy shoot, *New Phyt.*, **53**, 312-343.

753/51(2). *CAREX BICOLOR* All. Lid, J., 1954, *Carex bicolor* in southern Norway, *Nytt Mag. Bot.*, **3**, 147-158. The Norwegian distribution of *Carex bicolor* is outlined and discussed.—[D.H.K.]

754→ GRAMINEAE. Georlette, R., 1953, Bibliographie générale concernant les graminées prairiales des régions tempérées, *Ann. Gembl.*, **59**, 237-255. A general bibliography of the meadow grasses of temperate regions.—[D.H.K.]

754→ GRAMINEAE. Hubbard, C. E., 1954, New names in the Gramineae, *Kew Bull.*, **1954**, 375. The following new combinations are made: *Catapodium marinum* (L.) C. E. Hubbard and *C. rigidum* (L.) C. E. Hubbard.—[D.H.K.]

754→GRAMINEAE. Melderis, A., 1953, Generic problems within the tribe Hordeae, *Proc. 7th Intern. Bot. Congr., Stockholm*, 853-854.

754→GRAMINEAE. Pilger, R., 1954, Das System der Gramineae, *Engler Bot. Jahrb.*, **76**, 281-384. Gives a key to the tribes of the grasses of the world with the exception of the bamboos.—[D.H.K.]

754→GRAMINEAE. Tateoka, T., 1954, Karyotaxonomic studies in Poaceae, 1, *Ann. Rep. Nat. Inst. Genetics (Japan)*, **4**, 45-47. The following somatic chromosome numbers are reported from counts made on Japanese material:—*Hordeum murinum*, 28, *Phleum pratense*, 42, *Deschampsia flexuosa*, 28, *Milium effusum*, 28, *Anthoxanthum odoratum*, 20, *Hierochloa odorata*, 42, *Phalaris arundinacea*, 28, *Leersia oryzoides*, 48, *Dactylis glomerata*, 28, *Poa annua*, 28, *P. pratensis*, 56, *Melica nutans*, 18, *Cynodon dactylon*, 40, *Setaria viridis*, 18, *Echinochloa crus-galli*, 54.—[D.H.K.]

754→ GRAMINEAE. Wycherley, P. R., 1954, Vegetative proliferation of floral spikelets in British grasses, *Ann. Bot.*, **18**, 119-127.

765/11. *PHALARIS ARUNDINACEA* L. Holt, I.V., 1954, Initiation and development of the inflorescences of *Phalaris arundinacea* L. and *Dactylis glomerata* L., *Iowa State Coll. J. Sci.*, **28**, 603-621.

777/1. *PHLEUM PRATENSE* L. Williams, S. S., 1954, The effect of depth of sowing and moisture on the germination and seedling development of *Phleum pratense* L., *J. Ecol.*, **42**, 445-459.

780. AGROSTIS. Björkmann, S.O., 1954, Chromosome studies in *Agrostis*, 2, *Hereditas*, **40**, 254-258. The author has cytologically examined c. 600 plants of *Agrostis canina* from northern, western and central Europe, and confirms the correctness of dividing the species into var. *fascicularis* ($2n=14$) and var. *arida* ($2n=28$). Plants from Spain and Portugal which cannot be included under these varieties have been seen.

c. 900 plants of *A. stolonifera* from northern and western Europe have been examined and three chromosome races have been detected, $2n=28$ (c. 600 plants), $2n=35$ (c. 160 plants) and $2n=42$ (c. 135 plants).

300 plants of *A. tenuis* have been counted, most had $2n=28$. Hybrids with *A. gigantea* often occur where the two species grow together. 33 hybrid plants from different localities were examined: all had $2n=35$. Of 217 plants of *A. gigantea* which were counted all except 2 had $2n=42$.

A list of artificially induced hybrids in the genus is given.—[D.H.K.]

780. AGROSTIS. Davies, W. E., 1953, The breeding affinities of some British species of *Agrostis*, *Brit. Agric. Bull.*, **5**, 313-316.

780. AGROSTIS. Jones, K., 1953, The cytology of some British species of *Agrostis* and their hybrids, *Brit. Agric. Bull.*, **5**, 316.

780/3. AGROSTIS TENUIS Sibth. Bradshaw, A. D., 1953, Local population differentiation in *Agrostis tenuis*, *Heredity*, **7**, 445.

791/3. DESCHAMPSIA SETACEA (Huds.) Hack. Buschmann, A., 1953, Die Verbreitung von *Deschampsia setacea*, *Ann. Inst. Biol. Sarajero*, **5**, 144-158.

791/4. DESCHAMPSIA FLEXUOSA (L.) Trin. Scurfield, G., 1954, *Deschampsia flexuosa* (L.) Trin. (Biological Flora), *J. Ecol.*, **42**, 225-233.

794. AVENA. Dadd, C. V., 1953, Wild Oats, *N.A.A.S. Quart. Rev.*, **21**, 1-7. A short account of the known British distribution of *Avena fatua* and *A. ludoviciana*, and the methods of control used against them.—[D.H.K.]

794. AVENA. Thurston, J. M., 1953, Biology of wild oats, *Ann. Rep. Rothamsted Exper. Sta.*, **1952**, 68-71.

794. AVENA. Thurston, J. M., 1954, Germination and dormancy of wild oats seeds, *Ann. Rep. Rothamsted Exper. Sta.*, **1953**, 71-72. Seeds of *Avena fatua* germinate in the spring while those of *A. ludoviciana* germinate mainly in autumn and winter.—[D.H.K.]

794. AVENA. Thurston, J. M., 1954, The biological approach to the problem of wild oat control, *Proc. Brit. Weed Contr. Conf.*, **1953**, 240-248.

794. AVENA. Thurston, J. M., 1954, A survey of wild oats (*Avena fatua* and *A. ludoviciana*) in England and Wales in 1951, *Ann. Appl. Biol.*, **41**, 619-636. In 621 samples of wild oats collected in many parts of England and Wales by N.A.A.S. and N.I.A.B. Officers only two species (*Avena fatua* and *A. ludoviciana*) were found, but both showed much variability. *A. fatua* occurred in all wheat- and barley-growing areas, in both winter and spring corn, and on all soil types. *A. ludoviciana* occurred (with two exceptions) only within an approximately 80 miles radius of Oxford, mainly on heavy soils and chiefly in winter corn. The history and spread of *A. ludoviciana* in Britain is discussed. A map shows the distribution of the two species in the British Isles.

The following key for separating wild and cultivated oats on spikelet articulation is given:—

- Abscission scar surrounded by hairs at base of spikelet. Grain readily shed :
 - All florets have abscission scar at base :
 - Seeds of spikelet separate when ripe *A. fatua*
 - Only the first floret has abscission scar :
 - All seeds of the spikelet fall together when ripe *A. ludoviciana*
 - Neither abscission scar nor hairs at base of spikelet. Grain not readily shed :
 - No bristle-points on lemma *A. sativa*
 - Tip of lemma prolonged into two long hair-like points *A. strigosa*
- [D.H.K.]

797/1. CYNODON DACTYLON (L.) Pers. Langdon, R. F. N., 1954, The origin and distribution of *Cynodon dactylon* (L.) Pers., *Univ. of Queensland (Dept. of Bot.) Papers*, **4**, 42-43.

813/1. MOLINIA CAERULEA (L.) Moench. Deuse, P., 1950, Écologie de *Molinia caerulea* Moench: Germinations, *Lejeunia*, **14**, 53-60.

818/2. MELICA UNIFLORA Retz. Durdík, M., 1954, Príspevek k ekologi trávy *Melica uniflora* Retz. v Československu, *Preslia*, **26**, 177-182.

819/1. DACTYLIS GLOMERATA L. Bokyo, H. & Tadmor, N., 1954, An arid ecotype of *Dactylis glomerata* L. (Orchard Grass) found in the Negev (Israel), *Bull. Research Council Israel*, **4**, 241-248.

819/1. DACTYLIS GLOMERATA L. Chopinet, R. & Dujardin, J., 1953, Étude de quelques populations naturelles de *Dactylis glomerata* L. en vue de leur utilisation agronomique, *Ann. Inst. Nat. Rech. Agron. Paris*, **3**, Sér. B., 453-477. The geographical distribution of *Dactylis glomerata* in France is discussed and differences in morphological characters, flowering period, vigour, resistance to frost, etc., between populations from different parts of the country are noted.—[D.H.K.]

819/1. DACTYLIS GLOMERATA L. Rebischung, J., 1953, Etudes sur la variabilité des populations naturelles françaises de dactyle, *Ann. Inst. Nat. Rech. Agron., Paris* **3**, Sér. B., 311-349. Studies on the variability of natural populations of *Dactylis glomerata* in France showed that considerable diversity exists between populations from different regions.—[D.H.K.]

819/1. *DACTYLIS GLOMERATA* L. See 765/1. *PHALARIS ARUNDINACEA*.

824. *POA*. Åkerberg, E., 1953, The progeny of artificial hybrids between *Poa pratensis* L. (coll.) and *P. alpina* L., *Proc. 7th Intern. Bot. Congr., Stockholm*, 327-328.

824/2. *POA PRATENSIS* L. Bass, L. N., 1954, Factors affecting germination of Kentucky Bluegrass seed, *Iowa State Coll. J. Sci.*, **28**, 503-519.

824/5. *POA PALUSTRIS* L. Berton, A., 1953, Forme automnale de *Poa palustris* L., *Monde des Plantes*, **298-302**, 2.

824/11. *POA ALPINA* L. Håkansson, A., 1954, Transmission of accessory chromosomes in *Poa alpina*, *Hereditas*, **40**, 523-526.

824/11. *POA ALPINA* L. Müntzing, A., 1954, The cytological basis of polymorphism in *Poa alpina*, *Hereditas*, **40**, 458-516. Material of *Poa alpina* from northern Sweden, the Baltic Islands, Norway, Iceland and Greenland was investigated cytologically. 18 different chromosome numbers ranging from 32 to 50 were found amongst the material from Sweden. Descriptions of these biotypes are given. It was found that the average degree of apomixis and the average chromosome number was lower in Switzerland and Poland than in Scandinavia.—[D.H.K.]

826. *FESTUCA*. Crowder, L. V., 1953, Interspecific and intergeneric hybrids of *Festuca* and *Lolium*, *J. Hered.*, **44**, 195-203.

826/4. *FESTUCA PRATENSIS* Huds. Bosemark, N. O., 1954, On accessory chromosomes in *Festuca pratensis*, 1. Cytological investigations, *Hereditas*, **40**, 346-376. 2. Inheritance of the standard type of accessory chromosomes, *op. cit.*, **40**, 425-437.

826/9. *FESTUCA OVINA* L. Piotrowicz, M., 1954, Badania cytologiczne i anatomiczne nad zwyrodnymi formami z grupy *Festuca ovina* L., *Acta Soc. Bot. Pol.*, **23**, 43-58. Cytological and anatomical studies on viviparous biotypes of *Festuca ovina* from 37 natural habitats in the Tatra Mountains and 2 in the western Carpathians.—[D.H.K.]

827/19(2). *BROMUS LEPIDUS* Holmb. Koch, W. & Kunz, H., 1954, *Bromus lepidus* Holmberg, neu für die Schweizerflora, *Ber. Schweiz Bot. Ges.*, **64**, 219-220. *Bromus lepidus* has been detected for the first time in Switzerland.—[D.H.K.]

829. *LOLIUM*. Cooper, J. P., 1954, Studies on growth and development in *Lolium*, 4. Genetic control of heading responses in local populations, *J. Ecol.*, **42**, 521-556.

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very much longer period into the Post-Glacial than the neighbouring level clayland and plateau areas, where the soils were left largely intact. The types of habitat which have, it is presumed, continuously provided a soil of sufficient base status, and could never, even in the forest maximum, have carried closed woodland over the whole of their present extent, include mountains above the tree limit, cliffs and scree, river gorges and alluvium, sand dunes, shallow soils over chalk and limestones, and certain marsh and fen communities. It is in such habitats that the relict species occur. *Scleranthus perennis*, *Veronica spicata*, *Senecio integrifolius*, *Inula salicina*, *Linum catharticum*, *Hypochaeris maculata*, *Carex ericetorum*, *C. humilis* and *Sesleria caerulea* are selected for special discussion.—[D.E.A.]

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FIELD MEETING, 1953

AUGUST 1st-8th, 1953. LAKE DISTRICT

Leader: G. WILSON

At the 1948 Conference the Brains Trust recommended botanising 'Alone for concentration, with an organised party for education, but ideally, with two or three friends'. The second of these can be fully endorsed by members of the "Junior" meeting of 1953 which brought together university students, post-graduates and senior Grammar School students in the Lancashire area of the Lake District. We were happy to have with us Dr. Dony, who had organised the meeting and dealt with the booking of accommodation at five Hostels, and Mr. G. Wilson, well-known as a botanist in the Barrow-in-Furness district. He had planned an itinerary which gave a surprising variety of types of vegetation in a district generally dominated by moorland, characteristic of the mountains and high rainfall of N.W. England. As a focus for our activities, Mr. Wilson had prepared lists of plants which had not been recorded for 40 years or more in the localities named, but which were believed to exist there. The weather was kind, enabling us to complete the programme with only a few minor alterations. After supper each evening the day's collections and records were dealt with.

August 1st. Nine members of the party assembled at Hawkshead Youth Hostel in the late afternoon and, after signing in, we took a stroll to the shores of Esthwaite Water, noting the profusion of *Claytonia alsinoides* in the shade of trees and hedgerow, *Lotus uliginosus* and *Sanguisorba officinalis* and many characteristic semi-aquatics before returning to the hostel where we were joined by two more of the party.

August 2nd. In glorious sunny weather the party assembled at the bridge over Black Beck and met Miss Duncan of the British Fresh Water Biological Association station at Ferry House (Dr. Lund having been prevented from coming). Miss Duncan set off with most of the party to search for *Najas flexilis* and the elusive *Hydrilla lithuanica* and *Potamogeton* spp. in the tarn. Dr. Dony and I explored some marshy ground near Priest's Pot awaiting Mr. Wilson who had to travel from Barrow-in-Furness. During the day we all had a chance to explore the tarn and the well-known marsh at the north end of Esthwaite Water. For those who had not seen *Lobelia dortmanna* before, it was disappointing that it had finished flowering; *Najas flexilis* and *Nitella translucens* were found, but not *Hydrilla lithuanica*. In the late afternoon we thanked Miss Duncan for her valuable assistance and sent our thanks to Dr. Lund for the use of the boat.

Having some hours before dinner, the party walked to Sawley, famous as the home of Beatrix Potter. *Rubus idaeus* was common along the roadside and *Meconopsis cambrica* and *Sedum anglicum* were seen. A preliminary survey of Colthouse Top and the three tarns showed very different vegetation—bracken and heather, pine-wood and acid tarns; *Peplis portula* in ruts, *Euphrasia micrantha*, *E. nemorosa*, *Isolepis setacea*, *Drosera rotundifolia* and *Pinguicula vulgaris* were seen on the ascent. Near Coltwith *Myrrhis odorata*, *Chenopodium bonus-henricus*, *Lycium halimifolium* and *Spiraea salicifolia* emphasised man's influence on the vegetation.

August 3rd was again fine and hot and members made a rapid survey of Hawkshead before climbing on to Coltwith Heights. Several species of fern common in the area were found in a wood near Coltwith—*Thelypteris phegopteris*, *T. dryopteris*, *T. oreopteris*, *Dryopteris austriaca*, *Athyrium filix-femina* and *Blechnum spicant*. *Aphanes microcarpa* was found in a pasture. (Second record for v.-c. 69.—S.M.W.) Rucksacks were left by the boathouse on Wise E'en Tarn and the party divided to explore the two tarns amid moorland dominated by *Pteridium*, *Molinia*, *Calluna* and *Myrica gale*, having typical acid vegetation except for a small inflow stream from the south which contained *Eleocharis quinqueflorus* (*pauciflora*) indicative of basic soil; this was compared with *E. multicaulis* from Wise E'en and *E. palustris* subsp. *palustris* found nearby. After lunch, we passed through the Forestry Commission plantations to the shore of Windermere, recording *Dryopteris borrieri* and *Ceterach officinarum* var. *crenatum*. Amongst the marsh flora of the lake edge were *Lysimachia terrestris*, *L. ciliata*, *Serratula tinctoria*, *Hypericum androsaemum* and a form of *Galeopsis tetrahit* which was seen frequently during the week. Towards Upper Wray, *Impatiens parviflora* and *Thalictrum minus* subsp. *majus* were seen. Welcome refreshments were obtained at Upper Wray before we dispersed to Elterwater, Ambleside, Hawkshead and Barrow for the night.

August 4th. A doubtfully fine morning gave way to the only wet day of the meeting, but more than this rain was needed to damp our enthusiasm and the programme continued as planned. Crossbills were seen in conifers en route to the rendezvous at Colwith Bridge where we saw luxuriant plants of *Impatiens glandulifera*. In the oak wood on the Lancashire bank of the River Brathay, mosses attracted our attention before we succeeded in finding the moss-like *Hymenophyllum wilsoni*. A few members examined a marshy area of coppiced *Alnus glutinosa*, *Betula pubescens* and *Salix atrocinerea*, dominated by *Juncus acutiflorus* and containing several *Carices*.

At High Tilberthwaite Farm, *Circaea intermedia* is plentiful and the alien *Epilobium pedunculare* is colonising the rubble of the slate quarries leading to Tilberthwaite Ghyll. The mountain flora of the rock ledges added several plants not met earlier in the week: *Festuca ovina* var. *viripara*, *Melica nutans*, *Saxifraga aizoides*, *Hieracium*

vulgatum, *H. bladdonii*, *Asplenium viride* and *Polystichum lobatum*. An intensive search for *Oxyria digyna* was unsuccessful. Planned work finished, the party spread out along the track to Coniston. *Lycopodium alpinum*, *L. clavatum*, *L. selago* and *Selaginella selaginoides* were collected on the final stage.

August 5th. A few miles by bus to Torver gave the party a good start to the day. The first halt was at Torver Beck, a fast-flowing mountain stream which has cut deep into the *Pteridium*-covered slates. Here we found *Saxifraga aizoides*, *S. stellaris*, *Chrysosplenium oppositifolium*, *Parnassia palustris* and *Hymenophyllum wilsoni*. Reluctantly we left the ghyll and continued to cross the *Nardus*-covered mountain slope to Goat Water where we lunched in the inadequate shelter of boulders. Dr. Dony returned to Coniston whilst we climbed Dow Crag, noting the varied flora of the small streams in the Festucetum and remaining just long enough on the summit to find *Silene maritima*, *Salix herbacea* and *Vaccinium vitis-idaea* in the scanty vegetation amid the loose rocks. The descent into the Duddon Valley was more rapid, the form of *Galeopsis tetrahit* was again seen by the roadside; some time was spent in a wet oak-birch wood grading to drier ground before tea at Newfield Inn. The hostellers travelled by the R. Duddon through an old oak-birch wood with a rich ground layer of ferns, very similar to the woods of W. Ireland. Fine plants of *Euphrasia montana* were found near the hostel.

August 6th. Throughout a cloudy morning we followed the track through *Calluna*, *Pteridium* and *Nardus* to the N. end of Seathwaite reservoir, now a dense stand of *Juncus acutiflorus* and *Carex rostrata* with *Sphagnum* spp. Lunch was eaten early below the cloud-bar. Above this the Nardetum was replaced by Festucetum amongst scree and flushes rich with *Montia fontana* subsp. *fontana*, *Saxifraga stellaris* and *Chrysosplenium oppositifolium*. It was disappointing that the cloud and cold winds discouraged any lengthy exploration of the summits of Coniston Old Man, Brim Fell and Dow Crag. Dr. Dony was waiting for us near Low Water where we shed our rucksacks and searched the cliffs above the tarn for *Juniperus communis* var. *nana*. Most striking was the luxuriant vegetation in a narrow flush containing 20 species, including *Trollius europaeus*, *Sedum rosea*, *Cochlearia officinalis*, *Rumex acetosa*, *Luzula sylvatica* and *Solidago virgaurea*. Dr. Dony and James Cadbury visited a bog off the Walna Sear track to see *Utricularia intermedia* in flower.

August 7th. For our last day in the field we climbed to Tarn Hows, an artificial tarn and well-known beauty spot, but more interesting was the smaller Wharton Tarn nearby, where *Nymphaea alba*, *Lobelia dortmanna* and *Potamogeton polygonifolius* grow in the deep water: the water table was obviously lower than usual since *Utricularia intermedia* lay out of water on the peat; *Drosera rotundifolia* and *D. inter-*

media were flowering with *Rhynchospora alba*, *Carex rostrata* and *C. panicea*. Mr. Wilson found one plant of *Scutellaria minor*, one of our list of not-recently-recorded plants. During tea Mr. Wilson was thanked for his preparation and leadership of an adventure which had proved so varied, interesting and instructive. Then we collected our rucksacks and travelled by bus to Ambleside.

That the week had been a success was beyond doubt; our finds of rare and not recently recorded plants may have been few, but the wealth of botanical experience gained and the joy of botanising with others was immeasurable. Detailed lists of specific habitats were made and these will be sent to Dr. S. M. Walters for the Distribution Maps Scheme. Whilst a catholic interest was characteristic of the party, several members elected to record certain groups of personal interest; *Pteridophytes*, *Alchemilla*, *Erica*, *Euphrasia* and *Carices*.

MARGARET E. BRADSHAW.

FIELD MEETINGS, 1954

MAY 1st and 2nd, 1954. WEST NORFOLK

Leader: E. L. SWANN

For the opening Field Meeting of the 1954 season thirty-five members and guests attended. The party assembled on the evening of Friday, 30th April, where they were welcomed by Dr. Petch and the leader in the Riverside Room of St. George's Guildhall, King's Lynn. A brief outline of the geology of the district was given and members were invited to assist in listing the species of two small areas of woodland on the boulder clay of central Norfolk and the ephemeral flora of some West Norfolk 'breckland'.

For this purpose record-cards were provided. These proved most successful for, thanks to the members' co-operation, no fewer than 153 species were listed. These included not only the flowering plants of the spring-phase of woodland but also vegetative and fruiting species. To have such permanent records will prove of value to the Distribution-Maps Scheme and to the authors of the West Norfolk Flora and for the revision of the county Flora.

Saturday, June 1st, was spent in visiting Horningtoft and Rawhall woods in central Norfolk. Although not noted for extensive woodlands, the greatest concentration occurs in the centre of the county and the Parish Awards trace both the areas visited back to 1790. They are classified as coppice with standards and it is the periodical cutting-over in conjunction with the shorter duration of the shade-phase of the two dominant trees, oak and ash, and the medium clay soil, which provide such a varied and luxuriant field-layer. Whilst outside the woods the ravages of the recent "blackthorn-winter" were all too evident, in the woods members were delighted with the magnificent show of *Anemone nemorosa*, *Endymion non-scriptus*, *Oxalis acetosella*, *Primula vulgaris*, and the violets, *V. reichenbachiana* and *V. riviniana*. Other plants worthy of mention include *Asperula odorata*, *Calamagrostis epigejos*, *Convallaria majalis*, *Epilobium adenocaulon*, *Hypericum hirsutum*, *Luzula pilosa*, *L. sylvatica*, *Melampyrum cristatum*, *M. pratense*, *Melica uniflora*, *Ophioglossum vulgatum*, *Paris quadrifolia*, *Platanthera chlorantha*, *Poa nemoralis*, *Prunus spinosa* var. *macrocarpa*, *Salix aurita* × *caprea*, *Viola riviniana* var. *nemorosa*, and the hybrid *V. reichenbachiana* × *riviniana*.

Rawhall was visited after lunch but proved to be very similar although larger, with a considerable amount of impenetrable undergrowth. Seedlings of *Melampyrum cristatum* were found and *Hypericum hirsutum* was abundant with a very few plants of *Paris quadrifolia*.

Tea was taken at the Crown Hotel, Fakenham, and on the return journey to King's Lynn a brief halt was made at Houghton, where the head-gamekeeper to the Marquess of Cholmondeley escorted the party through the well-managed woodland. By the lakeside a large planted colony of *Acorus calamus* was seen. Other plants noted were *Primula veris*, *P. vulgaris* and its var. *caulescens*, and the hybrid *P. veris* × *vulgaris*.

Sunday, June 2nd, was spent in the West Norfolk 'breckland' but bad weather unfortunately curtailed the day's programme. A stop was made at Cockley Cley to see *Carex ericetorum* in some quantity by the roadside on chalk grassland and later in the day it was seen on Weeting Brecks. A longer stay was made at Santon. Although largely planted by the Forestry Commission there is an interesting chalk-pit sloping down to the narrow alluvium bordering the Little Ouse. A few remaining colonies of the pansy, *Viola tricolor* subsp. *curtisii*, were seen along the railway embankment and other plants included *Teesdalia nudicaulis*, *Descurainia sophia*, *Vicia lathyroides*, *Lathyrus sylvestris*, *Hypochoeris glabra*, *Taraxacum laevigatum* and *Inula conyza*. Although recorded as occurring in West Norfolk there are no recent records for the *Veronicas*—*verna*, *triphyllos*, and *praecox*—and in spite of extended search in likely ground both here and at Ringmere none was found. As Arthur Bennett recorded *V. verna* as abundant at Santon Warren in 1880 it seems that the extensive planting of conifers has brought about the disappearance of this plant.

The last station to be visited after lunch was the prehistoric flint-mines known as Grime's Graves at Weeting. On the adjacent heathland, in addition to *Carex ericetorum*, *Tillaea muscosa* was seen on the tracks growing with an abundance of dwarfed *Aphanes microcarpa*. The meeting concluded with tea taken at the Crown Hotel, Mundford. The kindness of those members with private cars who provided spare seats was much appreciated and we are grateful to the landowners who allowed us free access to their land.

E. L. SWANN.

JUNE 5th to 7th, 1954. SOUTHPORT (LANCS.)

Leader: D. E. ALLEN

Twenty-eight members and guests attended this meeting, which was primarily designed as an introduction to that botanical Mecca, the South Lancashire sand dunes. It was not expected that anything new would be discovered in so well-worked an area and so early in the year, but fortunately this scepticism proved unjustified. Several important new records were made and some puzzling hybrids given the closer attention which they deserved. In addition, the Nature Conservancy was represented at the meeting by Dr. E. Evans and some valuable work was done in connection with the scheme to set aside part of the dunes between Ainsdale and Freshfield as a Nature Reserve.

The party assembled on the evening of Friday, June 4th, at the headquarters, the Scarisbrick Hotel, where the leader gave a short introductory talk on the history and flora of the dunes and outlined the plans for the week-end. The following morning a start was made in perfect weather to Hillside Station, where several local members who had travelled in by train were waiting. The party then made for the dunes. In the very first slack we were lucky enough to find early flowering examples of two of the dune specialities, *Orchis strictifolia* subsp. *coccinea* and *Pyrola rotundifolia* subsp. *maritima*. *Arenaria leptoclados*, *Rhinanthus stenophyllus* and an abundance of *Poa pratensis* subsp. *subcaerulea* were also noted. Further along a hitherto unnoticed patch of *Epipactis phyllanthes* (very rare at the far northern end of the dunes) was encountered, as well as a single tiny plant of *Botrychium lunaria*. A small clump of *Sieglingia decumbens*, in its only known station on the coastal dunes, was inspected and *Orchis praetermissa* and *Ranunculus trichophyllus* subsp. *drouetii* were found close by. Hybrids between *Erodium cicutarium* and *E. glutinosum* were also noticed on bare sandy ground.

The party then passed through a series of wetter slacks covered with *Salix repens*, visiting one of the two surviving colonies of *Juncus balticus* on the way. *Potentilla reptans* and *P. anglica* seemed rather surprising species to be growing in the peat, where they were accompanied by the remains of hybrid swarms between *Cardamine pratensis* and *C. polemonioides*, though pure specimens of the latter were only seen later, at Ainsdale and Freshfield. A *Hieracium* of the *H. exotericum* aggregate was collected on a low grassy ridge; and specimens of *Vicia angustifolia* with very large magenta flowers, perhaps the true native form, were also much admired. *Littorella uniflora* was found in abundance in a damp sandy hollow and *Lathyrus latifolius* and *Rosa rugosa* noted as escapes before the road down to Ainsdale Beach was eventually sighted. Here several more members were waiting to join the main party, including Mr. W. G. Travis, editor of the forthcoming *Flora of South Lancashire* and one of the Society's oldest members, who was fortunately able to be present for a few hours.

Lunch was eaten while we contemplated a large patch of a *Juncus* which has mystified local botanists since 1933. A hybrid between *J. balticus* and *J. effusus* is the general opinion; if so, this plant would appear to be new to science. A second doubtful *Juncus*, found in 1951, grows in a slack about half a mile to the north and was visited on the following day; this one reaches five or six feet in height and may be a hybrid between *J. balticus* and *J. inflexus*, though these two species are not at present found nearer than half a mile from one another. Both plants are being studied by Professor P. W. Richards.

In the afternoon the party split up, some remaining to investigate Ainsdale Slacks, where *Pedicularis palustris* was plentiful alongside the star-like flowers of *Caltha palustris* var. *guerangerii*, while others pressed on to Woodvale. Golden sheets of *Lotus corniculatus*, backed by the glaucous foliage of *Salix repens* subsp. *argentea* pushing up

through the sand, presented an unusually fine sight on the outer dunes. A halt was made at a flooded bomb-crater, where *Chara vulgaris* var. *papillata* was collected, after which the track passed through a curious 'poplar scrub' (*Populus gileadensis* and *P. nigra* var. *betulifolia*) colonising bare sand. Under the shade of pines occurred *Monotropa hypophegea* (a reversion to its original habitat?), *Ribes nigrum*, *Epipactis phyllanthes*, *Stellaria apetala* and the only plant of *Bryonia dioica* in the vice-county—known here since 1940 and presumably bird-sown, as it is not otherwise found nearer than Chester. A patch of *Antennaria dioica* was located nearby, together with *Veronica officinalis*, which occurs in a few places on the sand dunes south from Woodvale. *Senecio viscosus*, *Ornithopus perpusillus* and *Geranium pusillum* were noted in a sandy field beyond the railway, *Salix purpurea* var. *helix* in a hedge and *Bromus lepidus* as a garden weed. The weather broke that evening and we did not see the sun again till the very end of the meeting.

Sunday greeted us with heavy rain. The majority of the members, however, undeterred by the weather, took the train to Ainsdale and set out to follow the railway northwards. *Ophioglossum vulgatum* was seen in one place together with an unusually tall form of *Carex nigra*. A walk along the outermost ridge resulted in the discovery of a patch of yellow-flowered Sea Pansies, hitherto believed to have been extinct on the South Lancashire coast for some thirty years. The common Sea Pansy here has purple flowers and a very long, slender spur; it appears to be endemic and is due to be described as a separate species. The other surviving colony of *Juncus balticus* was inspected in the slack below, parts of which are composed of a veritable *Blysmus compressus* 'turf'. *Ranunculus trichophyllus* and masses of *Chara hispida* were found in the ditch. *Orobanche minor* (growing on clover), *Erodium cicutarium* subsp. *dunense*, and two or three bushes of *Salix purpurea* × *repens* subsp. *argentea* and *S. purpurea* × *viminialis* were also seen.

The party continued down the disused railway line (the only ground not soaking underfoot) to Victoria Park, seeing *Ambrosia artemisiifolia* and *Elymus arenarius* in an old siding on the way. After lunch *Chrysanthemum balsamita* and *Potentilla erecta* × *reptans* were pointed out on waste ground. The salicologists then had a field day in a remarkable willow thicket at the side of the Park. This appears to be largely natural, formed over boggy ground containing *Scirpus maritimus* and *Hydrocotyle vulgaris* in abundance. By chance eight different species of *Salix* occur in this one small area and extensive hybridisation (including some possible triple hybrids) is evidently in progress.

The bus was then taken to the far end of the Promenade, where *Catapodium marinum*, a very rare plant in South Lancashire, is growing in the pavement. Little of interest was seen on the Sea Wall (sometimes rich in aliens) apart from *Raphanus maritimus*, *Lycium chinense* and *Salix daphnoides*. On the salt-flats *Spartina townsendii*, planted in the early thirties, and some puzzling forms of *Cochlearia*, needing further study, were observed. Brackish ditches on Hesketh golf-links produced *Festuca arundinacea*, *Ranunculus baudotii*, *R.*

trichophyllus subsp. *trichophyllus*, *Chara vulgaris* var. *papillata* and *Callitriche obtusangula*. The party then moved on to the road, where it promptly discovered *Carex divisa* in the ditch—the second record for the vice-county, the species having previously been collected in another locality a few miles distant and the naming only confirmed in 1953.

Monday, June 7th, was spent at Freshfield. A brief détour from the road to the beach enabled the party to see *Osmunda*, *Blechnum* and *Thelypteris oreopteris* growing in a fragment of aboriginal birchwood. *Epipactis phyllanthos* and *Erodium cicutarium* × *glutinosa* were noted on the roadside. In the dryish slacks *Myosotis hispida*, the dwarf dune variety of *Valerianella locusta*, *Sagina ciliata*, and patches of *Ophioglossum vulgatum* and *Ophrys apifera* (not yet in flower) were noted, together with a few specimens of *Erodium cicutarium* subsp. *dunense*. Massam's Slack produced its usual specialities, including the famous *Scirpus americanus*, which is supposed to have been originally planted, *Valeriana officinalis*, and *Ranunculus trichophyllus* and *Chara hispida* in the ditch. *Sisyrinchium angustifolium*, seen here the previous year, was looked for in vain.

After lunch under the pines an attempt was made to explore the pools in the 'swale'. *Veronica catenata* and *Carex disticha* were seen growing amid great stands of *Iris pseudacorus*, *Menyanthes trifoliata* and *Rumex hydrolapathum* before heavy rain forced the party to seek a less exposed area further inland. Two patches of *Botrychium lunaria* and another of *Ophioglossum vulgatum* were inspected, and *Hieracium vulgatum* and *H. anglorum* (N.C.R.) collected growing together by the Fishermens' Path. A small amount of *Polypodium vulgare* (the common tetraploid, with orbicular sori) was also seen on the open dunes. An early tea was taken at the beach café, after which a small remnant of the party crossed Formby dunes, in welcome sunshine, to see another patch of *Antennaria dioica*. The lane back to the station contained planted specimens of *Sorbus intermedia*, *Salix purpurea* var. *helix* and *Populus canescens* × *tremula*. *Sagina ciliata* grew on the grassy verges and in a ditch by the army camp *Ranunculus aquatilis* subsp. *heterophyllus*, *R. trichophyllus* and *Callitriche obtusangula* were collected.

Sometime during the day—the exact spot cannot be recalled—a queer looking grass was gathered which was subsequently identified by Dr. A. Melderis as *Festuca rubra* × *Vulpia membranacea*, a hybrid not previously described in the literature.

Throughout the meeting members remained admirably obdurate in the face of what must have been one of the wettest Whitsuntides on record, and as a reward for their patience were able to see nearly all the interesting plants which the Southport district has to offer at this time of year. The leader would like to thank everyone for their cheerful collaboration and especially Miss V. Gordon for her assistance both during and after the meeting.

JUNE 5th and 6th, 1954. MID PERTH.
MEETING OF LOCAL SECRETARIES AND RECORDERS
FOR SCOTLAND

The experimental meeting for Local Secretaries and Recorders of the Society in Scotland was held in Perthshire on June 5th and 6th, 1954.

The programme consisted of a preliminary meeting in the Library of the Perth Museum and Art Gallery, kindly placed at our disposal throughout the day by the Curator, at which, under the chairmanship of Professor Braid, an agenda was drawn up for the afternoon meeting.

The party lunched together and the afternoon was spent in discussing the present and future activities of the B.S.B.I. in Scotland. The Minutes, including a number of proposals, have been submitted to the Council of the Society.

We welcomed Mr. Davidson (Curator of the Perth Museum and Art Gallery), Mr. G. Blackwood (Ben Lawers Committee, National Trust for Scotland) and Mr. A. W. Robson (a local B.S.B.I. member) as guests at the business meetings.

At 6.0 p.m., by kind invitation of the Perthshire Society of Natural Science, who had placed the date and hall of one of their regular meetings at our disposal, Mr. J. Grant Roger (Nature Conservancy) gave a talk on the Scottish flora, illustrated with kodachrome slides. This meeting was presided over by the Vice-Chairman of the Perthshire Society, and attended by a number of its members; to all of whom our thanks were warmly accorded.

The following morning we assembled at Coshieville, near Aberfeldy, and were pleased to have several car loads of Perthshire Society members with us at our Field Meeting, an account of which follows this report.

I would like to place on record my thanks to Mr. B. W. Ribbons, and to Mr. D. Spence who took the Minutes; to Mr. Davidson, the President and Officers of the Perthshire Society of Natural Science, and to Mr. Ross (Manager of Drummond Hill Forest), for their kind co-operation, and to Professor Braid for the admirable way in which he presided over the meetings.

M. S. CAMPBELL.

JUNE 6th, 1954. MID PERTH.

On Sunday, June 6th, the party visited the Scottish Field Studies Association's Field Studies Centre at Garth House. It was met and conducted through the Centre by the Honorary Secretary, Mr. B. W. Ribbons, who described the facilities available at Garth.

The remainder of the day was devoted to examining two places which are subject to human interference. The Lochan na Lairige area is at present the scene of extensive hydro-electric operations, one result of which will be to bring the water level close to the Creag an Lochan rocks; Drummond Hill has been the property of the Forestry Commission for some years.

At mid-day the members reached Lochan na Lairige, and proceeded to examine the lower rocks of Creag an Lochan. Here, at altitudes between 2000 ft. and 2250 ft., over thirty species of mountain plants were noted. The most interesting were:—

Woodsia alpina, *Draba incana*, *Cerastium alpinum*, *Potentilla crantzii*, *Dryas octopetala*, *Saxifraga oppositifolia*, *Epilobium anagallidifolium*, *Salix arbuscula*, *S. reticulata*, *Veronica serpyllifolia* subsp. *humifusa*, *Carex vaginata*, *C. atrata*, *C. rupestris*, *Poa alpina*, *Sesleria caerulea*.

The party re-assembled at 3.30 and moved on to Drummond Hill, where the forest of Sitka, Norway and Serbian spruce was admired. Members drove along the road which encircles the hill, and made occasional stops to record the ground flora. The species noted here were:—

Pteridium aquilinum, *Dryopteris borreeri*, *D. spinulosa*, *Thelypteris oreopteris*, *T. dryopteris*, *Polypodium vulgare*, *Ranunculus repens*, *Cardamine pratensis*, *C. flexuosa*, *C. hirsuta*, *Viola riviniana*, *Polygala serpyllifolia*, *Hypericum pulchrum*, *Cerastium holosteoides*, *C. glomeratum*, *Stellaria holostea*, *S. alsine*, *Sagina procumbens*, *Oxalis acetosella*, *Acer pseudoplatanus*, *Lotus corniculatus*, *Rubus idaeus*, *Potentilla sterilis*, *P. erecta*, *Alchemilla vulgaris* agg., *Rosa* sp., *Sorbus aucuparia*, *Chamaenerion angustifolium*, *Mercurialis perennis*, *Rumex acetosella*, *Urtica dioica*, *Betula pubescens*, *Corylus avellana*, *Calluna vulgaris*, *Erica cinerea*, *Vaccinium vitis-idaea*, *V. myrtillus*, *Primula vulgaris*, *Myosotis discolor*, *Scrophularia nodosa*, *Digitalis purpurea*, *Veronica officinalis*, *V. chamaedrys*, *V. serpyllifolia*, *Teucrium scorodonia*, *Ajuga reptans*, *Galium saxatile*, *Lonicera periclymenum*, *Senecio jacobaea*, *Tussilago farfara*, *Gnaphalium sylvaticum*, *Bellis perennis*, *Cirsium vulgare*, *C. arvense*, *Hieracium* sp., *Endymion non-scriptus*, *Juncus effusus*, *Luzula pilosa*, *L. sylvatica*, *L. multiflora*, *Orchis mascula*, *Poa annua*, *Deschampsia flexuosa*, *Anthoxanthum odoratum*.

It is hoped that this list may prove interesting in its own right, and for a future comparison with a corresponding one made when the present stand of timber has been cleared.

The visit to Drummond Hill, which was followed by tea at Kenmore Hotel, was made possible through the kindness of the Forestry Commission Conservator in Aberdeen, and of the local officer, Mr. Ross, who acted as guide to the Hill.

The thanks of members are also due to Miss M. S. Campbell, who organised the meeting and who, with Miss Ursula Duncan, was most generous in providing transport on the excursions.

R. MACKECHNIE.

B. W. RIBBONS.

AUGUST 20th to 22nd, 1954. HORSHAM
 Leader: Miss B. M. C. MORGAN, assisted by
 Miss B. HURST and Miss E. M. C. ISHERWOOD

Twenty-five members took part in this meeting, which was arranged for the purpose of visiting part of the area to be incorporated in Craw-

ley New Town or its green belt, and to list all plants seen for the Distribution-Maps Scheme and a revision of the Sussex Flora being undertaken by Mr. Buckle. At the meeting on Friday evening a list of plants recorded from Tilgate Forest was circulated and the Record Cards were explained. A map showing the area to be included in the New Town was displayed.

On Saturday morning the party left by coach for Tilgate, a large area of woodland on the Hastings Sands, with several ponds, and intersected by streams which form the headwaters of the River Mole to the north and the River Arun to the south. First a stretch of roadside vegetation enabled about seventy species to be recorded, including *Sisymbrium altissimum* and *S. orientale*. In the wood, *Ranunculus lenormandi* was in the first swamp, *Impatiens parviflora* by a timber-stack, *Gnaphalium sylvaticum* and the typical plants of the "Forest" area, *Wahlenbergia hederacea*, *Scutellaria minor*, *Centunculus minimus* and *Radiola linoides*, and one plant of *Anagallis tenella* (rare in Sussex) were seen. On a grassy ride was an unusual form of *Epipactis* with pendulous flowers. The Forestry Commission has felled a large area and replanted it with soft-wood trees.

After lunch the party divided for some to explore a swamp and stream. The others found *Centaureum pulchellum* on their way to the lake, but a heavy thunderstorm held up note-taking. By the lower lake ferns are in rich profusion, and include *Thelypteris oreopteris* and *Osmunda regalis*. The Great Pond, as Borrer called it, provided *Nymphoides peltata*, *Nymphaea alba* and *Menyanthes trifoliata* and, in the place where Borrer recorded it in 1825, *Elatine hexandra*. On leaving the lake, we entered (by kind permission of Mr. Baker) the private part of the wood. Here in a sphagnum bog were great clumps of *Osmunda*, obviously planted, but sporelings found near the stream show that it is also naturalised here: We returned by the main drive, noting a change in the flora, *Campanula rotundifolia*, *Linum catharticum* and *Briza media* being abundant, and *Trifolium medium* was found. The coach then took the party to the George Hotel, Crawley, for tea, after which a short visit was paid to St. Leonards Forest, where Mrs. Esplan led us to *Aquilegia vulgaris* and *Valeriana dioica*. Another plant of *Osmunda* was found by the Hammer Pond.

On Sunday morning we set out from Faygate station to see what the Weald Clay would produce. Crossing the railway, we entered a wood, a feature of which was the very tall crack-willow trees. A fine specimen of *Sorbus torminalis* was noted. Then we skirted a cornfield, finding *Euphorbia platyphyllos* in some quantity, and walked along the railway to Pondtail Shaw, a piece of typical clay-woodland with *Epipactis helleborine* and *E. purpurata*. The track led on past Bewbush Pond, which is now drained, and it was interesting to see which plants had colonised it. After lunch the party divided, those led by Miss Hurst visiting the Mill Pond, while a few went to visit *Calamagrostis epigejos* and they found *Gastridium ventricosum* in an oat-field, confirming an old record.

A foot-path took us to the Crawley-Horsham road which here divides the Weald Clay from the Hastings Sands. Across the road we were back in the forest with a flora similar to that seen yesterday. Island Pond was visited and *Hypericum elodes* and *Anagallis tenella* were found. A short walk through the wood, noting *Juncus tenuis* in passing, brought us to Holmbush Potteries, where *Diplotaxis tenuifolia*, *Senecio squalidus* and *Phalaris canariensis* were seen and where the coach awaited us. After tea at the George Hotel, Crawley, we drove through terrific rain to Warnham Pond, which provided a good finish with *Butomus umbellatus*, *Ranunculus lingua*, *Nymphoides peltata* and *Stratiotes aloides*. By the gate *x Festulolium loliaceum* was found.

During the meeting 538 species were listed for one 10-kilometre square, and lesser numbers for other squares.

B. M. C. MORGAN.

SEPTEMBER 2nd, 1954. LANGHAM POND AND RUNNYMEDE

Leader: A. W. WESTRUP

This was a Junior meeting, and a party of 12 met at Egham Station at 10.30 a.m., seven schools in the west London area being represented.

The marsh and reed-bed on Langham Farm were first visited and most notable here was the fine stand of *Typha latifolia*. The outer edges contained *Impatiens capensis* and *Epilobium hirsutum*, both in full flower. Other plants noted included *Mimulus guttatus*, *Bidens tripartita*, *B. cernua*, *Carex pseudocyperus*, *Glyceria declinata* and the four British species of *Lemna*.

Langham Pond yielded a fine display of *Sium latifolium*, together with *Thalictrum flavum*, *Oenanthe aquatica*, *O. fistulosa*, *Rumex hydro-lapathum*, *Veronica catenata*, *Utricularia vulgaris*, *Alisma plantago-aquatica*, *A. lanceolatum*, *Butomus umbellatus* and *Hydrocharis morsus-ranae*.

The meadows provided chalk-loving plants such as *Poterium sanguisorba*, *Plantago media* and *Leontodon hispidus*, while *Epipactis purpurata* was found on the clay hillside below the Runnymede Memorial.

After lunch the party visited several small ponds in Windsor Great Park where a strongly contrasting flora was seen. This was much poorer both in species and abundance. Of note were *Epilobium palustre*, *Galium uliginosum* and *Typha angustifolia*.

A. W. WESTRUP.

SEPTEMBER 11th, 1954. SHINGLE STREET

Leader: D. H. DALBY

The aim of the expedition was to demonstrate the variation in form of *Salicornia*, especially in relation to the habitat. This is a necessary beginning to a study of this difficult genus, because there is clear evidence that much of the variation encountered is caused by environmental conditions. Shingle Street contains many types of habitat for

Salicornia, and because of their close proximity it is possible to visit them all within a few hours.

After a brief explanation by the leader of some of the theoretical aspects of the problem, the party moved across the shingle to a lagoon, where the water (associated with thin bands of *Cardium* shells in the mud) is of a high pH value. The floral and vegetative morphology of the plants were demonstrated to those who had not examined the flowers of *Salicornia* before. Plant density and availability of water appeared to be responsible for much of the variation in plant size, as was well seen when a turf formed from small dense plants was compared with the much larger *S. ramosissima*-type plants scattered amongst *Phragmites*, and along the sides of small pools.

The party next visited the complex series of lagoons which are still in free connection with the sea. Colonies of *S. ramosissima*- and *S. stricta*-type plants were examined growing on the mud at and just above normal high tide level, and the transition from the normal large green plants to the smaller and more red individuals at the upper edge of the colonies was clearly seen. Here again, plant size seemed to be related to the soil-water content.

Nearer the mouth of this tidal channel, plants of the *S. dolichostachya*-type were well seen on a low mud bank, and were easily distinguished by their disorderly growth habit and long flowering spikes. This colony is frequently covered by the tide. Beyond the mouth of the channel is an area of saltmarsh, where the original vegetation has been destroyed by the passage of a moving shingle bank which is driven inland by winter storms. On the surface of this firm mud more interesting *Salicornia* forms were seen, showing a great range of morphology and colour. Here three groups could be distinguished, the reddish short-spiked *S. ramosissima*-type (sometimes prostrate), the erect green medium-spiked *S. stricta*-type, and the decumbent green long-spiked *S. dolichostachya*-type. Biometrical studies of this colony suggest that these three groups are here quite distinct.

Various explanations were forthcoming for the differing appearances of plants growing on low mounds of mud by the river, and similarly the relationships of the small specimens in the saltmarsh pans produced much discussion. The two main suggestions made were that different species were present, or that in any such place one form only occurred, its variations being due to effects of the environment. Relics of the original marsh vegetation attracted interest, as did also annular patches of *Spartina townsendii*.

The party left the main saltmarsh after visiting an area where growth of the vegetation appeared to have been stimulated by digging in connection with repairs to the seawall following the 1953 sea flood. Although the marsh marginal to the river is mostly overgrown by *Puccinellia* spp., specimens of *Salicornia disarticulata* were found beside the path. This is probably the most distinctive of all the forms of *Salicornia* in this country, and there is little doubt that it constitutes a separate species.

D. H. DALBY.

OBITUARIES

ARTHUR GEORGE GREGOR (1867-1954).—The death of the Revd. Arthur George Gregor at West Worthing on November 9, 1954, in his 88th year robbed British field botany of an able exponent. Born at Retford, Notts., he was educated at King's College Grammar School, Ashby de la Zouche, and later at Monmouth Grammar School. He received his theological training at St. John's College, Highbury, and University College, Durham, where he took his M.A., and later his B.D. His first curacy was near the Wye Valley, but the rest of his life was spent in Sussex where, after several curacies in the Hastings district, he became Vicar of Firle for 19 years, and finally spent the last nine years of his life in retirement at West Worthing.

His interest in botany began after he left school and he was seldom seen in the country without his vasculum; his study table was never without its specimen vase, and Babington was his second Bible. Curiously enough his membership of the B.S.B.I. began only in 1947 and continued until his death. He greatly appreciated the honour of being elected a Fellow of the Linnean Society of London in 1948 largely on account of the very valuable contribution he was able to make to Wolley-Dod's *Flora of Sussex*. He would have been equally happy to know that his extensive British and foreign herbarium would finally be received by Kew.

His holidays were spent in Switzerland among the mountains he loved so well and where he compiled several local floras and collected a great number of herbarium specimens. The notes in his Gremli indicate very clearly his indefatigable industry in the cause of botany. He was constantly in correspondence with Kew and contemporary botanists, and accuracy of identification was almost a fetish with him.

When the last war made further visits to the Alps impossible he turned to the large garden at Firle and filled it to overflowing with a remarkable collection of trees, shrubs, herbaceous, alpine and rare native plants all of which were scrupulously labelled, and the result, though not always artistic, was extremely informative. At one period his crop of *Sonchus palustris* threatened to take complete possession of the garden. The last surviving relics of his visits to Switzerland were some silver saxifrages now in another friend's garden.

Apart from his wide knowledge of flowering plants he was a life-long student of literature and the classics, with the phenomenal memory not unusual in men of his generation, so that he was never at a loss for an apt quotation and once had the satisfaction of winning a prize for the solution of a Greek crossword puzzle. His keen ear for a false quantity was a perennial trap for the unwary, and an error never escaped detection or correction.

Always of a modest and retiring disposition, all too few had the opportunity of profiting from the vast store of knowledge he had to impart, and the writer of these notes is grateful to be able to place on permanent record her own appreciation of the enormous amount gained from a friendship which lasted nearly thirty years.

K. PICKARD SMITH.

WILLIAM ROBERT SHERRIN (1871-1955) was born on May 20th, 1871, and died in hospital at East Dulwich on March 22nd, 1955. His life was devoted to the study of natural history and although it is broadly true to say—as he did himself—that he was first a zoologist and, later, a botanist, the statement covers only his main professional interest at different stages in his life. At heart he was always a general naturalist willing to pursue any study in which he thought he could render the most useful service.

Sherrin was educated at Taplow Grammar School and in boyhood was regarded as weakly and in need of an open air life. As a young man he had a taxidermist's shop at Ramsgate until, in 1895, he applied for a post as articulator in the Department of Zoology at the British Museum (Natural History). He was employed there full-time until in 1919 he resigned in order to take up an appointment as Curator of the South London Botanical Institute. But he continued part-time work in the Department of Zoology until 1928 when he was transferred to the Department of Botany as part-time assistant. Many fine mammal skeletons at the Natural History Museum remain as a record of the 33 years he spent there on this exacting work and his skill was such that he continued occasional preparations until recently. A rat from Pakistan and a bat from New Guinea were named for him.

From very early years it was Sherrin's principle always to have a "second interest", and in turn he collected and studied phanerogams, coleoptera, mollusca, lepidoptera, and bryophytes. His interest in bryology must have commenced at a very early date, for he left specimens collected in 1900 and 1901 and joined the Moss Exchange Club junior section in 1905, and the main club in 1906. It is for his work on bryophytes that he is best known to botanists. For many years he was a referee of the British Bryological Society, and Librarian and Curator from 1925 to 1945. After serving for five years as Vice-President of that Society, he was elected in September 1945 as their President to cover the period of their Jubilee Meeting in 1946. For this, the celebration of their 50th anniversary, he also acted as Local Secretary for the London arrangements. He was an authority on bog-mosses and in 1927 published *An Illustrated Handbook of the British Sphagna*. He also wrote a most useful booklet on *Study of Mosses in the London District*, which was published by the School Nature Study Union in 1916. Both works were illustrated by numerous excellent sketches from his own pen. He compiled lists of the mosses and hepatics of Essex (*Essex Naturalist*, 23, 129-136, 1931). From the time of his transfer to the Department of

Botany at the Natural History Museum until his retirement on October 17th, 1947 (when he was granted a Civil List pension), he worked on the collections of bryophytes. With characteristic energy he incorporated vast accumulations of the mosses of the world at a speed which strained the resources of the mounters. When he retired he had served the Trustees for 52 years. Sherrin's interest in mosses was first aroused by handling them as packing in which material of mammals was received from far corners of the world—it is fitting that he should have been able to complete his service at the Museum by studying collections of bryophytes from these distant countries.

If the first major change in Sherrin's life was joining the staff of the Museum, the second was his appointment as Curator of the South London Botanical Institute in 1919. This appointment he held for 36 years until it was terminated by death. He threw himself into the work with single-minded devotion. His only thought was to further the interests of the Institute and he did not spare himself in the process. In effect, Sherrin and the Institute became fused in such a way that it was difficult—if not impossible—to think of one without the other. The position was neatly summed up by a phrase commonly used by his colleagues at the Museum—"Sherrin's Institute".

When he came to the South London Botanical Institute he found a volume of work awaiting him which would have daunted anyone not possessed of very exceptional energy. His predecessor had been removed with difficulty, and the collections and activities were in a sadly neglected state. For years Sherrin rose at 4 a.m. to work on the herbarium, and cycled to the Natural History Museum where he was employed from 8 a.m. to mid-day. He returned to open the Institute from 2 until 9, and during this time no visitor ever found him idle. First, he concentrated on getting the British plants in order and then he turned to the European herbarium. Of both he arranged "selections" in which each species was represented by a single representative sheet. The algae, bryophytes, lichens, mycetozoa and conifers were mounted and arranged. Special collections of microscope slides, mounted seeds and lantern slides were accumulated. The library was rearranged and catalogued with the assistance of his daughter. The garden was improved and interesting mosses and ferns were grown in the conservatory. It is hardly possible for people using the collections to-day to realise how much they owe to Sherrin or to imagine the extent to which they were improved by his almost single-handed efforts.

As Curator he never lost sight of the fact that there is no object in amassing collections unless they are used, and he made every effort to ensure that the maximum use was made of the facilities offered. Visitors were always welcome and whatever task claimed his attention at the time was dropped immediately so that he could give hours of patient instruction to beginners, or help to experienced botanists in finding the specimens or books they required. He got in touch with local schools (especially the Strand School and Dulwich College) and training colleges and had outstanding success in encouraging interest in botany

in the steady stream of young people who were introduced to him by the teachers. Similarly, he approached local churches and other bodies with youth organisations, to obtain recruits. Many of them fell under the spell of Sherrin's infectious enthusiasm and charm, and some retained and developed their interest in later years. His influence was deep and far reaching and rendered his most important service to botany. There are many who owe an immense debt to the encouragement and stimulus received from this kindly man.

I first met Sherrin in 1920 as one of the schoolboy members of a small party from the Strand School and most of us lost no time in taking advantage of his invitation to "use the Institute as much as we liked". Other members of the same party, or similar parties at about the same time, were D. G. Catcheside, J. L. O'Loughlin, W. G. Archer, and S. O. S. Dark. Very soon the Curator had us interested in bryophytes as well as phanerogams. I still possess an interleaved copy of Sherrin's "Mosses of the London District" containing specimens collected under his guidance on excursions by bicycle in 1921 when he took two boys at a time to his favourite localities at Keston, Esher and elsewhere. Not long afterwards E. C. Wallace joined the group of youngsters working under Sherrin's encouragement. I remember with deep gratitude many occasions when he broke off his work to help us. At one period he was excavating a pond in the Institute garden during the winter and digging away after dark with the aid of electric light provided by running a length of wire from the nearest room. At another time he was engaged for months in compiling an index to the *Journal of Botany* from the first volume in 1863. The mighty manuscript which resulted still occupies several feet of shelving at the Institute.

Sherrin's botanical character may be summed up as that of a born collector with abounding energy and goodwill. He was prepared to collect anything and to arrange it according to the leading manual covering the group, but he gave very little credit to modern developments. To him "species" were made by the Creator, and to be accepted they had to be clear-cut and free from intergrading. He was scornful of hybrids and refused to believe that they could be so much more common in phanerogams than in mammals. If intermediates connected two taxa they could not be "good species" and to him no other verdict was possible. If his approach was old-fashioned it was suited to the wide field he covered, and until he was overtaken by old age his taxonomic skill was great and by no means lacking in critical judgment. His genius was in undertaking big tasks and he never rested until they were completed according to his standards.

His skill with his hands was such that he could have become a master of almost any art or craft had he wished. The son of an artist (John Sherrin) and brother of another (Dan Sherrin), he drew lightning sketches with astonishing ease—many of these are preserved on herbarium sheets in the collections at which he worked. He could turn

his skill to almost any handyman's task. For years he bound all periodicals added to the Institute library, while his interest in photography was turned to good account in preparing lantern slides to illustrate the lectures.

Sherrin's association with the British Bryological Society has already been mentioned. He was elected an Associate of the Linnean Society (*Honoris causa*) in 1919, and shortly before his death he was made an Honorary Life Fellow of the Zoological Society of London, of which he had been a Fellow for many years. He joined the B.S.B.I. in 1920, but his association with the Society dates back much earlier than this, for specimens of *Physospermum cornubiense* from his important new locality at Burnham Beeches were distributed in 1904 (*B.E.C. Rep.*, 1904, 22-23). On March 25th, 1942, he was elected a Corresponding Member (now Honorary Member) in recognition of his long services to British botany. He took a very active part in the affairs of the School Nature Study Union and South Eastern Union of Scientific Societies.

Sherrin's collection of British phanerogams, filices and bryophytes is incorporated in the herbarium of the South London Botanical Institute. His special collection of *Sphagna* he presented to Kew. He left a small study collection of mosses of the world arranged alphabetically by genera and species.

He was twice married—his first wife died in 1938—and is survived by a son and daughter and his second wife. He was buried at Streatham Cemetery on March 26th, 1955, following a service at St Cuthbert's Presbyterian Church, Thurlow Park Road, West Norwood. A wreath and sheaf included plants of *Leucobryum glaucum*, *Polytrichum formosum*, *Hypnum cupressiforme*, *Mnium hornum*, and *Dicranum scoparium*—an appropriate tribute to a life devoted to natural history, with emphasis on mosses.

J. E. LOUSLEY.

WILLIAM CHARLES RICHARD WATSON (1885-1954).—In the passing of William Watson, British botanists have lost the last of the small group of amateurs whose critical work on our more difficult genera of native plants has brought our knowledge into line with that of other European countries. It is difficult for botanists born within this century to appraise the status of field botany in the universities and public schools when Watson was a youth. Admittedly there were Floras available which had originally been written by professional botanists, but, though revised from time to time, they were all much out of date. Some teaching was given in cytology, and in the rediscovered "Mendelism" and, perhaps more immediately important, ecology. The ecologists had to visit plants where they grew and learn there something about their associations. To the more competent field-botanists of the time, the earlier papers on ecological subjects seemed to be only statements of the obvious. It is no exaggeration to state that well within this century it was possible to obtain a good degree or diploma in botany from

almost all examining bodies (the Pharmaceutical Society was an exception) with only a slight acquaintance with our native plants.

Watson was born in the village of Chislehurst, West Kent, of yeoman stock. He was educated at Sevenoaks Grammar School and after some private coaching entered the Post Office branch of the Civil Service. He spent some of his summer holidays with the Co-operative Holidays Association and it was while acting as lecturer at the Derbyshire centre that he first met the lady who afterwards became his wife. On his marriage he removed to Bickley where he resided for the remainder of his life. During the First World War he served in France. On his return to civil life he became an active member of several metropolitan field societies and was widely known to, and respected by, workers in several branches of natural history. He was not of a robust disposition and suffered from periods of indifferent health. He is survived by his widow and two daughters.

Watson's interest in field botany dates from his schooldays and it is recorded that during several seasons he vied with his favourite sister in attempting to produce the longer list of plants growing on Chislehurst Common. It is tempting to suggest that the young boy considered the feasibility of using some of the many forms of brambles which abound on the Common to lengthen his catalogue, but in truth his study of the genus *Rubus* arose from quite different origins. He was much influenced as a youth by Darwin's *Origin of Species*. He asked himself questions more fundamental than the origin of species, questions that still await a satisfactory reply. What constitutes a species? How do species differ? In the Floras the species were differentiated by combinations of characters that were visible to the eye perhaps with the aid of a simple lens. Authors of Floras recognised very different numbers of species growing in the same area, or in other words held very different views as to what combination of characters constituted a species. Watson, following Darwin, thought "that something might perhaps be made out on this question by patiently accumulating and reflecting on all sorts of facts which could possibly have any bearing on it". He wished in the first place to find by observations on the growing plants what characters could be ranked as truly specific in contrast to the many, often of outstanding appearance, which could be modified at will by changing the conditions of growth. For such a study the bramble almost selects itself. With a perennial rootstock, biennial shoots of somewhat different forms and very different functions, prone to vary in morphological characters and yet usually adaptable to wide differences in soils, water content, light density, etc., widespread and often abundant, readily spreading by tip-rooting and for the most part with viable seeds, the scope for study is illimitable. He selected an isolated bramble growing on Chislehurst Common and during several years visited it at short intervals carefully noting any differences he could detect in the canes of successive years and attempting to find explanations in factors due to environment. Other brambles growing on the Common and much the same as his type were examined for morphological differences

and explanations sought. He sowed seeds taken from a single fruit and grew root-tips taken from a single bush in different kinds of habitat and thus learned by observation the range of forms, often very striking, which could be explained satisfactorily by known factors and, *per-contra*, the more constant characters which alone could have specific value. Watson pursued these methods to the end of his life. He revisited certain bramble bushes over several years, patiently accumulating facts and compiling dossiers, some of considerable bulk. Plants which were too far away from home to visit were grown at Bickley from seed or root-tips until four or five years old. At one period some 80 different species were under cultivation simultaneously.

Meanwhile Watson studied the bramble population on Chislehurst Common with Rogers' "Handbook" for guidance. C. E. Britton collected brambles extensively in Surrey and West Kent and his gatherings were submitted to Rogers and later to Riddelsdell for identification. Britton, who incidentally introduced Rogers to the bramble flora of the Metropolitan Commons (including Chislehurst Common in 1898), left a representative selection of his *Rubi* to Watson. Thus, in addition to the views expressed in the "Handbook", Watson had later knowledge of Rogers' views of and comments on brambles which Watson was discovering for himself. As his knowledge grew, Watson found himself more and more at variance with Rogers' conclusions, especially on two points. Rogers had confined his descriptions to about a hundred species. He allowed for considerable variation in drawing up the characters of some of these species. It will be recalled that the batologists, one of whom was Rogers, who issued the "Set of British Rubi" included in several instances two forms under one species intended to illustrate the range of variation in these species. Later, Rogers must have had doubts about the wisdom of this procedure, for in the "Handbook", published soon after the issue of the "Set" came to an end, he selected one only of the forms, where two were issued to illustrate the species he was describing. To Watson this method was wrong. Only those individuals could be included under one species which could be considered to possess the characters constituting the species. The other case concerned a number of species which Rogers believed to agree with species named and described by continental authors. Watson hunted up the original descriptions, searched for authentic specimens in the national herbaria, obtained authentic material from continental correspondents and in one case saw many plants growing in the habitats where originally discovered by the authors of the original descriptions. Thus it was proved that many names in the "Handbook" inserted on the authority of Focke and others were wrong. A large percentage of British *Rubi* are endemic. Others have been found to be true representatives of continental species, the names of which had been given in error to other plants by Rogers.

In 1927 Watson published in the *London Naturalist* the first of six papers on the bramble flora of Kent and Surrey. His notes were arranged in the sequence of the "Handbook". In the following year he

contributed a paper on Some Kent and Surrey Brambles to the *Report of the Botanical Exchange Club*; he published several further papers in the "Annual Reports" and its successor, *Watsonia*, until 1951. He also published 'Bramble Notes' in the *Journal of Botany* for 1933, 1935, and 1937, where a number of new species were described. His papers quickly won him recognition and from 1928 he acted as referee for the genus *Rubus* in the "Annual Reports". His reports often differed from those of Barton and Riddelsdell and it is interesting to turn over the pages of those older volumes to read the different outlooks of these antagonists—for such they were. Riddelsdell would carefully dissect the characters of the specimen in question, comparing them with characters of other brambles and finally giving a cautious opinion based on the balance of probabilities. Watson more usually gave a succinct summary or merely the name he considered it to be. It is pleasant to recall that they exchanged friendly and useful correspondence and occasionally spent a day together in the field. Amongst other valued correspondents of Watson's were C. E. Gustafsson who supplied him with authentic specimens of critical continental material, and G. Didier, who sent him several bulky parcels of French brambles by way of exchange. In the summer of 1937 N. D. Simpson and Watson spent a strenuous holiday in that *locus classicus* of batologists, the Ardennes, visiting Stavelot, Trois Points, Malmédy, Verviers, Eupen, Spa, and the district around Aachen. Many species were obtained and descriptions drawn up from living material.

Watson made a major contribution to county and other Floras in the genus *Rubus*. His earliest list was compiled for St. John Marriott's book *British Woodlands as illustrated by Lessness Abbey Woods* published in 1925. He contributed "A Revised List of Rubi" to the *Flora of Gloucestershire* (1948) in an Appendix. The "Brambles of Middlesex" was published in 1947 and "The Brambles of Bedfordshire" in 1948. A List of *Rubi* growing within twenty miles of St. Paul's Cathedral drawn up for the *London Naturalist* in 1951 extended to over 220 species. An earlier list published in the same periodical in 1932 contained 78 species only. The striking increase in numbers occurring in less than twenty years gives some indication of the amount of field work he accomplished with his friend Charles Avery during that period. Many of them were new to England, many were endemic. The vice-counties of Bedfordshire, East Kent, Staffordshire and Wiltshire were visited in company with botanists working on the county floras, and help given to workers in more distant parts of Britain which he was unable to visit personally. For the "Check List of British Vascular Plants", *Journal of Ecology*, 1946, he completed a *Rubus* List of almost 300 species, and his last work was the preparation of a List of *Rubi* of the British Isles for the forthcoming "Plant List" of the Botanical Society of the British Isles.

During the winter of 1953-4 he wrote the manuscript of his book on the British and Irish Brambles, a work giving the fruits of his forty years' study of the genus *Rubus*. He did not live to see the proofs of the

book and some time must necessarily elapse before publication. Arrangements have been made for early publication of Latin descriptions of new species and new combinations which occur as an appendix to the book.

Of Watson's other botanical interests only a brief summary can be given. In his earlier years he studied mycology, was a member of the British Mycological Society and was in request as a leader of fungus forays in the Metropolitan area. He was a member of the British Bryological Society and for several years attended the Spring and Autumn field meetings. At one time or another he was an active member of several societies including the School Nature Study Union, the Battersea Field Club, the London Natural History Society, the Woolwich Historical and Scientific Society, and the South-Eastern Union of Scientific Societies. His connection with the South London Botanical Institute was a long and intimate one. He served on the Council for many years and was a Fellow of the Institute at the time of his death. Watson joined this Society in 1921 and was elected an Honorary Member in 1951.

He was of a rather shy and retiring nature. In the field he preferred to work alone or with a single companion and his habit of intense mental concentration on whatever interested him at the moment tended to keep him silent and perhaps distraught in general company. Yet he derived immense pleasure in leading parties in the field provided they were interested in the things he wished to show them. In the summer of 1953 he conducted a number of our members over Hayes Common to study the characters of a representative selection from the large number of bramble species to be met with there. He was already a sick man and the fixture was a source of anxiety right up to the day it took place. Fortunately, all passed off well: he left us in the evening a tired but very happy man. We may part with him there. He had some months yet to live, and with undiminished mental power but ever increasing physical weakness and weariness he strove to commit to paper his unique knowledge of British *Rubi*. To work with Watson was a continual education, to be counted amongst his friends a valued privilege. His name is commemorated in *Rubus watsonii* W. H. Mills.

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- 1946 : *Rubus*, in Clapham, A. R. (compiler), Check List of British Vascular Plants, *J. Ecol.*, **33**, 337-344.
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- 1950 : *Rubus corylifolius* var. *purpureus* Bab., *Watsonia*, **1**, 289-290.
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WITH AVERY, C.

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J. E. WOODHEAD.

PERSONALIA AND NOTICES TO MEMBERS

EXPERIMENTAL SOWING AND TRANSPLANTS OF RARE SPECIES NEAR BRISTOL

Preliminary observations and experiments have recently been started on the ecology of seven of the rare or local plant species for which the Bristol region is famous:

<i>Arabis stricta</i>	<i>Koeleria vallesiana</i>
<i>Geranium sanguineum</i>	<i>Linosyris vulgaris</i>
<i>Helianthemum apenninum</i>	<i>Trinia glauca</i>
<i>Veronica spicata</i> subsp. <i>hybrida</i>	

The methods of investigation include a type of action—sometimes in the past a cause of protest or controversy—which should be reported at the outset; namely field experiments in the form of trial sowing and transplants, in natural habitats where the species do not already occur.

Two other lines of study are being followed: observations in the field on habitat factors and the behaviour of the plants, and experiments at the Department of Botany, University of Bristol, including the use of different soils with and without competition.

The field experiments have the aim of providing some answer to one or both of two questions:

- (i) Is the restriction of the species due to the limitation of dispersal or of habitat?
- (ii) If some degree of survival is shown in the new habitats, at least for a time, how easy or precarious is it and what aspects of environment or life-cycle are most critical in the establishment, maintenance or spread of the population?

Without field experiments of the kind proposed, the first question obviously cannot be answered at all. The second question is of direct concern in the existing habitats, but in the latter it would be extremely difficult, if not impossible, to obtain any precise answer. Longevity of buried seeds, for instance, is an unknown quantity, and attempts to relate seed output and seedling establishment would for this reason alone have no reliable foundation. In such matters the field experiments will attempt to obtain quantitative data; they will not, in other words, be mere scattering of uncounted seeds or rootings. On this account it is important, if the experimental data are to be reliable, that finders of any of the seven species in new habitats should refrain from taking specimens of any kind; even barren shoots may be destined to reproduce.

The sites being used for field experiments, although in the Bristol region, are well separated from localities where any of the species are known to occur. Members of the Society will naturally be more anxious

than anyone to avoid misleading records or rumours of naturally extended distribution, and any member who meets with any of the seven species in a new habitat is therefore asked to communicate with one of the authors of this note before announcing the find publicly *or privately*. If the find has been made in one of the experimental sites, it may be advisable to ask the finder to regard the knowledge as confidential. The site might otherwise become the object of visits. These, although made with the best of intentions—to satisfy scientific curiosity—may be harmful to the outcome of the experiments, whose aims will, we hope, meet with the approval of the many field botanists with a keen interest in the understanding of rare plants from an ecological standpoint. We realise that there may be some others, equally keen, who disapprove of experimental introductions. Those who believe that the present state of knowledge calls for field experiments to carry it one stage further, might wait indefinitely for complete agreement to be reached on such a course. In the past the most substantial objection has in any case been against introductions carried out with no announcement to those interested. After the experimental stage has passed, it should be possible to announce the location of the sites.

The Bristol Naturalists' Society has been separately informed about the subject of this note.

J. F. HOPE-SIMPSON
M. ELIZABETH PRING
CYNTHIA DUTTON

DEPARTMENT OF BOTANY,
UNIVERSITY OF BRISTOL.

COMMITTEE FOR THE STUDY OF THE SCOTTISH FLORA

This Committee will act under the joint aegis of the Botanical Society of the British Isles and the Botanical Society of Edinburgh. It has been formed to further the study of the plants of Scotland by co-ordinating work on the Scottish flora on behalf of the sponsoring societies. Excursions and meetings will be arranged and announcements will appear in the publications of the two societies.

The Committee has appointed Mr. B. L. Burtt as its Chairman and Mr. B. W. Ribbons as its Secretary.

DISTRIBUTION MAPS SCHEME

A single card based upon Bentham & Hooker's *Flora*, but excluding grasses, sedges and rushes, is now available for recorders for the B.S.B.I. Distribution Maps Scheme who do not use Clapham, Tutin and Warburg's *Flora of the British Isles*.

F. H. P.
S. M. W.

A GEOGRAPHICAL HANDBOOK OF THE DORSET FLORA

A first addendum to *A Geographical Handbook of the Dorset Flora* by Ronald Good has been published in the *Proceedings of the Dorset Natural History and Archaeological Society*, vol. 75 (1955). Separate copies of this addendum may be obtained from the Curator, County Museum, Dorchester, price 2/- post free, or, with the Handbook, 22/- post free.

FLORA OF CAMBRIDGESHIRE

Mr. F. H. Perring, Mr. P. D. Sell and Dr. S. M. Walters, who are working on the flora of Cambridgeshire, would be grateful for any records members could supply. It is possible that members have annotated copies of Babington or Evans *Flora of Cambridgeshire*, herbarium sheets or field records. Records for the period 1880-1930 would be particularly useful.

FLORA OF EAST YORKSHIRE

Professor Ronald Good, the University, Hull, is collecting information relating to the flora of the East Riding of Yorkshire, and will be very grateful for any herbarium specimens, plant records, or other data concerning that area.

FLORA OF FIFE AND KINROSS

The Botanical Society of Edinburgh has a number of copies of "A List of the Flowering Plants and Ferns Recorded from Fife and Kinross (v.c. 85)" by William Young, pp. 173 and map, reprinted from their *Transactions*, vol. 32, part 1, 1936, for sale, price 5/-, postage 3d. Application should be made to the Secretary, Botanical Society of Edinburgh, Royal Botanic Garden, Edinburgh, 4.

In addition, a varying number of copies of parts 1-16 of "Additions to the Flora of Orkney" and parts 1-4 of "Additions to the Flora of Shetland" by H. H. Johnston are available on application to the Secretary.

THE BOTANICAL RESEARCH FUND

The Botanical Research Fund is a small private Trust Fund founded in July 1913. The first Trustees to be appointed were Dr. E. M. Berridge, Mr. A. D. Cotton and Miss Gulielma Lister.

The purpose of the Fund is to encourage research in Botany in all its branches and to assist research workers, more especially women and particularly those with some previous experience of research and who, for some reason, may not be eligible for grants from public or university funds.

The method is to make short term grants in aid of maintenance, research expenses or assistance. The grants may be renewed in special

circumstances but assistance over lengthy periods is not contemplated.

Further details may be obtained from the Hon. Secretary, Dr. E. M. Delf, 243 Haverstock Hill, London, N.W.3.

PERMITS FOR VISITING NATURE RESERVES

The Nature Conservancy have now acquired and declared the following Nature Reserves in England and Wales:—Moor House, Westmorland*; Kingley Vale, Sussex; Cavenham Heath, Suffolk; *Yarner Wood, Devon*; *Ham Street Woods, Kent*; *Holme Fen, Hunts*; *Monks' Wood, Hunts*; *Blean Woods, Kent*; *Woodwalton Fen, Hunts*; Swanscombe Skull Site, Kent; Scolt Head, Norfolk, Orfordness-Havergate, Suffolk*; Old Winchester Hill, Hants.; Bridgewater Bay, Somerset*; Castor Hanglands, Soke of Peterborough*; *Arne Peninsula, Dorset*; Blelham Bog, Lancashire; Cwm Idwal, Caerns.; Hartland Moor, Dorset; Axmouth-Lyme Regis Undercliffs, Devon*; Cader Idris, Merionethshire; *Cors Tregaron, Cardiganshire*; Newborough Warren and Ynys Llanddwyn, Anglesey*; Tring Reservoirs, Bucks. and Herts.*; *Hales Wood, Essex*; and the following in Scotland:—Beinn Eighe, Ross and Cromarty; *Morton Lochs, Fife*; Tentsmuir Point, Fife; Cairngorms, Inverness-shire and Aberdeenshire. Permits to collect are required for all Reserves. Permits to visit the whole Reserve are required for those above shown in italic type; permits to visit part of the Reserve (in some cases the whole Reserve except along Rights of Way) are required for those above which are followed by an asterisk.

A small pamphlet, *Visiting Nature Reserves*, setting out the considerations which govern the Nature Conservancy's policy in permitting visits, may be obtained from the Conservancy's headquarters at 19 Belgrave Square, London, S.W.1, or from their Scottish headquarters at 12 Hope Terrace, Edinburgh, 9.

Applications for permits may be sent to the London headquarters for the English and Welsh Reserves, or to the Scottish headquarters for those in Scotland, or to the Regional Officers of the Conservancy concerned. Visitors who wish their permits to include the right to collect and take away specimens should say so in making application and should specify what it is they wish to collect.

NEWBOROUGH WARREN, ANGLESEY

The Air Ministry propose to establish a range at Newborough Warren but following representations made at a Public Local Inquiry by this Society and others, have agreed to make advance notices of firing practices available to research workers and students. These notices will be sent to our Local Secretary, Prof. P. W. Richards, Coed Menai, Upper Bangor, Caernarvonshire, and members wishing to visit the Warren are advised to make arrangements with him well in advance of the time of their visits.

THREATS TO BRITISH FLORA

Members are urged to report to the Hon. General Secretary any threats to the British flora. The Council has appointed a Conservation Committee to deal with such matters and every effort will be made "to promote in every way possible the conservation of the British flora".

TOXIC SPRAYS

The Society is collecting information about the effect on native vegetation of toxic chemicals used for spraying crops. The increasing use of weed-killing chemicals on arable land implies a threat to neighbouring uncultivated land or woods since the spray can be carried a considerable distance under suitable conditions. Members who observe damage from this cause are asked to send full details to the Hon. General Secretary, 7 Penistone Road, London, S.W.16.

SYSTEMATICS ASSOCIATION

A card index of autecological and/or cytogenetic-taxonomic researches that are being carried out on British flowering plants is maintained by the Association. Copies of the index may be consulted at the Royal Botanic Gardens, Kew, or at the Royal Botanic Garden, Edinburgh. Its purpose is to obviate overlapping between different workers. Members taking up research of this nature are asked to send particulars either to Mr. R. D. Meikle, Royal Botanic Gardens, Kew, Surrey, or to Mr. B. L. Burtt, Royal Botanic Garden, Edinburgh, 4.

LIBRARY FACILITIES

Members are reminded that through the kindness of the Council of the Linnean Society of London, they have the privilege of consulting the Library of the Linnean Society at Burlington House, Piccadilly, London, W.1.

ADVERTISEMENTS

A limited number of relevant advertisements will be accepted for the Society's publications as space permits. Enquiries should be addressed to Mr. D. H. Kent, 75 Adelaide Road, London, W.13.

LOCAL SECRETARIES, RECORDERS AND REFEREES

The regional organisation, of which details are given below, has been arranged for the assistance of members. It is hoped that they will take full advantage of the facilities offered which now include the identification of non-critical specimens. It is not intended that the Local Secretaries, Recorders and Referees should become the only, or even the usual, channels of communication between members on the one hand and the Officers, Specialists or Panel Members of the Society on the other. Nevertheless, those who have agreed to provide local services are generally in a position to provide more personal assistance to members and it is hoped that they will relieve the Officers of as much work involving local information as possible.

The functions of Local Secretaries, Recorders and Referees are as set out below. The boundaries of the areas for which they are severally responsible are those of the Watsonian vice-county system units indicated.

FUNCTIONS OF LOCAL SECRETARIES

1. To keep in touch with other local members and *where possible and desirable to arrange meetings for their benefit.*
2. To encourage the enrolment of new members.
3. To act as a centre for some botanical work of local bearing where they are qualified to do so.
4. To provide information to members of the Society from outside their areas, either by correspondence or otherwise, on travel facilities, accommodation, and botany. (This does not include supplying information about localities for rare plants, although statements as to their continued existence or frequency may be given for the purpose of scientific work.)
5. To keep in touch with local libraries, museums and, especially, local herbaria and natural history societies, supplying information about them to other members, and particularly to the Panel, and also keeping the name of the Society before officials, officers and members of local Societies.
6. To assist the Hon. Meetings Secretary and Leaders of field meetings prior to and at the time of visits of the Society to their area.
7. To report without delay to the Hon. General Secretary or Treasurer the death of any member within their area.
8. To make regular visits to habitats of special interest within their areas as far as possible, and to report without delay to the Hon. General Secretary any threat which may call for conservation measures.

FUNCTIONS OF RECORDERS

To assist the Editor by collecting records of more than local interest, checking records contributed for publication, and forwarding information about important changes in the flora.

FUNCTIONS OF REFEREES

VICE-COUNTY REFEREES are responsible only for the naming of NON-CRITICAL BRITISH FLOWERING PLANTS. Material of *critical groups* (including all *Pteridophyta* and *Charophyta*) covered in the list of Specialists given on pages 572-573 should be sent to them and not to the local Referees. It may not be possible to name plants of critical groups not covered by the Panel of Specialists, nor all plants alien to the British flora.

Non-critical plants should be sent to the vice-county Referee for the vice-county *in which the plants were found* and not necessarily to the Referee for the member's home vice-county. A stamped addressed envelope for reply should be enclosed in all cases and the other directions set out for sending material for identification on pages 573-574 also followed. Specimens must not be sent to the Honorary General Secretary except for vice-counties or groups for which his name is given in the lists.

THE REGIONAL REFEREES have agreed to give assistance, when required, to the vice-county Referees within the Watsonian Provinces indicated. Their names are printed in small capitals and members should, in the first instance, send material to the vice-county Referees, and not to them.

LIST OF LOCAL SECRETARIES, RECORDERS AND REFEREES

(Revised September 1955)

The following table indicates those members who have agreed to act as Local Secretaries, Recorders and Referees for the vice-counties indicated. It is hoped to extend this list so as to include, if possible, all vice-counties. Any member who is willing and able to carry out any of these duties in any vice-counties not already covered, or who knows any person, whether a member of the Society or not, who might be suitable, is invited to communicate with Mr. D. E. Allen, Secretary of the Development and Rules Committee. All addresses (except where given) can be obtained from the List of Members (See *Proceedings B.S.B.I.*, 1, 418-451 (1955).

ENGLAND AND WALES

	LOCAL SECRETARIES	RECORDERS	REFEREES
PENINSULA			E. MILNE-REDHEAD
V.C.			
1. W. Cornwall	Miss B. M. Sturdy	O. V. Polunin	C. C. Townsend
1b. Scilly	Mrs. O. R. Moyse	J. E. Lousley	J. E. Lousley
2. E. Cornwall	---	R. W. David	C. C. Townsend
3. S. Devon	E. M. Phillips	Rev. W. Keble	Rev. W. Keble
		Martin	Martin
4. N. Devon	F. A. Brokenshire	Rev. W. Keble	Rev. W. Keble
		Martin	Martin
5. S. Somerset	A. D. Hallam	A. D. Hallam	C. C. Townsend
	(Taunton Castle, Taunton)	(Taunton Castle, Taunton)	
6. N. Somerset	Mrs. C. I. Sandwith	Mrs. C. I. Sandwith	Mrs. C. I. Sandwith

CHANNEL V.c.	LOCAL SECRETARIES	RECORDERS	REFEREES R. D. MEIKLE
7. N. Wilts.	J. D. Grose	J. D. Grose	J. D. Grose
8. S. Wilts.	J. D. Grose	J. D. Grose	J. D. Grose
9. Dorset	Miss D. Meggison, (9 Cornwall Road, Dorchester).	Prof. R. d'O. Good (Univ. College, Hull)	Prof. R. d'O. Good (Univ. College, Hull)
10. Isle of Wight	Dr. J. M. Lambert	J. E. Lousley	Prof. R. d'O. Good (Univ. College, Hull)
11. S. Hants.	Dr. J. M. Lambert	Dr. J. M. Lambert	Prof. R. d'O. Good (Univ. College, Hull)
12. N. Hants	J. Ounsted	E. C. Wallace	E. C. Wallace
13. W. Sussex	Mrs. P. German	Mrs. P. German	Mrs. P. German
14. E. Sussex	P. J. Wanstall	E. C. Wallace	E. C. Wallace

THAMES V.c.			D. H. KENT
15. E. Kent	D. McClintock	Dr. F. Rose	Dr. F. Rose
16. W. Kent	D. McClintock	Dr. F. Rose	Dr. F. Rose
17. Surrey	J. E. Lousley	J. E. Lousley	Dr. D. P. Young
18. S. Essex	S. T. Jermyn	B. T. Ward	B. T. Ward
19. N. Essex	—	B. T. Ward	B. T. Ward
20. Herts.	Mrs. R. H. Mortis	Dr. J. G. Dony	Dr. J. G. Dony
21. Middlesex	D. H. Kent	D. H. Kent	D. H. Kent
22. Berks.	J. Ounsted	Dr. E. F. Warburg	Dr. E. F. Warburg
23. Oxford	Mrs. P. Warburg	Dr. E. F. Warburg	Dr. E. F. Warburg
24. Bucks.	R. A. Graham	R. A. Graham	R. A. Graham

ANGLIA V.c.			Dr. S. M. WALTERS
25. E. Suffolk	Miss M. M. Whiting	F. W. Simpson	F. W. Simpson
26. W. Suffolk	F. J. Bingley	F. J. Bingley	F. J. Bingley
27. E. Norfolk	R. P. Libbey	E. A. Ellis	F. W. Simpson
28. W. Norfolk	R. P. Libbey	E. L. Swann	E. L. Swann
29. Cambridge	Dr. S. M. Walters	Dr. S. M. Walters	Dr. S. M. Walters
30. Bedford	Dr. J. G. Dony	Dr. J. G. Dony	Dr. J. G. Dony
31. Hunts.	J. L. Gilbert	J. L. Gilbert	Dr. J. G. Dony
32. Northampton	I. Hepburn	I. Hepburn	I. Hepburn

SEVERN V.c.			P. S. GREEN
33. E. Gloucester	Miss D. E. de Vesian	Miss D. E. de Vesian	C. C. Townsend
34N. W. Gloucester (N.)	Miss D. E. de Vesian	Miss D. E. de Vesian	C. C. Townsend
34S. W. Gloucester (S.)	Dr. J. H. Davie	Dr. M. G. Hughes	Mrs. C. I. Sandwith
35. Monmouth	A. E. Wade	A. E. Wade	A. E. Wade
36. Hereford	Mrs. L. E. White- head	F. M. Day	F. M. Day
37. Worcester	Dr. R. C. L. Burges	F. M. Day	Dr. R. C. L. Burges
38. Warwick	Dr. R. C. L. Burges	R. C. Readett	P. S. Green
39. Stafford	E. S. Edees	E. S. Edees	E. S. Edees
40. Salop	Dr. R. C. L. Burges	—	Dr. R. C. L. Burges

	LOCAL SECRETARIES	RECORDERS	REFEREES
SOUTH AND NORTH WALES			
V.c.			A. E. WADE
41. Glamorgan	A. E. Wade	A. E. Wade	A. E. Wade
42. Brecon	—	A. E. Wade	A. E. Wade
43. Radnor	—	A. E. Wade	A. E. Wade
44. Carmarthen	Mrs. H. R. H. Vaughan	A. E. Wade	A. E. Wade
45. Pembroke	—	A. E. Wade	A. E. Wade
46. Cardigan	Mrs. H. R. H. Vaughan	A. E. Wade	A. E. Wade
47. Montgomery	—	A. E. Wade	A. E. Wade
48. Merioneth	Mrs. H. M. Richards	P. M. Benoit	A. E. Wade
49. Caernarvon	Mrs. H. M. Richards	A. E. Wade	A. E. Wade
50. Denbigh	—	A. E. Wade	A. E. Wade
51. Flint	—	A. E. Wade	A. E. Wade
52. Anglesey	Prof. P. W. Richards	A. E. Wade	A. E. Wade
TRENT			
V.c.			Prof. T. G. TUTIN
53. S. Lincoln	Miss E. J. Gibbons	Miss E. J. Gibbons	Miss E. J. Gibbons
54. N. Lincoln	Miss E. J. Gibbons	Miss E. J. Gibbons	Miss E. J. Gibbons
55. Leicester	Miss P. A. Padmore	Prof. T. G. Tutin	Prof. T. G. Tutin
56. Nottingham	Dr. R. W. Butcher	Dr. R. W. Butcher	Dr. R. W. Butcher
57. Derby	R. H. Hall	Miss K. M. Hollick	Miss K. M. Hollick
MERSEY			
V.c.			Prof. T. G. TUTIN
58. Chester	W. D. Graddon	W. D. Graddon	W. D. Graddon
59. S. Lancs.	Dr. E. M. Rosser	W. G. Travis	Dr. E. M. Rosser
60. W. Lancs.	H. E. Bunker	G. R. Sagar	Dr. E. M. Rosser
HUMBER			
V.c.			Miss C. M. ROB
61. S.E. York.	Dr. W. A. Sledge	Dr. W. A. Sledge	Dr. W. A. Sledge
62. N.E. York.	Miss C. M. Rob	Miss C. M. Rob	Miss C. M. Rob
63. S.W. York.	Dr. W. A. Sledge	Dr. W. A. Sledge	Dr. W. A. Sledge
64. Mid-W. York.	Dr. W. A. Sledge	Dr. W. A. Sledge	Dr. W. A. Sledge
65. N.W. York.	Miss C. M. Rob	Miss C. M. Rob	Miss C. M. Rob
TYNE			
V.c.			Prof. D. H. VALENTINE
66. Durham	Prof. D. H. Valentine	Prof. D. H. Valentine	Prof. D. H. Valentine
67. Northumber- land, S.	Mrs. A. N. Gibby	—	Miss C. W. Muirhead
68. Cheviotland	Mrs. A. N. Gibby	—	Miss C. W. Muirhead
LAKES			
V.c.			P. TAYLOR
69. Westmorland	G. Wilson	G. Wilson	D. E. Allen
70. Cumberland	J. D. Hinde	Miss C. W. Muirhead	Miss C. W. Muirhead
71. Isle of Man	J. T. Williams	D. E. Allen	D. E. Allen

SCOTLAND

ALL REGIONS	LOCAL SECRETARIES		REFEREES
	RECORDERS		Dr. G. TAYLOR
V.c.			
72. Dumfries	Dr.H.Milne-Redhead	Dr.H.Milne-Redhead	Miss C. W. Muirhead
73. Kirkcudbright	Dr.H.Milne-Redhead	Dr.H.Milne-Redhead	D. E. Allen
74. Wigtown	Dr.H.Milne-Redhead	Dr.H.Milne-Redhead	D. E. Allen
75. Ayr	R. Mackechnie	R. Mackechnie	R. Mackechnie
76. Renfrew	R. Mackechnie	R. Mackechnie	R. Mackechnie
77. Lanark	R. Mackechnie	R. Mackechnie	R. Mackechnie
78. Peebles	—	P. S. Green	P. S. Green
79. Selkirk	—	B. L. Burt	B. L. Burt
80. Roxburgh	—	B. L. Burt	B. L. Burt
81. Berwick	—	P. S. Green	P. S. Green
82. Haddington	—	Dr. G. Taylor	Dr. G. Taylor
83. Edinburgh	—	Dr. G. Taylor	Dr. G. Taylor
84. Linlithgow	—	Dr. G. Taylor	Dr. G. Taylor
85. Fife	Mrs. E. J. Balfour	Miss C. W. Muirhead	Miss C. W. Muirhead
86. Stirling	B. W. Ribbons	B. W. Ribbons	R. A. Graham
87. W. Perth	B. W. Ribbons	B. W. Ribbons	B. W. Ribbons
88. Mid Perth	Miss M. S. Campbell	Miss M. S. Campbell	Miss M. S. Campbell
89. E. Perth	A. W. Robson	A. W. Robson	Miss M. S. Campbell
90. Forfar	Miss U. K. Duncan	Dr. G. Taylor	Dr. G. Taylor
91. Kincardine	J. G. Roger	J. G. Roger	Dr. G. Taylor
92. S. Aberdeen	—	—	Miss M. McCallum Webster
93. N. Aberdeen	—	—	Miss M. McCallum Webster
94. Banff	Miss M. McCallum Webster	Miss M. McCallum Webster	Miss M. McCallum Webster
95. Elgin	Miss M. McCallum Webster	Miss M. McCallum Webster	Miss M. McCallum Webster
96. Easternness	A. Slack	A. Slack	A. Slack
96b. Nairn	Miss M. McCallum Webster	Miss M. McCallum Webster	Miss M. McCallum Webster
97. Westernness	J. E. Raven	E. C. Wallace	E. C. Wallace
98. (Main) Argyll	A. Slack	E. C. Wallace	E. C. Wallace
99. Dunbarton	A. Slack	Prof. K. W. Braid	Prof. K. W. Braid
100. Clyde Isles	—	Dr. D. Patton	Dr. D. Patton
101. Cantire	Miss M. H. Cunningham	—	Prof. K. W. Braid
102. S. Ebudes	Miss C. W. Muirhead	Miss C. W. Muirhead	Miss C. W. Muirhead
103. Mid Ebudes	Miss C. W. Muirhead	Miss C. W. Muirhead	Miss C. W. Muirhead
104. N. Ebudes	Dr. D. N. McVean	—	J. E. Raven
105. W. Ross	Dr. D. N. McVean	E. C. Wallace	E. C. Wallace
106. E. Ross	Dr. D. N. McVean	E. C. Wallace	E. C. Wallace
107. E. Sutherland	Dr. D. N. McVean	E. C. Wallace	E. C. Wallace
108. W. Sutherland	Dr. D. N. McVean	E. C. Wallace	E. C. Wallace
109. Caithness	—	Miss M. S. Campbell	Miss M. S. Campbell
110. Outer Hebrides	Miss M. S. Campbell	Miss M. S. Campbell	Miss M. S. Campbell
111. Orkney	I. C. Hodge (Roy. Bot. Gard., Edinburgh)	I. C. Hodge (Roy. Bot. Gard., Edinburgh)	J. E. Lousley
112. Zetland	D. Spence	D. Spence	J. E. Lousley

IRELAND

ALL REGIONS	—	Prof. D. A. WEBB	Prof. D. A. WEBB
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PANEL OF SPECIALISTS

(Revised September 1955)

CRITICAL SYSTEMATIC GROUPS

B.P.L. no.

2. *Thalictrum* L. Dr. R. W. Butcher
6. *Ranunculus* L. § *Flammula*. Miss P. A. Padmore.
6. *Ranunculus* L. § *Batrachium*. Dr. R. W. Butcher
7. *Caltha* L. Prof. A. R. Clapham
32. *Fumaria* L. N. Y. Sandwith
- 35/1. *Nasturtium* R. Br. (excluding *Rorippa*). H. K. Airy Shaw
- 39/1. *Cardamine pratensis* L. agg. D. E. Allen
45. *Cochlearia* L. Prof. A. R. Clapham
- 64/3. *Thlaspi alpestre* L. Prof. A. R. Clapham
88. *Viola* § *Nominium*. Prof. D. H. Valentine
88. *Viola* § *Melanium*. R. D. Meikle
100. *Cerastium* L. (annual species). E. Milne-Redhead
109. *Montia* L. Dr. S. M. Walters
117. *Malva* L. N. Y. Sandwith
123. *Tilia* L. H. A. Hyde
128. *Erodium* L'Hérit. Dr. E. F. Warburg
132. *Oxalis* L. Dr. D. P. Young
183. *Prunus* L. Dr. R. Melville, Dr. E. F. Warburg
190. *Alchemilla* L. Dr. S. M. Walters
- 190 (2). *Aphanes* L. Dr. S. M. Walters
194. *Rosa* L. Dr. R. Melville
195. *Sorbus* L. Dr. E. F. Warburg
196. *Crataegus* L. A. D. Bradshaw
199. *Saxifraga* L. Prof. D. A. Webb
220. *Epilobium* L. G. M. Ash
247. *Apium* L. R. D. Meikle
296. *Galium* L. (*palustre* L. and allies). Prof. A. R. Clapham
312. *Solidago* L. D. H. Kent
383. *Senecio* L. J. E. Lousley
393. *Arctium* L. Dr. W. A. Sledge
395. *Carduus* L. Dr. W. A. Sledge
396. *Cirsium* Mill. Dr. W. A. Sledge
405. *Centaurea* L. E. Marsden-Jones
457. *Limonium* Mill. Dr. H. G. Baker
478. *Centaureium* Hill. J. S. L. Gilmour
480. *Gentiana* L. J. E. Lousley
497. *Symphytum* L. A. E. Wade
506. *Myosotis* L. A. E. Wade

B.P.L. no.

527. *Verbascum* L. J. E. Lousley
 543. *Veronica* L. (aquatic species). Dr. J. H. Burnett
 545. *Euphrasia* L. Dr. E. F. Warburg, P. F. Yeo
 548. *Rhinanthus* L. Dr. E. F. Warburg
 558. *Mentha* L. R. A. Graham
 561. *Thymus* L. C. D. Pigott
 596. *Amaranthus* L. J. P. M. Brenan
 600. *Chenopodium* L. J. P. M. Brenan
 611. *Salicornia* L. Prof. T. G. Tutin.
 618. *Rumex* L. J. E. Lousley
 633. *Ulmus* L. Dr. R. Melville
 642. *Betula* L. Dr. E. F. Warburg
 650. *Salix* L. R. D. Meikle, Dr. R. Melville, Dr. E. F. Warburg
 651. *Populus* L. P. G. Beak, Dr. R. Melville
 659→ *Orchidaceae*. V. S. Summerhayes
 668. *Epipactis* Sw. C. P. Thomas, Dr. D. P. Young
 669. *Orchis* L. § *Dactylorchis*. Dr. J. Heslop-Harrison, Dr. P. Vermeulen
 718. *Juncus* L. Prof. P. W. Richards
 729. *Alisma* L. J. E. Lousley
 737. *Potamogeton* L. J. E. Dandy, Dr. G. Taylor
 740. *Zostera* L. Prof. T. G. Tutin
 745. *Eleocharis* R.Br. Dr. S. M. Walters
 753. *Carex* L. E. Nelmes, E. C. Wallace
 754→ *Gramineae*. C. E. Hubbard
 824. *Poa* L. Dr. A. Melderis
 826. *Festuca* L. Dr. W. O. Howarth
 826 (2). *Vulpia* C. C. Gmel. Dr. A. Melderis
 827. *Bromus* L. agg. Prof. T. G. Tutin
 830. *Agropyron* Gaertn. Dr. A. Melderis, Prof. T. G. Tutin
 835. *Hordeum* L. Dr. A. Melderis
 844→ *Pteridophyta*. A. H. G. Alston
 872→ *Charophyta*. G. O. Allen

NOTE.—The specialists' names in the above list are given in *alphabetical* order when two or more are available for consultation.

Members may send their specimens of British plants belonging to these groups direct to the specialist indicated, together with a stamped addressed envelope for reply. If the specimens are required to be returned, the necessary postage should be forwarded. The addresses of the specialists will be found in the List of Members, see pp. 418 to 451.

It should be understood that the specialist is not necessarily prepared to name all specimens submitted. In some cases the specialist indicated may not yet have attained sufficient knowledge of the group he is studying. In other cases the material submitted may be incomplete, lacking adequate data or badly prepared. All the specialists will, however, do the best they can to identify plants submitted by members.

Unless it is reasonably certain that specimens will arrive in good fresh condition, they should be sent flat in paper between stiff millboards to prevent shrivelling. Dried pressed specimens may be sent similarly. Specimens should be carefully labelled with locality, habitat, date and any other notes likely to

be of use. Whenever possible, specimens should be submitted in duplicate, so that the specialist may retain one specimen if he so desires. If only one specimen of a gathering is submitted it should be clearly stated whether its return is desired.

Any member who is studying a critical group and would like his name added to the Panel should forward particulars to Mr. D. E. Allen, Secretary, Development & Rules Committee, for consideration by the Committee.

MISCELLANEOUS SUBJECTS

Biographical Details of British Botanists : D. H. Kent
 Botanical Apparatus and Material : E. Milne-Redhead
 Botanical Specimens, Preparation of : E. Milne-Redhead
 Cytology in Relation to Systematics : Dr. E. F. Warburg
 Ecology : Prof. A. R. Clapham
 Folk Lore : D. E. Allen
 Foreign Floras and Foreign Field Work : A. H. G. Alston
 Genetics in Relation to Systematics : Prof. D. H. Valentine
 Herpals : Dr. G. W. T. H. Fleming
 History of British Botany, before Linnaeus : Rev. Canon C. E. Raven.
 History of British Botany, Linnaeus and after : J. S. L. Gilmour
 Local Floras : N. Douglas Simpson
 Maps : E. Milne-Redhead
 Mapping, Methods of : W. T. Stearn, Dept. of Botany, British Museum (Nat. Hist.), London, S.W.7
 Nomenclature : J. E. Dandy
 Phenology and Meteorology : F. N. Hepper
 Popular Names : Miss C. M. Rob
 Private Herbaria, Location of : D. H. Kent, J. E. Lousley
 Systematic Works and Monographs : N. Y. Sandwith
 Vice-County Boundaries : J. E. Dandy

Members wishing to avail themselves of the privilege of consulting the specialists in the list should write to them direct and enclose a stamped addressed envelope for reply (addresses in Members' List, pp. 448 to 451).

DISTRIBUTOR'S REPORT FOR 1954

It is regretted that the year 1955 was erroneously stamped on the labels accompanying specimens. It should of course be 1954. All who received parcels have been individually advised of this mistake.

The 1954 Distribution has been disappointing. Despite the cogent and encouraging remarks by Dr. D. P. Young in his Report for the 1952 Distribution the number of gatherings and sheets has been small. Had it not been for the kindness of some members who answered a call for material, and who supplied a number of duplicates, the outgoing parcels would have been even smaller. Following a careful review of the situation, the Society has accepted Council's suggestion that the Exchange Section be temporarily suspended. This is now decided policy, thus it is not proposed to dwell further on the subject here except inasmuch as subsequent remarks in this Report apply. It should however be recorded that, foreseeing the possibility of temporary suspension, all Exchange material overflowing from previous years has been dispersed.

The material received—I speak in reference to gatherings for proper Distribution, not to the duplicates—was variable both in quality and suitability. There were many finely prepared specimens, and there were others—let me be frank—which seemed to have had no attention other than applied weight. Particular commendation must go to a set of *Oxalis* spp., contributed by Dr. Young. These fleshy plants are notoriously difficult to press in a manner that is ultimately either pleasing to the eye or of use to the taxonomist, but Dr. Young, battling away with his smoothing iron, has produced examples of a very high standard which will be gratefully received by members of the Section. Grateful acknowledgment must be given also to Professor D. A. Webb, who has provided—so soon after he discovered it—an interesting new subspecies of *Pedicularis sylvatica*. Mr. Grose and Mr. Lousley have contributed interesting aliens, and other suitable material was sent in. All these gatherings provide an excellent example of what sort of material is suitable for Exchange. Less satisfactory were certain common, introduced weeds, though it must be readily admitted that even these were worth their weight in helping to swell the outgoing parcels. It is very disappointing, and difficult to understand, that critical and interesting genera such as *Erophila*, *Viola*, *Rhinanthus*, *Euphrasia*, *Hieracium*, *Potamogeton* were either unrepresented or present in only very small numbers. Many component species in these—and other—genera are neither rare nor difficult to obtain. It is to genera such as these that attention must be particularly paid if the activities of the Section are to be a success on resuscitation. Indeed, *Hieracium* would appear to offer remarkably heaven-sent opportunities.

When considering the future, another point arises which should perhaps be probed with a possible view to alteration in the Section Rules. At present, one representative sheet of each gathering submitted must be allotted to the British Museum, Kew, and Oxford University respectively. No doubt there are, or at any rate once were, adequate reasons for this requirement, and it is undoubtedly right that one sheet should be placed in an institution where it can be consulted without difficulty. When the number of sheets per gathering exceeds the number of contributors no harm is done, but when the number is less this essential deduction of three sheets means that contributors will receive in return less than is their fair due. The simple answer is to allot one sheet of each gathering to one of these three institutions only.

An outstanding feature has been the wealth of kind co-operation by specialists and other experts in the task of checking material. Owing to the wholly unexpected speed with which this was carried out by all concerned, parcels were despatched to members far earlier than had been thought possible, and your Distributor was conscious only of a pleasant task, not an onus. We are greatly indebted to Drs. Melville, Warburg, West, and Young, and Messrs. Alston, Brenan, Hubbard, Lousley, Meikle, Nelves, Sandwith, Sell, and Swann for expert examination and interesting comments. Especially I would add my personal thanks to Mr. Brenan. To these names must be added thanks to all who contributed, and in particular to those who answered a plaintive call for further material by supplying duplicates.

R. A. GRAHAM.

LIST OF PARCELS RECEIVED

					Gatherings.	Sheets.	Duplicates.
U. K. Duncan	...	...	...	...	2	24	
J. D. Grose	...	...	...	...	1	15	
Botany School, Leicester			...	...	4	75	
J. E. Lousley	...	...	...	...	5	56	21
C. W. Muirhead	...	...	...	...	8	43	4
National Museum of Wales	...	...	...	...	3	40	
E. L. Swann	...	...	...	...	4	48	
Trinity College, Dublin	...	...	...	...	6	40	
E. C. Wallace	...	...	...	...	2	12	33
D. P. Young	...	...	...	...	6	62	6
					<hr/> 41	<hr/> 415	<hr/> 64
							479
From 1951 Distribution	...	...	...	...			7
1952	..	...	...	...			3
1953	..	...	...	...			32
							<hr/> 521

Cardaria chalepensis (L.) Hand.-Mazz. 70, Cumberland; railway bank between Scotby and Durrant, Carlisle, growing with *C. draba* (L.) Desv., June 11, 1952 (Ref. No. 98.52).—Leg. R. MARTINDALE, comm. C. W. MUIRHEAD. "This seems correct".—R. D. MEIKLE. "Yes, *Lepidium draba* ssp. *chalepense* var. *auriculatum* (Boiss.) Thell. The ovate silicules, somewhat tapering at the base and apex, are easily distinguished in most cases from the broad, cordate, turgid fruits of *Cardaria draba*. In the Orient intermediates occur and the two species are sometimes difficult to separate, though this may be in part due to collection of *C. draba* with immature fruit. In Britain *C. chalepense* has persisted for at least 40 years at Par Sands, v.c. 2; and I have material gathered in 1927 and 1937 from Burton-on-Trent, v.c. 39. Both localities are near railways. There may well be other colonies which have been overlooked as *C. draba*".—J. E. LOUSLEY.

Oxalis corymbosa DC. 17, Surrey; weed in flower-beds, shrubberies, etc., East Molesey (Grid Ref. 51/1467), September 25, 1954 (Ref. No. 5322). Flowers rose-pink when fresh. A frequent and troublesome garden weed in S.W. London, no doubt emanating from parks and large gardens in the district where at one time it was grown for ornament. Often confused with *O. floribunda* Lehm., from which it differs in having a bulbous and not rhizomatous base.—D. P. YOUNG.

Oxalis pes-caprae L. (*O. cernua* Thunb.). 1b, Scilly; bulbfield weed, Parting Carn, St. Mary's (Grid Ref. 00/9110), June 4, 1954 (Ref. No. 5142). An abundant and long-established weed in the Scilly bulbfields, where it is considered a serious pest. As it is not frost-hardy it is not found on the mainland.—D. P. YOUNG. "The 'Cape Sorrel' or 'Bermuda Buttercup' is a native of the Cape, which has become a serious agricultural pest in several temperate parts of the world. I first collected it in Scilly in 1938 at Tremelethen by which time it was plentiful in St. Mary's. It has since become abundant on that island, and in recent years I have seen it on St. Martin's, Treco, and St. Agnes, growing in the bulbfields and also on stone walls, where it is almost impossible to eradicate. It spreads rapidly by the bulbils which form round the base of the stem, and flowers freely from March to September or later".—J. E. LOUSLEY.

Oxalis floribunda Lehm. (*O. articulata* var. *hirsuta* Prog.). 13, W. Sussex; amongst grass and brambles on sea-shore, Kingston-by-Sea (Grid Square 51/20), May 30, 1954 (Ref. No. 5078). Flowers rose-pink when fresh. A well-known garden plant, which occurs as an escape, especially near the sea. It can tolerate and compete with a closed plant association as here, but never becomes a troublesome weed.—D. P. YOUNG.

Oxalis latifolia Kunth. 1, W. Cornwall; weed in market gardens, Penzance (Grid Ref. 10/4630), June 10, 1954 (Ref. No. 5117). Flowers pale pink when fresh. A serious and increasing pest in market-gardens

and glasshouses in the district and elsewhere in Cornwall and Devon. No doubt it originated from old gardens where it was grown for ornament, but it has been established as a weed here for many years. Since the war it has caused concern by its rapid increase, possibly as a result of the use of mechanical cultivators. The plants submitted represent the common form in Cornwall, but differ markedly from normal *O. latifolia* (e.g. that distributed from Jersey in 1926 by Louis-Arsène) in having more rounded leaflets, paler flowers, and very shortly stalked or almost sessile bulbils. As it multiplies only by bulbils, the Cornish material is probably a single clone derived from one plant, perhaps collected and introduced from a different area from that whence the "ordinary" form has come. It is distinguished from *O. corymbosa* (which is a much less common weed in Cornish glasshouses) by the wide sinus and absence of dots on the edge of the leaflets, which are more glabrous than in that species; and by the bulbils sprouting from below the bulb instead of amongst its scales.—D. P. YOUNG.

Oxalis carnosa Molina. 1b, Scilly; naturalised in dry stone walls around and near houses, St. Mary's (Grid Square 00/91), June 11, 1954 (Ref. No. 5143). This curious succulent has been well established in such situations in at least two of the Scilly Isles for 19 years or more, but is either an immediate garden escape or originally planted. Its status is similar to that of the various *Mesembryanthemum* spp. naturalised in Scilly. It is one of the most difficult plants known to press satisfactorily. If dried in the ordinary way it disarticulates at every joint and rapidly falls to a mass of fragments, and if scalded in water or ironed heavily it shrivels almost to nothing. The unbeautiful specimens submitted were flattened with a hot iron for sufficiently long to kill them but not enough to dehydrate them, and then dried in a press as rapidly as possible. The flowers (in separate packets), which close as soon as gathered, were pressed on the spot in the ordinary way: the inflorescences have disarticulated completely.—D. P. YOUNG. "In Scilly this species spreads naturally but most of the localities are near houses. I first thought it sufficiently 'wild' to be worth collecting in June 1940, when I gathered and photographed it from rocks between Old and New Grimsby, Tresco. At Pelistry Bay, St. Mary's, it grows at some distance from the nearest house, but here it may owe its origin to the Scillonian custom of sticking small pieces of succulents into walls. The status of this species in Scilly is very much lower than that of *O. pes-caprae*, *O. corniculata*, and *O. articulata* var. *hirsuta*. It is very sensitive to frost".—J. E. LOUSLEY.

Lotus tenuis Waldst. & Kit. ex Willd. 41, Glamorgan; rough field, formerly cultivated, Sully, August 1954.—A. E. WADE, comm. NATIONAL MUSEUM OF WALES. "This tall, narrow-leaved form is doubtless a wild plant, although from the situations in which it is found one would suspect it of being an alien here. *L. tenuis* is cultivated for fodder on the continent; the form grown is broad-leaved and is very similar to *L. corni-*

culatus, from which it is scarcely distinguishable except by the habit. I believe that the cultivated strain is sometimes found as an alien in this country, and it may have given rise to the occasional reports in the past of intermediates or hybrids between the two species".—D. P. YOUNG.

Vicia villosa Roth. 16, W. Kent; rubble tip—one large plant, Leaves Green (Grid Ref. 51/4161), September 13, 1953 (Ref. No. 4932). Closely related to *V. dasycarpa* Ten. (distributed in 1950), which is often put under it as a subspecies. It differs mainly in being more hairy, and in having longer calyx-teeth, and often plumose racemes.—D. P. YOUNG. "Correctly named".—J. P. M. BRENNAN.

Rosa × *hibernica* Templeton. 70, Cumberland; roadside hedge near High Lorton, Buttermere, June 13, 1953 (Ref. No. 43a.53).—C. W. MUIRHEAD. "Yes, I agree".—R. MELVILLE.

Rosa rubiginosa × *spinosissima* ? 82, Haddington; sandy ground by the sea, Longniddry, July 18, 1954 (Ref. No. 98.54).—C. W. MUIRHEAD. "The long peduncles and rather abundant pubescence on the lower surfaces of the leaflets would fit an origin from *R. spinosissima* L. × *tomentosa* Sm. The rather numerous glands on the leaves would then indicate one of the *Scabriusculae*. Some at least of the forms placed in the latter group are *R. tomentosa* × *rubiginosa*. The character of the present hybrid would fit the triple origin, *R. spinosissima* × *tomentosa* × *rubiginosa*. Did it have the sweet-briar odour?"—R. MELVILLE.

Phuopsis stylosa (Trin.) B. D. Jackson. 41, Glamorgan; naturalised for many years on a hedgebank, St. Donat's, June 22, 1954.—Leg. JOHN REES, comm. NATIONAL MUSEUM OF WALES. "*Phuopsis stylosa* (Trin.) Benth. & Hook. fil., forma".—R. D. MEIKLE.

Valeriana procurrens Wallr. 28, W. Norfolk; dry heathland of North Pickenham Heath, Swaffham (M/R. 53/841059), July 24, 1954. Two large colonies of plants heavily infected with the rust-fungus *Uromyces valerianae* Fckl. Stolons above ground and subterranean; leaves in the middle of the stem with 5-6 pairs of leaflets; epidermal cells of the upper surface of the leaf with wavy cells; flowers c. 5 mm. long; pollen-grains 50-44 microns. (See *Watsonia*, 1, 379 (1950).) Plant association:—*Pteridium* and *Calluna* co-dominant, *Chamaenerion angustifolium* (f), *Holcus lanatus* (o), and *Glechoma*.—E. L. SWANN. "Is this named on a morphological or cytological basis?"—D. P. YOUNG. "I cannot distinguish this from *V. officinalis* L.".—R. D. MEIKLE.

Calotis cuneifolia R. Br. 30, Beds.; wool alien in field of onions, Old Warden, September 26, 1954.—J. E. LOUSLEY and J. G. DONY. This species is a native of Australia (not also of New Zealand as has been erroneously repeated in several English works) and was first observed

in Yorkshire as long ago as 1886. It has been frequently found in recent years, but very seldom grows to the size of the plants from which this gathering was taken, of which one was nearly a yard across and a mass of beautiful blue flowers. One sheet was sent to Dr. Gwenda L. Davis, of New England University College, New South Wales, who has recently revised the genus (see *Proc. Linn. Soc., N.S.W.*, **77**, 146-188 (1952)) and she confirms the name, but writes "vegetatively atypical—leaves much broader at the base and longer than any I have seen". My own other gatherings from England have narrower and less luxuriant leaves than the plants now distributed.—J. E. LOTSLEY.

Hieracium lasiophyllum Koch. 70, Cumberland; Yew Crag, Honister Pass, on Skiddaw slate, alt. 1800; June 18, 1953 (Ref. No. 57.53).—C. W. MUIRHEAD. "Shows a good series of *H. lasiophyllum* var. *euriodon* F. J. Hanbury".—P. SELL and C. WEST.

Hieracium lasiophyllum Koch. 70, Cumberland; on rocks above "The Bishop", Barf Fell, Bassenthwaite, June 13, 1953 (Ref. No. 42.53). Leaves spotted; styles yellow.—C. W. MUIRHEAD. "Shows a good series of *H. lasiophyllum* var. *euriodon* F. J. Hanbury".—P. SELL and C. WEST.

Amsinckia intermedia Fisch. & Mey. 8. S. Wilts; cabbage field, Little Cheverell, October 6, 1954 (Ref. No. 6391).—J. D. GROSE. "This resembles specimens named *Amsinckia intermedia* Fisch. & Mey., and the nutlets seem to be right, but the material should be referred to Dr. I. M. Johnston. There seems to be little agreement among North American botanists as to the delimitation of species of this genus".—N. Y. SANDWICH.

Euphrasia brevipila Burnat & Gremli. 85. Fife; in sandy turf by the sea, North Queensferry, July 14, 1954 (Ref. No. 74.54). Leaves very dark, rather fleshy, with short glands.—C. W. MUIRHEAD. "The relatively small flowers and flexuous habit suggest that this is *E. brevipila* × *confusa* rather than pure *E. brevipila*".—E. F. WARBURG.

Euphrasia montana Jord. 70, Cumberland; in meadows between Grange Bridge and the Borrowdale Hotel, June 18, 1953 (Ref. No. 49.53).—C. W. MUIRHEAD. "Yes, good characteristic material".—E. F. WARBURG.

Pedicularis sylvatica L. H. 35. N. Donegal; steeply shelving moorland (alt. c. 800'), Maghera, June 30, 1954 (Ref. No. 95/85). Largely subsp. *hibernica* D. A. Webb (ined.) with hairy calyx; some plants of type also present.—D. A. WEBB.

Mentha longifolia (L.) Huds. 83. Edinburgh; Braid Burn, near Liberton Dams, October 3, 1953 (Ref. No. 149.53).—C. W. MUIRHEAD. "Beautiful specimens of an unusual mint. It has a general resemblance

to "*M. × niliaca* var. *sapida* (Tausch) Briquet", to which it is probably closely allied. It differs from this in having more numerous, sharper serratures, exserted stamens, and—as compared with the greater bulk of "*sapida*"—in having leaves of a brighter green. Also, the scent seems more pleasant. It is certainly unlike the Linnean specimen of *M. longifolia*, which has narrowly-lanceolate leaves with a thick white sub-surface tomentum, the like of which I have not seen among British material. Nor does it resemble any British horsemint that I can bring to mind as having seen. I am not by any means convinced that this mint is a hybrid of *M. longifolia* with *M. rotundifolia*, as its affinity to "*sapida*", according to Briquet's system of nomenclature, might suggest. For the time being I can only suggest a close connection with *M. longifolia* in view of its general morphological characters, but whether it will ultimately be considered as a variety of this, or as a hybrid of this with another species, cannot yet be ascertained for sure. It would assist if the chromosomes could be counted."—R. A. GRAHAM.

Mentha × niliaca var. *sapida* (Tausch) Briq. 90, Forfar; Parkhill, near Arbroath, August 1954.—U. K. DUNCAN. "Miss Duncan's determination is correct, insofar as this name—on an identification by Briquet—has been applied to this mint for a long time. My suspicion as to whether the name "*sapida*" is correctly applicable to this mint was published in the Report of the 1952 Distribution, and I regret that the answer to the problem is not yet reached. The matter turns on the exact nature of the type specimen of *M. sapida* Tausch, which has been requested from Brussels but is not yet to hand. The difficulty lies in an apparent confusion over Tausch's mint: Braun and Briquet give very different descriptions, and if Braun is right, this Scottish mint cannot be linked up with *sapida*. A further, perhaps minor entanglement lies in the fact that Briquet, having supplied the name which Miss Duncan gives, left the specimen named as *M. × villosa* var. *nemorosa* (Willd.) Briquet in his herbarium at Geneva (*M. villosa* Huds. being antedated by *M. niliaca* Jacquin). It can be added that *M. mollissima* Bork. and *M. candicans* Crantz have been at times suggested for this mint, but so far as I can tell from conflicting continental literature, neither is satisfactorily applicable".—R. A. GRAHAM.

Amaranthus hybridus subsp. *eruentus* var. *patulus* (Bertol.) Thell. 28, W. Norfolk; arable land, Rowley Corner, Hilborough, in a crop of annual blue lupin (*Lupinus angustifolius*), September, 1954 (Ref. No. 2524). In submitting a gathering to Mr. J. P. M. Brennan to confirm my naming of *A. chlorostachys* Willd., he suggested that it was best called as above. The growing of "sweet" lupins as a grain crop is a recent introduction in Norfolk for farmers with light land as a substitute for peas and beans for livestock feeding. The source of the seed of the Hilborough crop was not specified, but strains have been developed mainly in Germany and Holland. Both the *Amaranthus* and *Digitaria ischaemum* were found in the same field.—E. L. SWANN. "This seems to be correctly

named according to the classification by Thellung in Asch. & Graebn., *Syn. Mitteleur. Fl.*, Vol. 5(1) (1914)".—J. P. M. BRENNAN.

Salix × *forbyana* Sm. (? *S. cinerea* × *purpurea* × *viminalis*). 28, W. Norfolk; from old willow-carr on the Earl of Leicester's estate at Holkham. Catkins April 17, 1954, leaves September 15, 1954 (Ref. 2528). Described by Sir J. E. Smith in *Eng. Bot.*, ed. 1, no. 1145, as *S. forbyana*, it commemorates the Rev. Joseph Forby of Fincham, Norfolk (c. 1800). This "Fine Basket Osier" is a native. R. D. Meikle in giving the name for this suggested it was probably the ternary hybrid *S. cinerea* × *purpurea* × *viminalis*. Evidence for *S. cinerea* may be seen in the faint striae on the decorticated wood; the catkins are certainly *S. purpurea*; and the large stipules and leaf-length suggest some *S. viminalis* influence.—E. L. SWANN. Mr. Meikle has re-examined, and again confirmed the name.—R. A. GRAHAM.

Salix aurita forma *pseudohermaphrodita* Gagnep. 28, W. Norfolk; heath overlying gravel, East Winch Common, King's Lynn. Catkins April 22, 1954, leaves September 27, 1954 (Ref. No. 2530). Although various species of willow are seen occasionally with monstrosities such as odd branches bearing both male and female flowers, it is seldom that the whole bush—as in this instance—bears hermaphrodite inflorescences.—E. L. SWANN. "Correct".—R. D. MEIKLE.

Juncus bulbosus L. sens. strict. H. 27, W. Mayo; on damp sand in flood zone on the west shore of Lough Mask, July 14, 1954 (Ref. No. 94/13).—D. A. WEBB. (This and the ensuing species were submitted to Professor Richards who was, however, abroad, and therefore unable to comment.—R. A. GRAHAM).

Juncus kochii F. W. Schultz. H. 15, S.E. Galway; bog S.E. of Kilimor, September 17, 1954 (Ref. No. 93/87). Growing on bare peat at the edge of a flooded cutting. Very common in bogs in Western Ireland, to the exclusion of *J. bulbosus* L.—D. A. WEBB.

Sparganium minimum Wallr. H. 27, W. Mayo; small bog-lake, 3½ miles north of Mallaranny, July 15, 1954 (Ref. No. 84/97).—D. A. WEBB.

Carex punctata Gaudin. H. 1, S. Kerry; ex cult. Trinity College Dublin Botanic Gardens; root from Derrynane, S. Kerry, June 11, 1954 (Ref. No. 82/43). Grown in partial shade. The original station was a small marsh just above the shore, not brackish but apparently base-rich.—D. A. WEBB. "Correct".—E. NELMES.

Carex serotina Merat. 97, Westernness; salt marsh, in grass and stones, Loch Aline (west shore), Morvern, June 26, 1954.—E. C. WALLACE. "Correct".—E. NELMES.

Spartina maritima (Curt.) Fernald. 19, N. Essex; salt marsh near Thorpe-le-Soken, September 6, 1954.—J. M. HARTSHORN, comm. UNIVERSITY OF LEICESTER.

Anthoxanthum puellii Lecoq & Lamotte. 17, Surrey; sandy corn-field, Pirbright, October 16, 1954.—J. E. LOUSLEY. "Correct".—C. E. HUBBARD.

Deschampsia setacea (Huds.) Hack. 17, Surrey; bogs at Pudmoor Pond, Thursley Common, July 25, 1954.—E. C. WALLACE. "Correct".—C. E. HUBBARD.

Catapodium marinum (L.) C. E. Hubbard. 45, Pembroke; Tenby, June 10, 1954.—J. A. WEBB, comm. NATIONAL MUSEUM OF WALES. "*Catapodium marinum* (L.) C. E. Hubbard (*Festuca marina* L.)".—C. E. HUBBARD.

Zerna inermis (Leyss.) Lindm. 90, Angus; naturalised by a roadside, Camperdown, Dundee, July 1954.—U. K. DUNCAN. "The plant I received has awns up to 2.5 mm. long. It matches West Norfolk material of this adventive Hungarian *Brome* from both Breckland sands and maritime shingle. I do not know if the varietal distinction has been made under *Zerna* and would call this *Bromus inermis* var. *aristatus* Opiz or, as it appears likely that it may be as polymorphic as *Echinochloa crus-galli* (L.) Beauv., then *B. inermis* forma *aristatus* Fernald."—E. L. SWANN. "It should be noted that *Zerna* is an illegitimate name".—C. E. HUBBARD.

Bromus unioloides Kunth. 63, S.W. Yorks; wool alien, Shipley, November 1, 1954.—J. E. LOUSLEY. "Correct".—C. E. HUBBARD.

Hordeum marinum var. *gussonianum* (Parl.) Täckh. 63, S.W. Yorks; wool alien, Eccleshill railway sidings, November 1, 1954.—J. E. LOUSLEY, det. A. MELDERIS. "*Hordeum hystrix* Roth (*H. marinum* var. *gussonianum* (Parl.) Täckh.)".—C. E. HUBBARD.

Hordeum glaucum Steud. 63, S.W. Yorks; wool alien, Eccleshill railway sidings, November 1, 1954.—J. E. LOUSLEY, det. A. MELDERIS. In abundance at these sidings, where it has been collected at various times in 1953 and 1954 by Mr. D. McClintock and Dr. J. G. Dony. Dr. Dony and I have also gathered it in fields and on railway sidings in Bedfordshire, v.c. 30.—J. E. LOUSLEY. "*Hordeum glaucum* Steud. *Syn. Pl. Glum.* 1: 352 (1854). It is unfortunate that in his paper "Taxonomic Observations on the N. American species of *Hordeum*", published in *Madroño*, 10 (1949), G. Covas overlooked *H. glaucum* Steud. and re-described it as *H. stebbinsii* Covas (p. 17). Authentic material of the latter from California has been compared with isotype material of *H. glaucum* Steud. (Sinai Peninsula, Jebel Catherin, *Schimper* 383). *H. glaucum* may be easily distinguished from *H. murinum* L. by its minute

anthers (0.2—0.5 mm.) and the presence of a slender internode ("pedicel") between the glumes and floret of the central spikelet. In *H. murinum* the anthers are 0.7—1.4 mm. long and the internode is absent (the floret is "sessile"). *H. glaucum* is widespread in the Near East extending from the Eastern Mediterranean to N.W. India; it occurs also in N. Africa. It has been introduced into North and South America, South Africa and Australia, from some of which regions it has been carried with wool to the British Isles. It is possible that the name *H. glaucum* Steud. may have to be replaced by *Hordeum imrinum* Forsk., *Fl. Aegypt.-Arab.* 19 (1775), when the type of this species has been re-examined. *H. imrinum* Forsk. was based on specimens collected on the island of Imroz (Imros, Imbros), Turkey".—C. E. HUBBARD, January 14th, 1955.

Thelypteris robertiana (Hoffm.) Slosson. H. 26, E. Mayo; chinks in limestone pavement, Cloghmoyne (the only Irish station), July 13, 1954.—D. A. WEBB.

IRISH NATURALISTS' JOURNAL

A Magazine of Natural History

Published Every Quarter by the I.N.J. Committee

EDITED BY MISS M. P. H. KERTLAND, M.Sc., with the assistance of
Sectional Editors.

Annual Subscription, 10/- post free. Single Parts, 3/6

All communications to be addressed to:—

The Editor, Department of Botany, Queen's University, Belfast



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