

## 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> ( <i>Schoenoplectus tabernaemontani</i> )
<i>Hypericum maculatum</i> ( <i>H. dubium</i> )	<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> ( <i>Zerna ramosa</i> )
<i>Parnassia palustris</i>	<i>Agropyron caninum</i>
<i>Vaccinium oxycoccus</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. Arboŕy, common (Rowley).

32/4. *F. PURPUREA* Pugsl. 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. *DIPLOTAXIS 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. *HELICANTHEMUM 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 LEPTOCALADOS* (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. *VARIABLES* 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 VICIFOLIA* Scop. IV. Ballasalla, c. 1880, Mrs. W. Kermode (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. Ganseyp 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, 1948, 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. SIMONSI* 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. tetragonum* 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. *PUBEENS* (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. *nemorialis* (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 & O. 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 Dhooon 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 BREVIPILO* 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. MIGRANTHA* 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. *CHENOPIDIUM 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. COBITANA* × *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 Grenagh (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. *GYMNADENTIA 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 dubs (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. Nelmes). 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 Oswald (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 *Cornwall Flora* but there is no previous record.

766/1d. *ANTHOXANTHUM ODOBATUM* 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 Grenagh (M.). Kentraugh. III. Balladoole.

\*+780/2(2). *AGROSIS 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. *FLUTANS* × *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. Borrell).

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 Sandycote.

\*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. THOMINI* 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.) Heuff." (E. W. Davies).

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

\*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. AUSTRIACA* 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 rudemale</i>	<i>Limonium humile</i>	( <i>Festuca membranacea</i> )
<i>Subularia aquatica</i>	<i>Primula farinosa</i>	
<i>Silene acaulis</i>	<i>Centaurium latifolium</i>	<i>Bromus ramosus</i>
<i>Vicia orobus</i>	<i>Calamintha nepeta</i>	<i>Brachypodium pinna-</i>
<i>Potentilla hirta</i>	( <i>Satureia nepeta</i> )	<i>tum</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 thelyp-</i>
<i>Sambucus ebulus</i>	<i>Carex maritima</i>	<i>teris</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 caryophyllea</i>
<i>Geranium sylvaticum</i>	<i>Arctium minus</i> subsp.	<i>C. pauciflora</i>
<i>Acer campestre</i>	<i>minus</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>Centaurium pulchellum</i>	( <i>Dryopteris dryop-</i>
<i>Epilobium adnatum</i>	<i>Lathraea squamaria</i>	<i>teris</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 subspecies. 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.

- CLAPHAM, A. R., T. G. TUTIN & E. F. WARBURG, 1952, *Flora of the British Isles*.
- DRUCE, G. C., 1893, *Rep. Bot. E.C.*, **1892**, 391.
- , 1905, Notes on the British *Koelerias*, *J. Bot.*, **43**, 354-357.
- , 1906, Two Species of *Koeleria* New to Scotland, *Ann. Scot. Nat. Hist.*, **1906**, 30-33.
- GARNER, R., 1878, Professor Edward Forbes and His Country, *Midl. Nat.*, **1**, 67-70; 90-94.
- GASKING, S., 1889, List of the Plants of the Isle of Man, *Research*, **1889**, 172-211; 40; 66. (n.v.).
- HART, H. C., 1881, On Some Rare Plants in County Donegal, *J. Bot.*, **19**, 233-240.
- HOLT, G. A., 1912, *Proc. I.O.M. Nat. Hist. & Antiq. Soc.*, **1**, 446.
- MARSHALL, E. S. 1918, *Plantago ceratophylla* Hoffm. & Link, *J. Bot.*, **56**, 190.
- MOSS, C. E., 1913, *Vegetation of the Peak District*.
- OSVALD, H., 1949, Notes on the Vegetation of British and Irish Mosses, *Acta Phytogeogr. Suec.*, no. **26**, 1-62.
- PAINTER, W. H., 1904, *Rep. Bot. E.C.*, **1903**, 30.
- PATON, C. I., 1933, A List of Flowering Plants, Ferns and Horse-Tails of the Isle of Man, *Suppl. N.W. Nat.*, **3**, 547-619.
- , 1934, Addenda to the List of Flowering Plants, etc., of the Isle of Man, *N.W. Nat.*, **9**, 386.
- , 1945, Isle of Man Botanical Report and Revision of Catalogues of Manx Flowering Plants and Ferns, 1934-1943, *ibid.*, **19**, 164-170.
- WHELLAN, J. A., 1948, *Rep. Bot. Soc. & E.C.*, **1946-47**, 290.
- WILMOTT, A. J., 1947, *Rep. Bot. Soc. & E.C.*, **1945**, 47-51.