

# A Contribution to a Flora of Merioneth

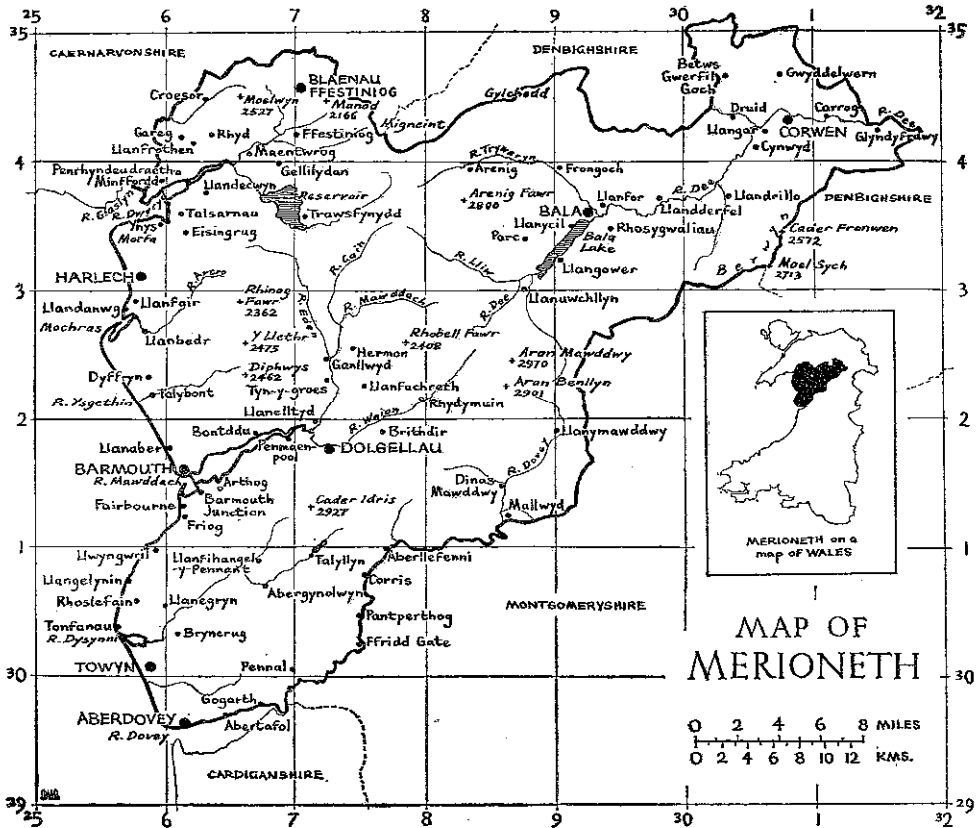
by

PETER BENOIT and MARY RICHARDS

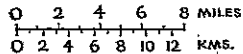
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MAP OF  
MERIONETH



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# A CONTRIBUTION TO A FLORA OF MERIONETH

## INTRODUCTION

Merioneth has long been a favourite hunting ground of botanists, and numerous notes and plant lists have as a result been published ; a valuable historical account of the botanical exploration of the county, by P. W. Carter, appeared in 1955\*. Yet Merioneth has never had a published Flora. About the end of the last century Daniel Angell Jones (1861-1936), of Machynlleth and Harlech, compiled a manuscript Flora which is now in the National Museum of Wales. But in later life, it seems, he rather neglected the higher plants for bryophytes, on which he became an authority.

In sixty years, British plant geography has progressed from infancy to maturity, and much work has been done in Merioneth ; ecology and cytology have been born, and opinions of the taxonomic status of many plants have changed in the light of experimental work. We ourselves are compiling a new Flora, but we have still to do a lot of research into the literature.

Too often, however, one hears of botanists delaying publishing their work in the hope of thus having it more complete, until a change of circumstances prevents it from ever being more than a manuscript. With that in mind we decided to publish, appropriately we think in the centenary year of D. A. Jones's birth, this list of the flowering plants and fern-allies, with habitats and localities, which we know to have been seen in Merioneth within the last 20 years. Species and localities which, so far as we are aware, have not been confirmed *since the end of 1940* we have excluded, though the list is actually based on more than half a century of botanising in the county by one of us (M.R.) and 20 years by the other (P.B.).

Merioneth (Watsonian vice-county 48) is roughly a triangle with sides 40, 50 and 30 miles long respectively. Being situated on the west coast of Wales, although not so oceanic as Pembrokeshire, it is exposed to the prevailing moisture-bearing south-westerly to westerly winds blowing from the Atlantic. It is also the most mountainous county, except for Caernarvonshire, in southern Britain, with six groups of mountains (Aran, Cader Idris, Arenig, Berwyn, Moelwyn, and Rhinog) above 2,400 feet high — mountains that trap the rain clouds. Consequently it has a rather low sunshine record, a high rainfall, cool summers, and, except in the highlands, mild winters. This is particularly noticeable on the coast, where there are seldom more than four days in a season with

\*CARTER, P. W. (1955). Some Account of Botanical Exploration in Merionethshire, *The Merioneth Miscellany*, 1.

snow lying, or more than seven when the temperature falls below 35°F. or rises above 70°F.

Geologically, Merioneth is a region of ancient rocks chiefly of Cambrian, Ordovician, and Silurian age. There are calcareous areas, locally, north, east and south of Dolgellau where volcanic activity took place remote ages ago ; on poor Ordovician limestones in the Arenig and Bala-Pennant Dyfi districts ; in the far east of the county on a detached knoll of the Denbighshire Carboniferous Limestone ; in some of the dunelands ; and in a few other places. But they are exceptional, and generally the rocks of Merioneth are hard, siliceous, and deficient in lime.

These factors greatly influence the vegetation and flora. A huge area of the county bears acid grassland and moorland, and plants of the 'Scottish' and 'Atlantic' distribution types, and of acid habitats, abound. About 25 'Highland' species have been recorded, but, compared with neighbouring Caernarvonshire, Merioneth has a poor alpine flora. In such a county it is not surprising that calcicolous species, though well represented, are mostly local and that 'Germanic' species, and indeed many of the common plants of lowland England, are almost or quite absent.

Probably the commonest type of vegetation in Merioneth is acid grassland of which the dominant species are *Agrostis tenuis* (Bent-grass) and *Festuca ovina* (Sheep's Fescue), or locally *Ulex gallii* (Western Gorse), *Pteridium aquilinum* (Bracken), or *Juncus effusus* (Soft Rush). This grassland is to be found throughout the county, from sea-level to the tops of the highest mountains, though most characteristically in the uplands.

Of peat habitats, the upland and highland moors dominated by such species as *Nardus* (Mat-grass), *Trichophorum* (Deer-grass), *Eriophorum* (Cotton-grass), *Juncus squarrosus* (Heath Rush), or *Calluna* (Ling) are the most extensive and have the poorest flora. *Sphagnum* bogs rich in Cyperaceae (sedges), *Drosera* (Sundew), *Pinguicula* (Butterwort), and *Narthecium* (Bog Asphodel) are common near rills. In the lowlands, peat often bears a mixture of *Molinia* (Purple Moor-grass) and *Myrica* (Sweet-gale). Arthog Bog is a raised bog bearing callunetum, inferior as an example of this type of vegetation to the great raised bogs of Borth and Tregaron, but comparing well with them floristically ; there are also smaller raised bogs by some of the lakes, e.g. Cwmbychan, Gwernan, and Cynwch.

In the calcareous conditions about the volcanic rocks of the Dolgellau district and on the Ordovician limestones, in boggy places near rills the *Sphagnum* of the acid bogs gives way to the hypnoid mosses *Cratoneuron commutatum*, *Ctenidium molluscum*, and *Campylium stellatum*, and such species as *Briza media* (Quaking-grass), *Crepis paludosa* (Marsh Hawksbeard), the orchids *Dactylorhiza fuchsii*, *D. purpurella*, and *D. incarnata*, *Selaginella selaginoides*, and *Eleocharis quinqueflora*, and in the grassland there are often *Linum catharticum*

(Cathartic Flax), *Pimpinella saxifraga* (Burnet Saxifrage), and the lady's mantle *Alchemilla filicaulis*. It is also on these calcareous rocks, where they are exposed on mountain cliffs on Cader Idris and in Llaethnant and Cwm Cowarch, that the alpine flora is to be found.

Below the highland zone, screes and rocky slopes often bear woodland of stunted *Quercus petraea* (Sessile Oak) — mostly of dry acid type ; less often, as at Harlech, Dolgellau, and Arthog, with damp rich humus and then with a characteristic ground flora of *Mercurialis perennis* (Dog's Mercury), *Allium ursinum* (Ramsons), *Sanicula europaea* (Sanicle), and *Festuca gigantea* (Tall Brome). The deep shady gorges constantly wet with spray from waterfalls, so well to be seen in the Maentwrog and Ganllwyd districts, are famous for their ferns and bryophytes.

There are about a hundred lakes in the county — the majority small base-poor peaty or stony mountain tarns with *Littorella* (Shoreweed), *Isoetes* (Quillwort), and *Lobelia*. The streams and rivers are clear and fast-flowing, with stony beds and a poor flora.

Marshland with a mixed flora, and reed- and sallow-swamps, are well developed on the flat lands near the coast — by the River Glaslyn, on Morfa Harlech and Morfa Dyffryn, at the upper end of the Mawddach estuary, and around Townyn.

On the coast itself, the complex systems of *Ammophila* (Marram) dunes and slacks of Morfa Harlech and Morfa Dyffryn are regarded as amongst the finest in the British Isles, and there are smaller dunelands at Llandanwg, Barmouth, Fairbourne, and Aberdovey. The *Festuca rubra* grassland of the stabilised dunes ranges from acid with the mosses *Hypnum cupressiforme* and *Rhytidiadelphus triquetrus*, lichens, *Agrostis tenuis* (Bent-grass), *Festuca montana* (Sheep's-bit) and *Rumex acetosella* (Sheep's Sorrel), to calcareous with *Helictotrichon pubescens* (Downy Oat) co-dominant with the *Festuca*, and such species as *Briza media* (Quaking-grass), *Erigeron acer* (Blue Fleabane), *Ophioglossum vulgatum* (Adder's-tongue), and a rich orchid flora. *Calluna* heath occurs on the sandy dune pasture of Morfa Harlech, towards Ynys. The slacks are usually dominated by *Salix repens* (Creeping Willow), the moss *Acrocladium cuspidatum*, or species of *Carex* (sedge) ; some of the slacks are notable for the abundance of *Epipactis palustris* (Marsh Helleborine) and *Juncus acutus* (Sharp Rush).

Salt-marshes are well developed on the Dwyryd, Artro, and Mawddach estuaries, and are mostly of *Juncus maritimus* (Sea Rush)-or grazed *Festuca-Puccinellia-Armeria*-type on firm sandy mud. Exceptionally they have a mixed flora of *Aster*, *Limonium humile* (Sea Lavender), *Triglochin maritima* (Sea Arrow-grass), and *Plantago maritima* (Sea Plantain), as on soft wet mud at Mochras and near Arthog ; this type of salt-marsh is threatened by the spread of *Spartina townsendii*, which already forms a dense stand over a considerable area at Bodowen (near Barmouth) and between Barmouth Junction and Fairbourne.

Meadows and hayfields, and roadside, railway and cultivated habitats are, of course, common throughout the lowlands. But the arable weed flora is poor; we have never seen *Papaver rhoeas*, *Raphanus raphanistrum*, *Thlaspi arvense*, *Scandix pecten-veneris*, *Euphorbia exigua*, or *Alopecurus myosuroides* in the county, and *Viola arvensis*, *Polygonum convolvulus*, and *Chrysanthemum segetum* are rare.

Merioneth has been truly described as topographically diversified. For although it is predominantly acid, there are calcareous habitats, and the county extends from the coast of Cardigan Bay in the west to within  $5\frac{1}{2}$  miles of the English border in the east, and ranges in altitude from sea-level to just short of 3,000 feet (in  $3\frac{1}{2}$  miles on Cader Idris).

About 1,052 species of flowering plants and fern-allies (excluding microspecies of the genera *Rubus*, *Alchemilla*, *Euphrasia*, and *Hieracium*) have been recorded from Merioneth. On our list there are 833, comprising 639 'natives' and 194 'aliens', all but 18 of which we have personally verified in the field. Of the 219 species not on our list, 102 are of 'alien' type and their status is difficult to decide (probably they are mostly garden escapes and few-times-recorded casuals); 91 are 'native'-type species which were erroneously recorded or are very unlikely; and 26 are 'natives' which have certainly or probably been seen in the county, but not, to our knowledge, since 1940. These last are perhaps the most interesting; they are:—

*Lycopodium inundatum*, *Woodsia ilvensis*, *Dryopteris abbreviata*, *Pilularia globulifera*, *Thalictrum flavum*, *Nuphar pumila*, *Brassica oleracea*, *Matthiola sinuata* (*extinct*), *Viola lactea*, *Hypericum hirsutum* (*extinct*), *Ononis spinosa*, *Trifolium medium*, *Myriophyllum spicatum*, *Pyrola rotundifolia* (*extinct*), *Mertensia maritima* (*extinct*), *Lathraea squamaria*, *Mentha pulegium*, *Galium boreale*, *Valeriana dioica*, *Hypochoeris maculata* (*extinct*), *Hieracium peleterianum* (*extinct*), *Potamogeton gramineus*, *Carex acutiformis*, *C. pendula*, *Festuca altissima*, and *Poa alpina*.

We also list 75 hybrids.

As both of us have operated from the far west of the county, we have inevitably worked it unevenly. The coastal strip Penryn-deudraeth—Harlech—Barmouth—Dolgellau—Cader Idris we have worked well; and we have spent some time about Corwen, Bala, and Aberdovey, though there is undoubtedly a lot of work still to be done there. But we have hardly touched the Llanfrothen, Ffestiniog, Gwyddelwern, and Pennal districts.

We hope that by publishing this list we shall stimulate people to visit the poorly worked parts of the county and try to fill in the gaps in our knowledge. *We also very much hope that anyone who finds in Merioneth species that are not on our list, or any of the rarer of our species in new localities, will write to us at Pencarreg, Barmouth; we shall be very glad to hear from them.*

Finally we would like to thank H. A. Hyde and A. E. Wade for determining numerous specimens and helping us in other ways;

S. M. Walters and F. H. Perring for generously supplying us with data from the Distribution Maps Scheme of the Botanical Society of the British Isles ; the late E. Price Evans for his invaluable advice on geological and ecological matters ; Miss V. Gordon and Mrs. A. G. Side for their field work ; the specialists who have kindly determined plants of critical groups ; and all those persons who have kindly given us details of their discoveries in Merioneth.

#### SYMBOLS AND ABBREVIATIONS USED IN THE LIST ; AND NOTES

- \* Plant known to have been, or presumed from its habitat to have been, introduced into Merioneth, intentionally or accidentally, by man ; or otherwise owing its existence in the county to human activity ('alien', 'introduction').  
 + Plant not recorded for Merioneth in *WFP* or *WF* (q.v.) (except *Lycopodium*, *Selaginella*, *Isoetes*, *Equisetum*, *Hieracium* microspecies, and hybrids).  
**C.** 'Coastal'. Plant confined to maritime habitats.  
**L.** 'Lowland'. Plant of the lowland zone of marshes, meadows, roadsides, cultivated ground, etc., roughly to 500 ft. (152 m.) alt. ; or of maritime habitats if not confined to them.  
**U.** 'Upland'. Plant of the upland sheep-walks, hill-woods, or mountain slopes, roughly from 500 to 1,500 ft. (152 to 457 m.) alt.  
**H.** 'Highland'. Plant of high mountain habitats, roughly above 1,500 ft. (457 m.) alt.  
*WFP* HYDE, H. A. and WADE, A. E. (1957), *Welsh Flowering Plants*, 2nd edition, National Museum of Wales.  
*WF* HYDE, H. A. and WADE, A. E. (1954), *Welsh Ferns*, 3rd edition, National Museum of Wales.

The order of species and, in the main, the nomenclature are after DANDY, J. E. (1958), *List of British Vascular Plants*, Brit. Mus. (Nat. Hist.) and B.S.B.I.

The habitats given are only the characteristic and commoner ones of each plant ; they are not an exhaustive list.

Where no authority is given after a locality, we have personally verified the plant in that locality, though it was not necessarily discovered there by us.

Barmouth Junction railway station was recently renamed 'Morfa Mawddach', but the original name is used in this list as being the more familiar.

#### LIST OF SPECIES

*Charophyta*. See *Nature in Wales*, 5, 792-3 (1959).

**Lycopodium selago** L. FIR CLUBMOSS. **H.** Very rare in lowlands. 1 plant by shore at Arthog. 1 plant at sea level on Morfa Harlech. (Lowest limit in Wales 210 ft., in Wilson, A. (1949), *Alt. Range Br. Pl.*, 2nd ed.) Common above 1,500 ft.

**L. clavatum** L. STAG'S-HORN MOSS. **H.** Common above 1,500 ft.

**L. alpinum** L. ALPINE CLUBMOSS. **H.** Common above 1,500 ft.

**Selaginella selaginoides** (L.) Link. SELAGINELLA. **L, U, H.** Local, in calcareous bogs, chiefly in the hills. Morfa Harlech and Morfa Dyffryn, in dune slacks. Arenig, E. Price Evans. Above Cwm Tylo, Parc, Bala. Dolgellau district—near Benglog ; Llanfachreth ; Brithdir ; near Cross Foxes ; Bwlch Coch ; Cwm Geugraig ; Mynydd y Gader ; above Llyn Gafr ; Cwm Cau. Llaethnant.

**Isoetes lacustris** L. QUILLWORT. **U, H.** Frequent in the mountain lakes. Llyn Mair, N. Woodhead. Llyn Eiddew Mawr. Llyn Cwmbychan, P. W. Richards. Crogenen Lakes. Llyn y Gader. Llyn Aran. Llyn Cynwch. Llyn Llymbran, Aran Benllyn.

**I. echinospora** Dur. H? Very local, in base-poor mountain tarns. Llyn Morwynion, nr. Ffestiniog, *A. O. Chater*.

**Equisetum variegatum** Schleich. VARIEGATED HORSETAIL. C. Locally abundant in dune slacks. Morfa Harlech. Morfa Dyffryn. Aberdovey. *Map p. 7.*

**E. fluviatile** L. WATER H. L, U. Common in marshes and lakes.

**E. palustre** L. MARSH H. L. Common in marshy places.

**E. sylvaticum** L. WOOD H. U. Local, in boggy fields. Blaen-y-cwm, Parc, Bala, very fine. Fedw, Llangower. Dolgellau district—Esgair-gawr; bank of Wnion nr. Dolserau; nr. Hafod-y-meirch; and above Penrhyn Gwyn. Tyn-y-coed, nr. Dinas Mawddwy, *L. Lloyd Evans. Map p. 7.*

**E. arvense** L. COMMON H. L. Common, roadsides, duneland, etc.

**E. × litorale** Kühl. ex Rupr. Chiefly L. Frequent by ditches and on roadsides. Nr. R. Glaslyn, Minffordd, coning. Morfa Harlech, coning, discovered by *P. Taylor*. Nr. Talwrn Bach Halt, barren. Mochras estuary, barren. By bungalows below Dyffryn Stn., and from there to mouth of R. Ysgethin, barren. Roadside below Talybont Halt, coning. By Felin Ceilwart, Llanaber, coning. Below Plas Mynach, Barmouth, barren. Pwll-y-gele, nr. Llanfachreth, barren. Mynydd Gwerngraig, barren, *P. Taylor*. Aberdovey golf-links, barren.

**E. telmateia** Ehrh. GREAT H. L. Rare. Talybont Wood and Llety Lloegr, in wet places. Ditch below Llwynwcws, Llanaber. Roadside at Rhoslefain, in quantity. *Map p. 7.*

**Osmunda regalis** L. ROYAL FERN. L. Local. Shore nr. Portmeirion, *Miss A. P. Conolly*. Arthog Bog, about 8 small plants; once common, from the clumps in gardens nearby. Common, Gogarth Bog, in fruit.

**Trichomanes speciosum** Willd. KILLARNEY F. 1 plant only, long-known between Harlech and Maentwrog. Shown to *M. R.* by *J. Backhouse Jr.*

**Hymenophyllum tunbrigense** (L.) Sm. TUNBRIDGE FILMY F. L, U? Local, on damp shady rocks in gorges. Ceunant Llenyrch. Arthro valley, *F. Rose*. Cwmbychan area. Cwm Nantcol, *F. Rose*. By the Afon Camlan. Pistyll y Cain. Abergwynant glen. Above Dolycae, Tallylyn, *Mrs. A. G. Side*.

**H. wilsonii** Hook. WILSON'S FILMY F. L, U, H. Frequent in shady glens, and on boulders above 1,000 ft. Cymerau Falls, Ffestiniog. Ceunant Llenyrch, *F. Rose*. Cwm Nantcol. Dolgellau district—Rhaiadr Ddu; Pistyll y Cain; Torrent Walk; Tir Stent; Cwm Geugraig; above Llyn Aran, L. Cau, L. Gafr, and L. Gwernan; Abergwynant glen. Just above the shore at Arthog. Pistyll Gwyn, Llanymawddwy. Llaethnant.

**Pteridium aquilinum** (L.) Kuhn. BRACKEN. L, U. Abundant. Dominant over large areas of the upland sheep-pasture.

**Cryptogramma crispa** (L.) R. Br. ex Hook. PARSLEY F. H. Abundant on high acid screes and rocks. Moelwyns. Ardudwy mountains. Arenigs? Cader Idris. Berwyns (Mer.?). Descends to c. 700 ft. on the Garn, Barmouth.

**Blechnum spicant** (L.) Roth. HARD F. L, U. Common generally.

**Phyllitis scolopendrium** (L.) Newm. HART'S-TONGUE F. L. Very rare on basic rocks. A few plants in the Torrent Walk, Dolgellau. Frequent in artificial calcareous habitats. Mortared walls—Talsarnau; Morfa Harlech; Harlech Cliff; N. end of Barmouth Viaduct; Llanelltyd; Glasdir Bridge; Rhydymain, *E. Price Evans*; Llanymawddwy, *A. O. Chater*; Glyndyfrdwy, *Miss V. Gordon*; Arthog; nr. the shore, Rhoslefain. Old lime kilns—between Llanaber and Bwlch-y-Llan; Aberamffra, Barmouth. Old mine—Cwm Cowarch, *W. M. Condry*.

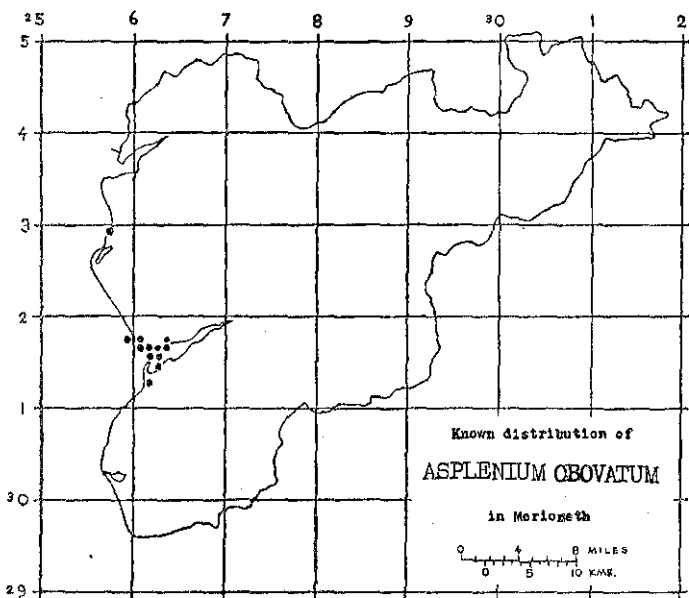
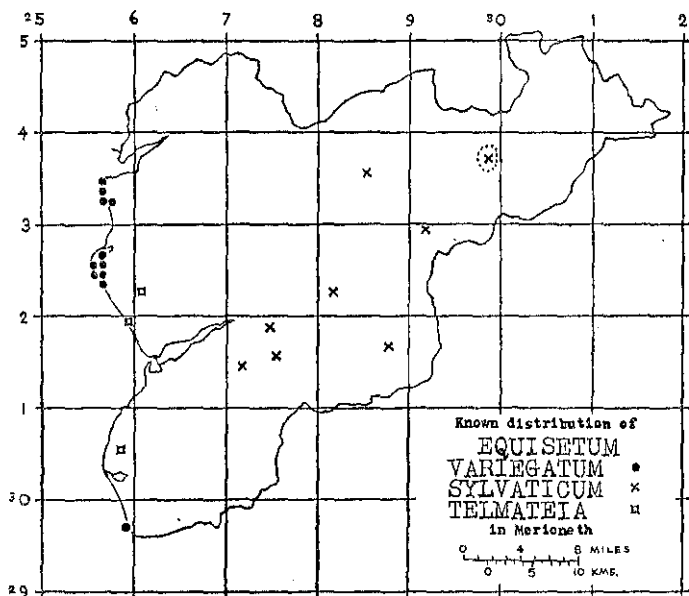
**Asplenium adiantum-nigrum** L. BLACK SPLEENWORT. L. Common.

**A. obovatum** Viv. LANCEOLATE S. C. Very local, in crevices of rocks and walls (not mortared) nr. the coast. Wall at Llanfair, several plants. Rocks and walls at Llanaber and Barmouth, in quantity. Rocks nr. Arthog, a few plants. [Wall at Friog, 1 plant 1954, now extinct.] *Map p. 7.*

**A. marinum** L. SEA S. C. Very local. Sea cliffs nr. Friog and nr. Llangelynin in very small quantity.

**A. trichomanes** L. MAIDENHAIR S. L, U, H. Common on mortared walls; less so on, chiefly calcareous, rocks.





(The maps show the 10-km. squares of the Ordnance Survey National Grid. Each symbol represents a 1-km. square for which there is a record.)

**A. viride** Huds. GREEN S. H. Local, on basic mountain cliffs. Head of Cwm Teigl, Ffestiniog, R. *Elfyn Hughes*. Blaen Lliw, *B.S.B.I. excursion*. Ceunant Llechwedd Fwyalchen, nr. Llanuwchllyn, *E. Price Evans*. Llaethnant. Cwm Cowarch, *W. M. Condry*. Cwm Geugraig. Cwm Aran. Above Llyn Gafr. Cwm Cau ?

\***A. ruta-muraria** L. WALL RUE. L. This sp. and *Ceterach officinarum* are common on mortared walls, but apparently never occur on basic rocks. Thus they must owe their existence in the county to human activity, so we feel bound to mark them \*.

**A. septentrionale** (L.) Hoffm. FORKED SPLEENWORT. H ? Very rare, in crevices of acid rocks. W. of Blaenau Ffestiniog, spec. in Herb. NMW, R. *Elfyn Hughes*, D. A. Ratcliffe. Manod Mawr, *R.E.H.* Cliffs nr. Tyn-y-groes, Dolgellau. Cwm Cowarch, A. O. and E. H. *Chater and W. M. Condry*.

**A. septentrionale** × **trichomanes**. 1 small plant with the parents nr. Tyn-y-groes, Dolgellau, 1953 ; still exists ?

\***Ceterach officinarum** DC. CETERACH, RUSTYBACK FERN. L. See note under *Asplenium ruta-muraria*.

**Athyrium filix-femina** (L.) Roth. LADY F. L, U, H. Common.

**Cystopteris fragilis** (L.) Bernh. BRITTLE BLADDER F. H. Local, on basic mountain cliffs. Ceunant Llechwedd Fwyalchen, nr. Llanuwchllyn, *E. Price Evans*. Llaethnant. Cwm Cowarch, *W. M. Condry*. Cwm Geugraig. Cwm Aran. Above Llyn Gafr. Cwm Cau, *E.P.E.* Also on mortared walls at Capel Tabor, Pont ar Ddibyn, and Brithdir School, all nr. Dolgellau.

**Dryopteris filix-mas** (L.) Schott. MALE F. L, U, H. Common in woods and on banks, walls, and screes.

**D. borrieri** Newm. GOLDEN-SCALED MALE F. L, U, (H ?). Nearly as common as the last and often growing with it.

**D. spinulosa** Watt. NARROW BUCKLER F. L. Very local, in wet shady places. Nr. Craig-ddu-ganol, Trawsfynydd, 1 plant. Nr. Cefn Maclan, Dolgellau, c. 8 plants. Torrent Walk, Dolgellau, c. 2 plants.

**D. dilatata** (Hoffm.) A. Gray (*D. austriaca* auct.). BROAD BUCKLER F. L, U, H. Common in woods and shady ditches.

**D. aemula** (Ait.) Kuntze. HAY-SCENTED BUCKLER F. L ? Rare, in damp shady places nr. waterfalls. Nr. Maentwrog, c. 30 plants, *F. Rose*. Above Llanbedr, c. 6 plants, *F. Rose*. Nr. Ganllwyd, 3 clumps.

**Polystichum angulare** Kit. ex Willd. (*P. setiferum* (Forsk.) Woynt.). SOFT PRICKLY SHIELD F. L. Frequent on less acid soils. Portmadoc road, Minffordd. Llechwedd Wood, Harlech, very fine. Harlech Cliff. Ceilwart, Llanaber. Arthog—nr. Castell, Ynysfechan, and Fegla Fawr knoll. W. of Corwen.

**P. aculeatum** (L.) Roth (*P. lobatum* (Huds.) Chev.). HARD PRICKLY SHIELD F. L, U, H. Rare, on basic rocks. Ceunant Llenyrch, *F. Rose*. Torrent Walk, Dolgellau. Nr. Blaen Pennant, Llanymawddwy.

Most often the simply pinnate var. **cambricum** (S.F. Gray), which resembles *P. lonchitis*, the Holly Fern. Cwm Moch, R. *Elfyn Hughes*. Above Llyn Gafr. Cwm Cau, *E. Price Evans*. Llaethnant.

**Thelypteris oreopteris** (Ehrh.) Sloss. MOUNTAIN F. Chiefly U. Common by streams in the hill-country, especially around Dolgellau. Nr. sea-level at Fegla Fawr, Arthog, and by R. Wnion at Dolgellau.

**T. phegopteris** (L.) Sloss. BEECH F. U, H. Frequent on shady rocks, scree, and banks. Nr. Crafnant, *F. Rose*, and Pen-isa'r-cwm, Llanbedr. Llechwedd-du-bach, Harlech. Maentwrog district—nr. Llandecwyn ; Ceunant Llenyrch, *F.R.* ; Moelwyns, *Miss V. Gordon* ; Cynfal valley, above Bontnewydd ; S.W. shore of Trawsfynydd Lake. Dolgellau district—copper mines, Tyn-y-groes ; old drive, Nannau ; Pwll-y-gele ; Benglog ; Helygog ; above Tyn Llidiart, Brithdir ; Torrent Walk ; Hen Siop, Tabor ; Tir Stent ; Tyddyn Ednyfed ; Bwlch Coch ; Cwm Geugraig ; above Llyn Aran ; above Bryn Rhug ; above Llyn Gwernan ; above Llyn Gafr ; Tyrau Mawr. Bala district—Blaen Lliw ; Afon Llafar, above Parc ; Afon Glyn, Llangower ; above

Rhosygwaliau. Llaethnant. Cwm Cowarch. Nr. Golodd, N.E. of Barmouth. Happy Valley, nr. Aberdovey.

**Gymnocarpium dryopteris** (L.) Newm. (*Thelypteris dryopteris* (L.) Sloss.).

OAK F. U, H. Rather frequent on shady rocks and scree in hill-country. Craig Artro, Llanbedr. Gorge above Llangower. Afon Llafar above Parc, Bala. Llaethnant. Cwm Cowarch, *W. M. Condry*. Dolgellau district—nr. Gelli Gemlyn; Benglog; Helygog gorge, very fine; Torrent Walk; Bwlch Coch; Cwm Aran; and above Llyn Gafr.

**Polypodium vulgare** L. *sens. str.* COMMON POLYPODY, TETRAPLOID RACE.

L, U. Common on banks, 'dry' walls, and tree branches.

+P. **interjectum** Shivas. COMMON P., HEXAPLOID RACE. Chiefly L. Common, especially on mortared walls.

P. **interjectum** × **vulgare** *sens. str.* Wall at Llanaber, 1 patch without either parent, conf. *A. C. Jerny*.

**Botrychium lunaria** (L.) Sw. MOONWORT. L, U. Rare, in pastures. Harlech golf-links, regularly 1958–62. Rhinog hills, 1954. Dolgellau district—nr. Maes-mawr, Llanelltyd, 1 plant 1953; Tyn Llidiart, Brithdir, 1 plant 1958; Tir Stent, 1 plant 1948, 1956; nr. Llyn Gafr, at least 2 plants 1958. Nr. Mawddach Crescent, Arthog, several plants in 2 spots 1953–61.

**Ophioglossum vulgatum** L. ADDER'S-TONGUE. L, U. Local, in basic grassland. Common in the Harlech dunes. Rare elsewhere. Morfa Dyffryn dunes. Below Talybont Halt. Hermon mine, nr. Dolgellau. Brithdir. Nr. Mawddach Crescent, Arthog. Aberdovey links. Some Harlech and Dyffryn plants have been referred to ssp. **ambiguum** (G. & G.) Warb.

\***Pinus sylvestris** L. SCOTS PINE. L. Seedlings occur in natural vegetation in Arthog Bog. Commonly planted.

**Caltha palustris** L. ssp. **palustris**. MARSH MARIGOLD, KING-CUP. L, U. Common in marshy places.

**Trollius europaeus** L. GLOBEFLOWER. U, H. Frequent in meadows and by streams on basic soils in the hill-country. Bank of R. Artro nr. Aberartro. Felin Sylfaen, nr. Barmouth. S.W. shore of Trawsfynydd Lake. Blaen Lliw. Shore of Bala Lake. Dolgellau district—Rhaiadr Ddu; Tyn-y-groes; Hermon; nr. Llanfachreth; nr. Drwsynant; Brithdir; nr. Cross Foxes; Islawrdref. Cwm Cau, *E. Price Evans*. Cwm Cowarch, *W. M. Condry*.

**Anemone nemorosa** L. WOOD ANEMONE. L, U, H. Common, shady places.

**Clematis vitalba** L. TRAVELLER'S JOY. L. Frequent, but normally as a cottage garden escape. Harlech dunes, in one spot. Roadside, Dyffryn. In c. 10 places at Barmouth, often nr. cottages but perhaps originally native. Caerdeon. By Arthog P.O. By Llwyngwrl Stn. Torrent Road and Aran Glen, Dolgellau. Llandderfel, *J. A. Webb*. Thickets on limestone nr. Corwen, very probably native.

**Ranunculus acris** L. MEADOW BUTTERCUP. L, U, H. Common, meadows.

**R. repens** L. CREEPING B. L, U. Common in wet places.

**R. bulbosus** L. BULBOUS B. Chiefly L. Frequent in dry lowland pastures; abundant in the dunelands.

**R. auricomus** L. GOLDBLOCKS B. L. 1 locality only. Shady calcareous laneside bank nr. Corwen.

**R. lingua** L. GREATER SPEARWORT. L. 1 locality only. In a swamp of *Salix cinerea* and *Phalaris arundinacea* nr. Arthog.

**R. flammula** L. LESSER S. L, U, H. Common in wet places.

**R. sceleratus** L. CELERY-LEAVED BUTTERCUP. C. Rare, in peaty ditches nr. the sea. Glan-y-mor, Harlech. [Shore below Egryn, Llanaber; lost.] Arthog Bog. Lower part of R. Dysynni.

**R. hederaceus** L. IVY-LEAVED WATER CROWFOOT. L, U. Frequent in ditches and muddy pools trampled by cattle. Above Bontnewydd, Ffestiniog. Morfa Harlech. Below Talwrn Bach Halt. Nr. Talybont Halt. By rly. at Llanaber. Benglog and Bwlch Coch, nr. Dolgellau. Nr. Dinas Mawddwy,

*B.S.B.I. excursion*. E. of Arenig, *Miss V. Gordon*. Afon Llynor, nr. Llandrillo, *R.A.R.C.* Glyndyfrdwy, *Miss V. G. Fegla Fawr*, and Bronmeirion (with *R. lenormandii*), Arthog. Roadside at Friog, Borthwen, Llwyngwriil. Pont Dysynni, Bryncreg.

*R. lenormandii* F.W. Schultz. LENORMAND'S W. L, U. Frequent in rills and ditches, esp. on acid peaty soils of hill-country.

*R. trichophyllus* Chaix. FENNEL-LEAVED W. L. Very local. Pools on Morfa Harlech.

*R. aquatilis* L. COMMON W. L. Local but locally abundant, in ditches. Llanfrothen. Ditches by Harlech Stn. and below Dyffryn Stn., '*R. peltaeus* Schrank'. [Backwater of R. Mawddach nr. Llanelltyd, '*R. pseudofluitans* Bak. & Fog.', 1948 but not since.] Nannau deer park. Btwn. Towyn and Aberdovey, '*R. heterophyllus* Weber'.

*R. baudotii* Godr. BRACKISH W. C. Rare, brackish ditches. Btwn. Barmouth Junction and Fairbourne, 1948. Mouth of R. Dysynni, 1953.

*R. ficaria* L. LESSER CELANDINE.

Ssp. *ficaria*. L, U. Common, woody banks, streamsides.

+ Ssp. *bulbifer* (Albert) Lawalrée. L. 1 locality only. Shady place nr. Dr. Williams' School, Dolgellau, 1 patch with ssp. *ficaria*.

*Thalictrum alpinum* L. Alpine Meadow-rue. "Above Llyn-y-gafr", *B.S.B.I. Year Book* 1950, 46, but there is some doubt whether the specimen was actually gathered there. Never confirmed.

*Thalictrum minus* L. LESSER MEADOW-RUE. L, U, H. Frequent on basic mountain cliffs—Diphwys, *A. O. Chater*; Aran Benllyn, *A.O.C.*; Llaethnant; Cwm Cowarch; Cwm Geugraig; Cwm Aran; above Llyn Gafr; Cwm Cau, *E. Price Evans*; Tyrau Mawr, *E.P.E.* Very local by rivers and lakes—shore of Bala Lake, frequent ('*T. umbrosum* Butch.');

Cynwyd bridge; Llandrillo, *R.A.R.C.* 1 locality only on dunes—Mochras.

*Nymphaea alba* L. WHITE WATERLILY. L, U, Frequent in lakes. Llyn Eiddew Mawr, very small. Llyn Tecwyn Isaf. Hafod-y-llyn. Llyn Cwm-mynach, *A. O. Chater*. Llyn Cynwch. Llyn Gwernan. Llyn Caer Euni. [Nr. shore btwn. Llanaber and Talybont; disappeared.]

*Nuphar lutea* (L.) Sm. YELLOW W. L, U. In several of the mountain lakes. Pool  $\frac{1}{2}$  mile N. of Pont ar Afon Gam, nr. Ffestiniog. Llyn Tecwyn Isaf. Hafod-y-llyn. Llyn Cwm Mynach. Llyn Gwernan. Crogenen Lakes.

*N. lutea*  $\times$  *pumila* (Timm) DC. INTERMEDIATE YELLOW W. A single spot in Tallyllyn Lake; *M.R.* and *P. Taylor* could not find either parent there in 1954.

\**Papaver dubium* L. LONG SMOOTH-HEADED POPPY. L. Local, on rlys. and waste ground. Bontnewydd Stn. Orierton Park, Barmouth. Barmouth Junction Stn., occasional. Nr. Aberdovey Stn., in quantity.

*P. dubium*  $\times$  *rheas* L. Orierton Park, Barmouth, 1 plant with the parents (*P. rheas*, cultivated), 1960, *Mrs. K. M. Benoit*.

\**P. argemone* L. LONG ROUGH-HEADED P. L. Local, on rlys. Casual at Barmouth Junction. Common nr. Aberdovey Stn., with *P. dubium*.

*Meconopsis cambrica* (L.) Vig. WELSH P. H. Rare as a native, on basic mountain cliffs. Above Llyn Gafr. Cwm Cau, *E. Price Evans*. Llaethnant. Cwm Cowarch, *W. M. Condry*. A common garden escape in the lowlands.

*Glaucium flavum* Crantz. YELLOW HORNED P. C. Local, on the shore. [Formerly on dunes below Llanaber, now extinct.] On sand at Barmouth Junction. On the shingle beach at Llwyngwriil, in fine quantity.

\**Chelidonium majus* L. GREATER CELANDINE. L. Frequent on walls by cottages and waste ground. Maentwrog district, *Miss V. Gordon*. Harlech. Mochras. Dyffryn. Barmouth. Glyndyfrdwy, *Miss V. G.* Cynwyd. Bala. Dolgellau. Corris and Abergynolwyn, *Mrs. A. G. Side*. Arthog. Llwyngwriil. Towyn. Aberdovey.

*Corydalis claviculata* (L.) DC. CLIMBING CORYDALIS. L, U. Frequent amongst *Pteridium* in rocky places. Moelwyns, *Miss V. Gordon*. Llechwedd Wood, Harlech. Heatherbank and above Cae Fadog, Barmouth. Dolgellau

district—nr. Caregarw ; S.W. of Llyn Cynwch ; above Abergwynant ; Cross Foxes-Tabor lane, *N. Y. Sandwith* ; Tyn Llidiart, Brithdir ; Benglog, Afon Glyn, Llangower. Moel y Calch, Llandderfel. Abergynolwyn, *Mrs. A. G. Side*, Trefri, Aberdovey.

\**Fumaria bastardii* Bor. FUMITORY. L. Uncommon weed. Ysgol Ardudwy, Harlech, with the next, 1960, det. *N. Y. Sandwith*. Llanaber Halt, regularly, det. *N.Y.S.* Oriclton Park, Barmouth, 1951, det. *A. E. Wade*. Cornfield, Llwyngwrl, 1951, det. *A.E.W.*

\**F. muralis* Sond. ex Koch ssp. *boraei* (Jord.) Pugsl. FUMITORY. L. Common weed. Waste ground, Ysgol Ardudwy, Harlech, with the last. Rubbish tip, Mochras. Wall at Llanaber. Garden, Man Siriol, Dolgellau. Roadsides nr. Arthog School and Barmouth Junction Stn. Roadside, Pen-y-wern, Llanegryn. By Aberdovey Golf Club Ho. All except Llanaber det. *N. Y. Sandwith*.

\**Brassica rapa* L. ssp. *campestris* (L.). WILD TURNIP. L, U. A common field weed.

\**B. nigra* (L.) Koch. BLACK MUSTARD. L. Rare. Persistent on bank by Pencarreg, Barmouth.

\**Sinapis arvensis* L. CHARLOCK. L. Common weed of cultivation.

\**Diplotaxis muralis* (L.) DC. STINKWEED. C. Frequent, waste sand.

\**D. tenuifolia* (L.) DC. WALL ROCKET. C. 2 localities only, nr. the sea. Portmadoc embankment. Walls of Harlech Castle.

*Crambe maritima* L. SEA KALE. C. 1, perhaps 2, localities only, on stony shores. Nr. Harlech. Nr. Tonfanau, but not recently.

*Cakile maritima* Scop. SEA ROCKET. C. Common on shore. Harlech. Llandanwg. Mochras. Barmouth. Fairbourne. Aberdovey.

*Lepidium heterophyllum* Benth. (*L. smithii* Hook.). SMITH'S PEPPERWORT. Chiefly L. Frequent, roadsides and fields ; perhaps not native. Tal-sarnau. Road to sea, Harlech. Below Llanddwywe Church. Llanaber, in various places. Cors-y-garnedd and Benglog, nr. Dolgellau. Cynwyd. Tonfanau. Aberdovey golf-links.

\**Coronopus didymus* (L.) Sm. LESSER SWINE-CRESS. C. Local, on waste ground. Barmouth—Gloddfa Road, and by the Council houses. Aberdovey—by the stn., and refuse tip on the Towyn road.

\**Cardaria draba* (L.) Desv. HOARY PEPPERWORT. L. Very local. Waste sand by the Council houses at Barmouth, now much reduced.

\**Teesdalia nudicaulis* (L.) R. Br. TEESDALIA. Very rare. [Top of wall (now destroyed) 8½ miles from Dolgellau on Bala road, 1949.]

\**Capsella bursa-pastoris* (L.) Medic. SHEPHERD'S PURSE. L. Occasional weed of cultivation, largely replaced by *Arabisopsis thaliana*.

*Cochlearia officinalis* L. COMMON SCURVY-GRASS.

Ssp. *officinalis*. C. Common in muddy salt-marshes.

Ssp. *alpina* (Bab.) Hook. H. Rare, on mountain cliffs. Craig Maes Glase, nr. Dinas Mawddwy. Cwm Gau, *E. Price Evans*.

*C. danica* L. DANISH S. C. Frequent on sandy banks and rlys. by the sea. Harlech. Llandanwg. Llanaber. Arthog. Tonfanau.

*Subularia aquatica* L. WATER AWLWORT. U. Rare, on the shores of base-poor mountain tarns. Llyn Eiddew Bach. Tallylyn Lake.

\**Lobularia maritima* (L.) Desv. SWEET ALYSSUM. C. Abundant on waste sandy ground nr. the rly. at Barmouth.

\**Draba muralis* L. WALL WHITLOW-GRASS. L. Very rare. Wall-top at Llanelltyd, 1951. Wall-top btwn. Llanelltyd and Dolgellau, 1956, 1961.

*Erophila verna* (L.) Chev. VERNAL W. L. Common on dunes. Morfa Harlech. Morfa Dyffryn. Barmouth dunes (some plants with very broad fruits have been referred to '*E. spathulata* Láng'). Nr. Barmouth Junction. Fairbourne. Aberdovey.

Rare off dunes. Borthwnog, Dolgellau. Bala Junction, *Miss V. Gordon*.

\**Armoracia rusticana* G.M. & S. HORSERADISH. L. Frequent on waste ground. Harlech Stn. Roadside at Llanfair. Dyffryn Stn. Barmouth Council houses. Aberdovey Stn. Corwen, *Miss A. P. Conolly*.

**Cardamine pratensis** L. LADY'S SMOCK. L, U. Common in marshy places. Plants from Morfa Harlech ; below Llwynwcws, Llanaber ; Arthog Bog ; and the Marian, Dolgellau are considered by *D. E. Allen* to be derived from hybridisation between the common race ( $2n = 56$ ) and '*C. polemonioides* Rouy' ( $2n = 64$ ) ; we have not found pure '*C. polemonioides*' though some of our specimens are very nearly it. 'Double'-flowered plants occur on the Marian, Dolgellau, and by Arthog Hall.

**C. impatiens** L. IMPATIENT BITTER-CRESS. U. Very local. In an ash-wood on calcareous scree nr. Rhydymain, in small quantity.

**C. flexuosa** With. WOOD B. L, U, H. Common in damp shady places.

**C. hirsuta** L. HAIRY B. L, U. Common. Stamens sometimes 5 or 6.

**Barbarea vulgaris** R. Br. YELLOW ROCKET. L. Rare. Alien ? Dolgellau—by the stn. (1 fine plant with *B. verna*), and banks of R. Wnion (several plants). By the rly. at Arthog (6 plants 1961). Pant-yr-efail, Bryncreg, *Miss C. M. Goodman*.

**\*B. intermedia** Bor. INTERMEDIATE Y. L. Local. Roadsides at Talybont (frequent ; regularly since 1953). Side of lane down to Dyffryn Stn. (1 plant 1961). Barmouth town refuse tip (frequent 1961). Wall-top nr. Hendre Mynach, Barmouth (several plants 1961). Apparently increasing.

**\*B. verna** (Mill.) Asch. EARLY-FLOWERING Y., LAND-CRESS. L. Common. Harlech Stn. Barmouth—waste ground on Penygraig and over the rly. tunnel. By the rly. at Barmouth Junction, Arthog, Penmaenpool, and (abundantly) Dolgellau. Aberdovey Stn., *Miss C. M. Goodman*.

**Arabis hirsuta** (L.) Scop. HAIRY ROCK-CRESS. H. Local on basic mountain rocks. Nr. Benglog. Cwm Geugraig. Gwm Aran ? Above Llyn Gaf. Cwm Cau, *E. Price Evans*. *Laethnant*.

**Nasturtium officinale** R. Br. COMMON WATER-CRESS. L. Local, in watery places. Swamps by Harlech Stn. N. side of the Dysynni Broadwater. Marsh btwn. Towyn and Aberdovey. *Map p. 17*.

**N. microphyllum** (Boenn.) Rehb. ONE-ROWED W. L, U. Frequent in watery places. By the R. Glaslyn, nr. Minffordd. Morfa Harlech. Pond on Mochras. Below Ystumgwern, Dyffryn. Below Hafod, Talybont. By Arthog Stn. By Barmouth Junction Stn. By Fairbourne Stn.

**N. microphyllum** × **officinale**. HYBRID W. L. Frequent in watery places. By the R. Glaslyn, nr. Minffordd. Ditch by shore below Talybont. Maes-y-bryner and Pwll-y-gele lake, nr. Dolgellau. Btwn. Dolgellau and Penmaenpool. Nr. Brithdir Church. Swamp nr. Llanderfel. *Map p. 17*.

**Rorippa sylvestris** (L.) Bess. CREEPING YELLOW-CRESS. L. Rare. Banks of R. Dee btwn. Corwen and Cynwyd, 1956, *R. E. Collins*, and nr. Glyn-dyfrdwy, 1959, *Miss V. Gordon*.

+ **\*R. islandica** (Oeder) Borb. MARSH Y. L. 1 locality only. Dried-up shore of Trawsfynydd Lake, 1958.

**Alliaria petiolata** (Bieb.) Cav. & Grande. GARLIC MUSTARD. L. Locally common on roadsides, etc., on the more fertile soils. Maentwrog district, *Miss V. Gordon*. Llechwedd hill, Harlech. Dolgellau, Penmaenpool. Arthog. Nr. Llanuwchllyn. Bala Junction, *Miss V. G.* Nr. Llanderfel. Corwen. Carrog—Berwyn, *Miss V. G.*, *Miss A. P. Conolly*. By Aberdovey Stn., 1 plant 1960.

**\*Sisymbrium officinale** (L.) Scop. HEDGE M. L. Common, roadsides, waste places.

**\*S. orientale** L. EASTERN ROCKET. L. Very local. Common on Barmouth town refuse tip, 1961. Rly. bank at Barmouth Junction, several plants 1956, but not since.

**\*Arabidopsis thaliana** (L.) Heynh. THALE CRESS. L. Common weed.

**\*Reseda luteola** L. DYER'S ROCKET. L. Local. Waste ground by the council houses, Barmouth. Rly. at Barmouth Junction. Aberdovey—by the Stn., and rubbish tip on the Towyn road.

**\*Viola odorata** L. SWEET VIOLET. L. Rare escape. Roadside nr. Alltawr, Barmouth, persistent for at least 20 years (var. **imberbis** (Leight.) Hensl.). Roadside by Castell, Arthog.

*V. riviniana* Rchb. COMMON DOG V. L, U, H. Common, woods, banks.  
*V. canina* L. HEATH DOG V. Chiefly C. Abundant on dunes. Morfa Harlech. Morfa Dyffryn. Llanaber. Aberdovey.

Very local inland. Pasture 1 mile E. of Ganllwyd Bridge.

*V. canina* × *riviniana*. Frequent on coast. Harlech dunes, with *V. canina*. Mochras, with both parents. Dune slacks, Morfa Dyffryn, with *V. canina*. Duneland below Llanddwywe, with both parents. Mouth of Egryn stream, nr. Talybont, very fine, with *V. riviniana*. Barmouth dunes, with *V. canina*.

*V. palustris* L. MARSH V. L, U. Common in the bogs.

*V. iutea* Huds. MOUNTAIN PANSY. U. Local, in hill pastures. Trawsfynydd district, *Miss V. Gordon*. Nr. Llyn Caer Euni. Above Rhosygwalliau, Bala. Nant Rhydwen, Llangower. Nr. Blaen-y-cwm, Parc, Bala. Nr. Blaen Lliw, Llanuwchllyn. Above Gwanas, nr. Dolgellau. Said to be frequent in hills btwn. Tallyllyn and Pennal. Hill behind Aberdovey, *G. E. H. Sparrow*.

*V. tricolor* L. WILD P.

Ssp. *tricolor*. L, U. Common on sand-dunes at Mochras, '*V. pesneau* Lloyd', det. *R. D. Meikle*. Casual field weed elsewhere. Braich-y-fedw, nr. Dolgellau, 1948, 53, 59.

Ssp. *curtisii* (E. Forst.) Syme. G. Common on dunes. Morfa Harlech. Llanaber. Morfa Towyn. Aberdovey?

\**V. arvensis* L. FIELD P. L. Rare weed. Rly. crossing, Ceilwart, Llanaber, c. 1942, again 1960. Orierton Park, Barmouth, 1960.

*Polygala vulgaris* L. COMMON MILKWORT. L, U. Frequent in the more basic grassland. Duneland at Harlech, Dyffryn, Llanaber and Aberdovey. Ceilwart Uchaf, Llanaber. By the shore at Arthog. Nr. Fronallt, Dolserau, Llanfachreth, Braich-y-fedw, and Brithdir, all nr. Dolgellau. Rhosygwalliau. Llandderfel. Some plants from Harlech and Dyffryn have been referred to '*P. oxyptera* Rchb.'

*P. serpyllifolia* Hose. HEATH M. L, U, H. Common, acid pastures.

*Hypericum androsaemum* L. TUTSAN. L, U. Frequent in woods and by rills. Ceunant Llenyrch, *F. Rose*. Talsarnau (reported). Llechwedd Wood, Harlech. Arto valley. Below Talybont Bridge, Talybont Wood. Below Gwastadagnes, Barmouth. Caerdeon. Ganllwyd. R. Wnion, Dolgellau. Corris, *Mrs. A. G. Side*. Cwm Cowarch, *B.S.B.I. excursion*. Bala district. Abergwynant Glen. Arthog, in several places. Pen-y-wern, nr. Tonfanau. Trefeddan, Aberdovey. Inadequately recorded.

*H. perforatum* L. PERFORATED ST. JOHN'S-WORT. L. Frequent in dry, more basic, grassland. Morfa Harlech. Mochras. Talybont. Mouth of R. Ysgethin. Below Porkington Terrace and nr. Bodowen, Barmouth. Nr. Arthog School. By Dolgellau Stn. Cynwyd. Laneside at Llanegryn.

*H. maculatum* Cr. (*H. dubium* Leers) ssp. *obtusiusculum* (Tourlet) Hayek. IMPERFORATE S. L, U. Common, meadows, roadsides.

*H. undulatum* Schousb. ex Willd. WAVY S. L. 1 locality only. In some quantity in Arthog Bog, the N. limit of known world distribution.

*H. tetrapterum* Fr. (*H. acutum* Moench). SQUARE-STALKED S. L, U. Rather rare, in wet places. Llechwedd hill, Harlech. Morfa Harlech. Morfa Dyffryn. Behind St. John's Church, Barmouth. Tyddyn Bach, Cors-y-garnedd, and Brithdir, all nr. Dolgellau. N. side of Dysynni Broadwater.

*H. humifusum* L. TRAILING S. L, U. Frequent, banks, gardens, felled woods, etc. Llyn Tecwyn Isaf. Pantmawr, Harlech. Road to sea from Llanddwywe. Talybont Wood. Roadside, Caegarw, Talybont. Nr. Alltawr, Barmouth. Llyn Cynwch. Coed y Fronallt, Dolgellau. Scion Cottages, Fegla Fawr knoll, and Ynysfechan, Arthog. Afon Glyn, Llangower. Also reported from Bala, Corwen, Dinas Mawddwy, Corris, Abergynolwyn, and Aberdovey districts.

*H. pulchrum* L. UPRIGHT S. L, U, H. Common, dry woods and banks.

*H. elodes* L. MARSH S. L, U. Frequent in bogs. Llyn Tecwyn Isaf. Hafod-y-llyn. Pen-isa'r-cwm, Cwm Nantcol. Cellfawr, Barmouth.  $\frac{1}{3}$  mile S.W.

of Bontddu. Bryn Rhug, Fronallt, Tir Stent, and Tabor, all nr. Dolgellau. Crogenen and Hafod-y-garreg, above Arthog. Arthog Bog (at sea level, where rare). Corris, *Mrs. A. G. Side*. Cors Sarnau and Mynydd Mynyllod, btwn. Bala and Corwen.

**Helianthemum chamaecistus** Mill. COMMON ROCK-ROSE. U. 2 localities only. Dolgellau district—near Llanfachreth (very sparingly in grassland), and nr. Rhydymain (on basic rocks).

**Elatine hexandra** (Lap.) DC. SIX-STAMENED WATERWORT. L. 1 locality only. E. end of Tallylyn Lake, *P. W. Richards, R. B. Abell*.

\***Silene vulgaris** (Moench) Garcke (*S. cucubalus* Wibel). BLADDER CAMPION. L. Frequent. Rly. nr. Talybont. Roadside, Egryn, Llanaber. Penmaenpool sidings. Roadsides nr. Arthog School and Barmouth Junction Stn. Llwyngwrl, in various places. Rly., Tonfanau, Towyn, Aberdovey.

**S. maritima** With. SEA C. C, U, H. Cliffs, shingle and rly. banks by the shore. Below Bryn Eglwys, Llanaber. Penmaenpool Stn. Arthog Stn. Very common from Fairbourne to Dovey Junction.

Very local inland. Llanfachreth, *Misses E. and M. Morgan*. N. escarpment of Cader Idris, *E. Price Evans*.

**S. maritima** × **vulgaris**. 1 plant with the parents on the shore nr. Llwyngwrl.

+**S. acaulis** (L.) Jacq. Moss C. H. Very rare. Basic cliff in Cwm Aran, 2-3 plants.

**S. dioica** (L.) Clairv. (*Melandrium rubrum* (Weig.) Garcke). RED C. L, U, H. Common, damp woods and banks.

\***S. alba** (Mill.) E.H.L. Krause (*M. album* (Mill.) Garcke). WHITE C. L. Uncommon. In some quantity with *S. dioica* and hybrid on rly. bank by Aberdovey Stn. A fine population of *S. alba*, *S. dioica*, and hybrids in a field at Talybont. *S. alba* and the hybrid apparently casual elsewhere but especially in hayfields btwn. Llanaber and Barmouth.

**S. alba** × **dioica**. See the last.

**Lychnis flos-cuculi** L. RAGGED ROBIN. L. Common in meadows.

**Dianthus deltoides** L. MAIDEN PINK. L. 1 locality only, in calcareous dune grassland. Morfa Harlech, in two spots.

\***Saponaria officinalis** L. SOAPWORT. C. Common on rly. banks and waste sand nr. coast. Harlech Stn. and golf links. Mochras. Dyffryn Stn. Rly. btwn. Talybont and Barmouth. Barmouth Junction Stn. Towyn. Aberdovey. Mostly 'double'-flowered; 'single'-flowered by St. David's Church and Porkington Terrace, Barmouth, and nr. Arthog Stn.

**Cerastium holosteoides** Fr. (*C. vulgatum* auct.). COMMON MOUSE-EAR CHICKWEED. L, U. Common.

**C. glomeratum** Thuill. STICKY M. L, U. Common weed.

**C. atrovirens** Bab. (*C. tetrandrum* Curt.). SEA M. C. Abundant on dunes.

**C. semidecandrum** L. LITTLE M. C. Rather common on the dunes. Morfa Harlech. Morfa Dyffryn. Barmouth dunes. Aberdovey links.

**Stellaria nemorum** L. ssp. **glochidisperma** Murb. WOOD STITCHWORT. L. Very rare, in damp woods. Nr. Llanelltyd.

**S. media** (L.) Vill. COMMON CHICKWEED. L, U. Common weed.

**S. pallida** (Dum.) Piré (*S. apstala* auct.). LESSER C. C. Occasional on duneland frequented by man, sheep or rabbits. Morfa Harlech. Btwn. Talwrn Bach and Mochras. Below Dyffryn. Barmouth dunes, erratic. Fairbourne links. Nr. Aberdovey Stn. *Map p. 17*.

**S. neglecta** Weihe. GREATER C. L. Local, in woods with rich humus. Llechwedd Wood, Harlech. Talybont Wood. Common at Arthog. *Map p. 17*.

**S. holostea** L. GREATER STITCHWORT. L. Common, roadsides, woods.

**S. graminea** L. LESSER S. L. Common in meadows and hedgerows.

**S. alsine** Grimm. BOG S. L, U, H. Common in springs and rills.

\***Sagina apetala** Ard. APETALOUS PEARLWORT. L. Local rly. weed. Portmadoc embankment, very fine, regularly. Harlech Stn., regularly. Wall,



Marine Rd., Barmouth, 1952-7, destroyed. Bontnewydd sidings, 1956. Llwyn-gwrl Stn., 1959.

**S. ciliata** Fr. FRINGED P. C. Frequent on acid fixed dunes. Morfa Harlech. Mochras. Barmouth. Arthog. Fairbourne. Aberdovey?

Rare off the dunes. Barmouth—in the turf on Dinas Oleu, and wall top nr. Porkington Terrace. Nr. Arthog Stn.

**S. maritima** Don. SEA P. C. Rather rare, in short turf around H.W.M.S.T. Mochras estuary. Mouth of R. Ysgethin. Shore below Llwynwcws, Llanaber. Arthog. Fairbourne Spit.

**S. procumbens** L. COMMON P. L, U. Common.

**S. procumbens** × **subulata**. See the next.

**S. subulata** (Sw.) C. Presl. HEATH P. L. Very rare. Dry stony track above Barmouth, in one spot; with *S. procumbens* and hybrid.

**S. nodosa** (L.) Fenzl. KNOTTED P. C. Common in wet sandy places by the sea. Morfa Harlech. Morfa Dyffryn. Barmouth. Arthog. Fairbourne. Aberdovey.

**Minuartia verna** (L.) Hiern. SPRING SANDWORT. Very local. Mine spoil heaps and stream-bank, Hermon, nr. Dolgellau, in quantity. Alien?

**Honkenya peploides** (L.) Ehrh. SEA S. C. Common on sandy and shingly beaches. Harlech. Dyffryn. Llanaber. Aberdovey.

**Moehringia trinervia** (L.) Clairv. THREE-NERVED S. L. Common in woods with rich humus. Minffordd, Penrhyndeudraeth. Talsarnau. Talybont Wood. Orielton Woods, Barmouth. Arthog. Penmaenpool. Hengwrt. Llanfachreth. N. of Dolserau. Llanymawddwy. Cynwyd.

**Arenaria serpyllifolia** L. THYME-LEAVED S. L. Common on dunes. Morfa Harlech. Morfa Dyffryn. Barmouth. Arthog. Fairbourne. Aberdovey. Also occasionally on rlys., as at Barmouth Junction.

\***A. leptoclados** (Rchb.) Guss. Casual. Wayside, Tanygrisiau, 1941, *J. A. Webb*. On the rly. at Arthog Stn., 1 plant 1960.

\***Spergula arvensis** L. CORN SPURRY. L, U. Common field weed. Usually var. **sativa** (Boenn.) Mert. & Koch; rarely var. **arvensis**.

**Spergularia rubra** (L.) J. & C. Presl. SAND S. C. Rather rare, in dry stony places nr. sea. Nr. Harlech, *J. A. Webb*. Spion Kop and Dinas Oleu, Barmouth. Paths nr. shore nr. Barmouth Junction. Rhyd-y-garnedd, nr. Tonfanau. Nr. Pennal, *J. A. W.*

**S. rupicola** Leb. ex Le Jol. ROCK S. C. 2 localities only. Walls of Harlech Castle. Sea cliff nr. Llwyngwrl, in one spot.

**S. media** (L.) C. Presl (*S. marginata* auct.). GREATER SEA S. C. Common in wet muddy salt-marshes.

**S. marina** (L.) Griseb. (*S. salina* J. & C. Presl). LESSER SEA S. C. Common in the drier, firmer salt-marshes.

\***Scleranthus annuus** L. ANNUAL KNAWEL. Rare weed. Soar, Talsarnau, 1956, *R. E. Collins*. Dolbebin, Llanbedr, 1945. Benglog, nr. Dolgellau, 1953. Nr. the Crogenen Lakes, Arthog, 1948.

**Montia fontana** L. WATER-BLINKS. L, U, H.

Ssp. **fontana**. Very local. On a damp bank in Talybont Wood.

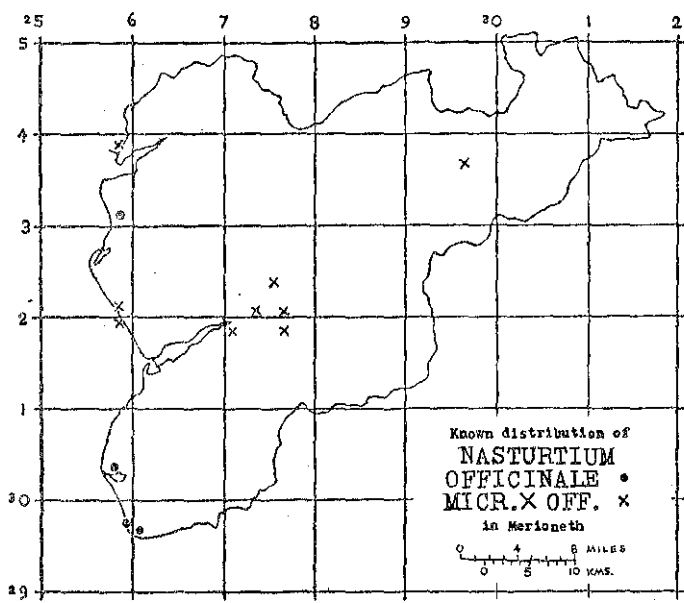
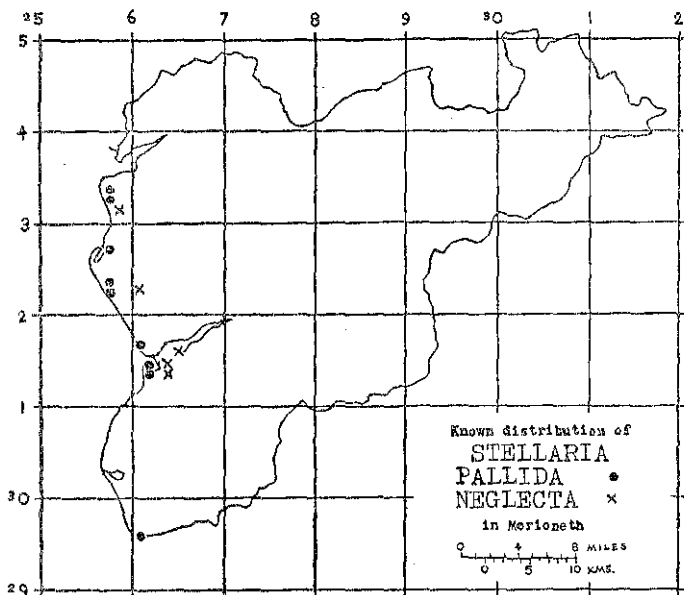
Ssp. **chondrosperma** (Fenzl) Walters. Local. Harlech golf-links, on sand. Sandy field below Talybont Halt. Barmouth dunes. Stony pasture on Dinas Oleu, Barmouth. Sandy and rocky tracks nr. Bryn Celyn, Arthog. Stony path- and roadsides nr. Fegla Fawr, Arthog. By Aberdovey Stn., on sand.

Ssp. **intermedia** (Beeby) Walters. Local. Mixed with ssp. *chondrosperma* on Harlech golf-links and by Bryn Celyn, Arthog. Ditches in Arthog Bog and nr. Barmouth Junction. Tyn Llidiart, Brithdir.

Intermediates between ssp. *fontana* and *intermedia* (= 'ssp. *variabilis* Walters') are common in rills and ditches everywhere.

\***M. perfoliata** (Willd.) Howell (*Claytonia perfoliata* Willd.). PERFOLIATE PURSLANE. Rare. Llandanwg Cliff in some quantity, persistent for several years, 1961, *A. J. Hurtham*. Garden weed, Towyn, 1955, *Mrs. Gwyneth Jones*.

- \**M. sibirica* (L.) Howell (*C. alsinoides* Sims). PINK P. Casual. Nr. Dr. Williams' School, Dolgellau, 1961, *Miss D. B. Lickes*.
- \**Chenopodium bonus-henricus* L. GOOD KING HENRY. L. Rare, on waste ground. Path to sea below Plas Canol, Llanaber. Car park, Dolgellau. E. end of Bala Lake, on shore. Hafod-y-calch, Corwen.
- \**C. album* L. FAT-HEN. L, U. A common weed of cultivation.
- Beta vulgaris* L. ssp. *maritima* (L.) Thell. SEA BEET. C. Rare. Portmadoc embankment, in some quantity. On the sandy shore below Llwynwcws, Llanaber, several plants 1960. [Nr. the Council houses and below Porkington Terrace, Barmouth, several plants 1950s, now extinct.] Fairbourne Spit, 1 plant 1960.
- Atriplex patula* L. COMMON ORACHE. L. Common, shore, waste places.
- A. hastata* L. HASTATE O. C. Common on the shore.
- A. glabriuscula* Edm. BABINGTON'S O. C. Common on the shore.
- A. laciniata* L. FROSTED O. C. Rare, on shore. Mochras. [Below Hengwm, Talybont, and by Bath House, Barmouth; now extinct.]
- Suaeda maritima* (L.) Dum. SEA-BLITE. C. Common, salt-marshes.
- Salsola kali* L. SALTWORT. C. Frequent on dry sandy shores. Harlech Point. Mochras Spit. Talybont. By the Bath House, Barmouth. Barmouth Junction. Aberdovey.
- Salicornia perennis* Mill. PERENNIAL GLASSWORT. C. Local, on mudflats. Mochras estuary, in quantity. Nr. Arthog Stn., 1 patch. Btwn. Barmouth Junction and Fairbourne, in quantity.
- S. ramosissima* Woods (incl. *S. appressa* Dum.). COMMON G. C. Common on firm sandy estuary mud. Arthro estuary. Nr. Barmouth Junction. Dysynni Broadwater.
- S. dolichostachya* Moss (incl. *S. lutescens* Ball & Tutin). COMMON G. C. Abundant on soft wet estuary mud. E. end of Portmadoc embankment. Traeth Bach. Arthro estuary. Mawddach estuary as at Bodowen, nr. Abergwynant, and btwn. Barmouth Junction and Fairbourne.
- \**Tilia platyphyllos* Scop. LARGE-LEAVED LIME. L. Planted. Abergwynant woods, nr. Dolgellau. The Marian, Dolgellau, 1 tree. Bank of Dee nr. Llandderfel bridge, 1 tree. Nr. Corris, *J. A. Webb*.
- T. cordata* Mill. SMALL-LEAVED L. Chiefly U. Local, in woods on basic soils. Dolgellau district—nr. Benglog; Helygog; sides of the Torrent Road, including a huge tree just outside the town; Maes-y-bryner; Abergwynant woods.
- \**T. cordata* × *platyphyllos*. COMMON L. L. Frequent on roadsides. Glyndyfrdwy, *Miss V. Gordon*. Dolgellau—bottom of Llanfachreth road; the Marian (planted); Aran Glen; sides of Torrent Road; Torrent Walk. Nr. Seion Cottages, Arthog. Brynchrug.
- \**Malva moschata* L. MUSK MALLOW. L. Rare, in waste places. Nr. Cynwyd, 1955, petals mauve. Llandrillo, 1959, *R.A.R.C.* Dolgellau Stn., 1959, petals whitish. Rhyd-y-garnedd, nr. Tonfanau, 1954, petals whitish.
- \**M. sylvestris* L. COMMON M. L. Frequent on waste ground.
- \**M. neglecta* Wallr. DWARF M. L. Local, on waste sand. By the Council houses, Barmouth. Fairbourne Spit. Nr. Aberdovey Stn.
- \**Lavatera arborea* L. TREE M. C. Rather frequent on waste ground and in derelict gardens nr. the sea. Dyffryn Stn. Llanaber Halt. Jubilee Road and allotments in Park Road, Barmouth. Nr. Towyn Stn.
- Linum catharticum* L. CATHARTIC FLAX. L, U. Common on basic soils. In the duneland, Morfa Harlech, Morfa Dyffryn, Barmouth, and Aberdovey. Dolgellau district—Careg-arw (Ganllwyd valley), Cors-y-garnedd, Benglog, Brithdir, Tir Stent, Bwlch Coch. By shore at Arthog. Above Rhosygwaliau, Bala. Glyndyfrdwy, *Miss V. Gordon*. Inadequately recorded.
- Radiola linoides* Roth. ALLSEED. C. Rather rare, in damp sandy places nr. sea. Morfa Harlech. Mochras. Barmouth dunes. Bog  $\frac{1}{2}$  mile S.W. of Bontddu. Nr. Barmouth Junction Stn. Aberdovey dunes.



(The maps show the 10-km. squares of the Ordnance Survey National Grid. Each symbol represents a 1-km. square for which there is a record.)

- \*Geranium pratense** L. MEADOW CRANESBILL. L. Rare alien. Llan-gower, by a cottage. Llandderfel? Glyndyfrdwy, *Miss V. Gordon*.
- \*G. phaeum** L. DUSKY C. L. Rare escape. Seion Cottages, Arthog.
- G. sanguineum** L. BLOODY C. C. Local, on banks and rocks nr. the sea. Mochras. Barmouth—Spion Kop, nr. Penrallt, and nr. Aberamffra Terrace. Nr. Aberdovey Stn.
- \*G. pyrenaicum** Burm. f. MOUNTAIN C. L. Very local. Rly. sidings at Bontnewydd Stn., in some quantity for at least 13 years.
- G. columbinum** L. LONG-STALKED C. L. Rather rare, pastures and roadsides. By Harlech Stn., 1956. Nr. Mochras Farm, 1955. Track nr. Bodgwilym, Llanaber, 1948. Laneside below Llwyn Gloddaeth, Barmouth, 1948. By Penrallt, Barmouth, regularly. Roadside nr. Farchynys, Bont-ddu, 1956. N. side of Dysynni Broadwater, 1954. Nr. Aberdovey Stn., regularly.
- G. dissectum** L. CUT-LEAVED C. L. On roadsides in many places but not very common. Nr. Talwrn Bach Halt. Below Llanddwywe Church. Talybont Halt. Below Ceilwart and Llanaber P.O. Dolgellau—Nannau, and Penmaenpool road. Abergynolwyn, *Mrs. A. G. Side*. Rhyd-y-garnedd, nr. Tonfanau.
- G. molle** L. DOVE'S-FOOT C. L, U. Common in pastures.
- G. lucidum** L. SHINING C. L. Rather common, mostly on old walls. Minffordd, Penrhyndeudraeth. Harlech. Dyffryn Ardudwy. Arthog. Dolgellau. Nr. Tyn-y-groes, on old mine workings. Nr. Rhydymain. Bala Junction. Llandderfel. Druid. Llandrillo. Cynwyd. Glyndyfrdwy, *Miss V. Gordon*.
- G. robertianum** L. HERB ROBERT. L, U, H. Abundant. Plants from shingle beach btwn. Barmouth and Llanaber have been referred to 'ssp. *maritimum* (Bab.) H. G. Baker' by Baker.
- Erodium maritimum** (L.) L'Hér. SEA STORKSBILL. C. Very local, nr. sea. Pastures and footpaths around Pencarreg and Tyn-y-ffynon, Barmouth. Town scafront, 1 plant 1954. Reported from Aberdovey.
- E. cicutarium** (L.) L'Hér. HEMLOCK S. C. Common in the dunelands. Plants with spotted petals, in a ploughed sandy field on Morfa Harlech, appear to come within ssp. *cticutarium* (*E. pimpinellifolium* (With.) Sibth.) but grade into ssp. *dunense*. Otherwise ssp. *dunense* Andreas. A var. with whitish petals on Fairbourne Spit.
- E. cicutarium** × **glutinsum**. Rather common where the parents grow together. Morfa Harlech. Morfa Dyffryn.
- + **E. glutinosum** Dumort. C. 2 localities only, but locally common, on dunes. Morfa Harlech. Morfa Dyffryn.
- Oxalis acetosella** L. WOOD SORREL. L, U, H. Common, shady places.
- + **\*O. articulata** Sav. Rare escape. Shingle beach at Llanaber.
- Impatiens noli-tangere** L. TOUCH-ME-NOT. L. Local but locally abundant, in damp woods with rich humus. Roadside, Garth Angharad, Arthog. Dolgellau—Hengwrt, Fronalt, Nannau and Dolserau.
- \*I. parviflora** DC. SMALL-FLOWERED BALSAM. Very local. Persistent for many years nr. the Braich Goch Hotel, Corris.
- \*I. glandulifera** Royle. HIMALAYAN B. L. Local but locally abundant. By the R. Dwyryd at Maentwrog. Abundant by the R. Wnion below Dolgellau. By the road nr. Gwastadgoed, Llwyngwril.
- \*Acer pseudoplatanus** L. SYCAMORE. L. Common.
- A. campestre** L. FIELD MAPLE. L. Very local. On a calcareous lane-side bank nr. Corwen.
- Ilex aquifolium** L. HOLLY. L, U. Common in woods and thickets.
- Euonymus europaeus** L. SPINDLE-TREE. L. Rare. Rather local. Thickets btwn. Llanaber and Barmouth, in several places. Orielton woods, Barmouth. Nr. Fegla Fawr, Arthog (bird-sown?). Roadside hedges nr. the School and Capel Horeb, Arthog (planted). Brithdir and Benglog, nr. Dolgellau. Calcareous ashwood nr. Corwen.

*Frangula alnus* Mill. ALDER BUCKTHORN. L. Very local. In several places in natural woods at Ganllwyd.

*Genista anglica* L. PETTY WHIN. U. Local, on barren rocky heaths. Trawsfynydd district—nr. Maentwrog Road Stn., S.W. shore of the Reservoir, nr. the Camp, and Pont y Grible. Bryncoedifor, nr. Dolgellau. Above Rhosygwaliau, Bala.

*G. pilosa* L. HAIRY GREENWEED. U. Very local, on barren acid rocks. Above Bryn Rhug, nr. Dolgellau; perhaps fairly frequent there. Cwm Geugraig, very rare. Cwm Cau? (reported).

*Ulex europaeus* L. COMMON GORSE. L. Abundant in pastures.

*U. europaeus* × *gallii*. With the parents. Talybont Wood and btwn Cors-y-gedol and Llety Lloegr. Dinas Oleu, Barmouth, a few bushes. Arthog Bog and adjacent rocky ground, in quantity.

*U. gallii* Planch. WESTERN G. L. U. Abundant in pastures.

*Sarothamnus scoparius* (L.) Wimm. ex Koch. BROOM. L. Rather common, banks and thickets on dry acid soil, and rly. banks.

*Ononis repens* L. CREEPING REST-HARROW. C. Common in the duneland. Morfa Harlech. Morfa Dyffryn. Barmouth. Fairbourne. Towyn. Aberdovey. Also in pastures nr. Ceilwart Uchaf, Llanaber; and on rocky shore of the Mawddach estuary, nr. Bontddu.

\**Medicago lupulina* L. BLACK MEDICK. L. Common weed of rly. banks.

\**Mellilotus altissima* Thuill. COMMON MELILOT. L. Very local. Rly. at Barmouth Junction and Arthog Stns.

\**M. alba* Medic. WHITE M. L. 1 locality only. Nr. Aberdovey Stn.

*Trifolium ornithopodioides* L. BIRD'S-FOOT FENUGREEK. L. 1 locality only. Shore of R. Dysynni nr. Bryn-crug, very sparingly.

*T. pratense* L. RED CLOVER. L, U. Common, meadows, roadsides.

*T. medium* L., Zigzag C., is occasionally reported from far E. of the county and may well occur there; but we have not seen it and records not confirmed. Absent from the west.

*T. arvense* L. HARE'S-FOOT C. L. Common in the dunelands.

*T. striatum* L. SOFT KNOTTED TREFOIL. C. Local, in pastures nr. sea. Spion Kop and Dinas Oleu, Barmouth. Aberdovey golf-links.

*T. scabrum* L. ROUGH T. C. Local nr. sea. Gravelly place, Barmouth sand-dunes. Fairbourne beach. Dunes nr. Aberdovey Stn.

\**T. hybridum* L. ALSIKE C. Chiefly L. Frequent. On rly. at Dolgellau and Barmouth Junction. Sown in meadows nr. Talwrn Bach; nr. Parc, Bala; nr. Tyn Llidiart, Brithdir; etc. Shore of Bala Lake.

*T. repens* L. WHITE C. L, U. Common, meadows, roadsides, etc.

*T. fragiferum* L. STRAWBERRY-HEADED C. C. Rather rare, in damp grassy places nr. the sea. Morfa Harlech. Below Dyffryn. Mouth of R. Ysgethin. Below Llwynwcws, Llanaber. Barmouth dunes. Tonfanau, 1929, still there? Aberdovey golf links.

*T. campestre* Schreb. HOP TREFOIL. L. Common in dunelands. Rare elsewhere—N. end of Barmouth Bridge; nr. shore at Arthog; Cynwyd.

*T. dubium* Sibth. LESSER YELLOW T. L, U. Common in pastures.

*T. micranthum* Viv. LEAST YELLOW T. L. Local, in pastures nr. the sea, with *T. dubium*. Morfa Harlech. Dyffryn golf-links. Below Llanddwywe. Shore of R. Dysynni by Rhyd-y-garnedd. Trefeddian Terrace, Aberdovey.

*Anthyllis vulneraria* L. KIDNEY VETCH. L. Common, pastures and rly. banks nr. sea; always yellow-fl'd. Harlech dunes. Mouth of R. Ysgethin. Llanaber Halt. Barmouth dunes. N. end of Barmouth Bridge. Llangelynin and Tonfanau in quantity. Aberdovey links. Inland nr. Bontnewydd, Ffestiniog.

*Lotus corniculatus* L. BIRD'S-FOOT TREFOIL. L. Common in pastures.

*L. pedunculatus* Cav. (*L. uliginosus* Schkuhr). GREATER BIRD'S-FOOT T. L, U. Common in marshes and ditches.

*Ornithopus perpusillus* L. COMMON BIRD'S-FOOT. L. Frequent in dry

pastures. Hill S. of Talsarnau. Morfa Harlech. Morfa Dyffryn. Dinas Oleu, Barmouth. Nr. Fegla Fawr, Arthog. Crogenen, Arthog. Morfa Towyn.

*Vicia hirsuta* (L.) Gray. HAIRY VETCH. L. Common, grassy places.

*V. tetrasperma* (L.) Schreb. SMOOTH V. L. Very rare. Bank and wall-top nr. Llanaber for at least 20 years. Rly. bank, Aberdovey.

*V. cracca* L. TUFTED V. L. Common, roadsides, hedgerows, etc.

*V. orobus* DC. BITTER V. U. Frequent in hill pastures. Cwmbychan area (reported). Nr. Cellfawr and Llwyn-onn, Barmouth. From Maentwrog to Ganllwyd, on the roadside. Cors-y-garnedd, Rhobell Fawr, Braich-y-fedw, and Aran Glen, all nr. Dolgellau. Mallwyd, on the roadside. Valleys above Parc, Llangower, and Rhosygwaliau, Bala.

*V. sepium* L. BUSH V. L. Common in hedge-banks.

*V. angustifolia* L. (incl. *V. sativa* L. and *V. bobartii* E. Forst.). COMMON V. L. Common, pastures, roadsides, hayfields.

*V. lathyroides* L. SPRING V. C. Very local, in dune grassland. Morfa Harlech. Mochras, in abundance.

*Lathyrus pratensis* L. MEADOW VETCHLING. L. Common, roadsides, meadows, etc.

\**L. sylvestris* L. NARROW-LEAVED EVERLASTING PEA. Chiefly C. Common on coast. Harlech dunes. Rly. and shingle at Llanaber and Barmouth. N. end of Barmouth Bridge. Rly. at Barmouth Junction. Shingle on shore at Llwyngwrl. Rly. at Llangelynin. Towyn Stn. Side of Towyn road, Aberdovey.

*L. montanus* Bernh. TUBEROUS BITTER VETCH. L, U. Common in shady places. Var. *tenuifolius* (Roth) Garcke at Llandecwyn; Minydun, Arthog; Ganllwyd bridge; and Tyn Llidiart, Brithdir.

\**Spiraea salicifolia* L. BRIDEWORT. L. Very common hedge bush in the Llanuwchllyn-Bala-Arenig district.

*Filipendula ulmaria* (L.) Maxim. MEADOWSWEET. L, U. Common.

*Rubus chamaemorus* L. CLOUDBERRY. H. In some quantity on high moors of the Berwyn—Cader Fronwen, Cader Berwyn, Moel Sych.

*R. saxatilis* L. STONE BRAMBLE. H. On basic mountain rocks. Above Llyn Gafr. Cwm Geugraig. Cwm Cau, *E. Price Evans*. Llaethnant. Above Rhosygwaliau, *Miss V. Gordon*. Top end of Cwm Hirnant, *Evan Roberts*.

*R. idaeus* L. RASPBERRY. L. Common in woods with rich humus.

*R. caesius* L. DEWBERRY. L. Frequent nr. the sea but inadequately recorded. Sandy bank on Mochras. Shingle beach and roadsides at Llanaber. Nr. gas works, Barmouth. Doubtless elsewhere.

*R. fruticosus* L. *s.l.* BRAMBLE. L, U. Abundant. See *B.S.B.I. Year Book 1950*, 47, for list of microspecies by W. C. R. Watson.

*Potentilla palustris* (L.) Scop. MARSH CINQUEFOIL. L, U. Frequent in swamps. Morfa Harlech. Btwn. Talybont and Llanaber. S.W. shore of Trawsfynydd Lake. By Coed, Dolgellau. Pool nr. Llandderfel. *Glyndyfrdwy, Miss V. Gordon*. Abergynolwyn, *Mrs. A. G. Side*. Nr. Barmouth Junction. Btwn. Towyn and Aberdovey.

*P. sterilis* (L.) Garcke. BARREN STRAWBERRY. L. Common on banks.

*P. anserina* L. SILVERWEED. L. Common, roadsides, dune slacks.

*P. erecta* (L.) Rausch. TORMENTIL. L, U, H. Abundant in pastures.

*P. anglica* Laich. TRAILING T. L. Frequent on roadsides and rly. banks; less often, as a more slender type, in pastures.

*P. anglica* × *erecta*. Frequent with parents. Field nr. dunes below Dyffryn. Mochras. Nr. Mawddach Crescent and Seion Cottages, Arthog. Roadsides at Brithdir. Braich-y-fedw, Rhydymain. Glanilyn, Bala. Moel y Calch, Llandderfel.

*P. anglica* × *reptans*. Very rare. Rly. bank at Harlech Stn.; apparently this hybrid, with *P. reptans*.

\**P. reptans* L. CREEPING CINQUEFOIL. L. Common in the E. of the county but local in the W., in waste places. Harlech Stn. Mochras, by a track. Dolgellau Stn. Bala Junction Stn. Cynwyd. Common in Corwen—Llangollen district. Rhyd-y-garnedd, nr. Tonfanau. Aberdovey Stn.

**Fragaria vesca** L. WILD STRAWBERRY. L. Common, woods and banks.

**Geum urbanum** L. WOOD AVENS. L, U. Common in damp woods.

**G. rivale** L. WATER A. L, U, H. Frequent, wet hill-meadows and stream-banks. R. Arto nr. Penybont. Dolgellau district—Tyn-y-groes; Glasdir; nr. Pandryodyn; Pony Track above Ty Nant; above Llyn Gafr; Bwlch Coch; Tir Stent; Torrent Walk; Benglog. Blaen Lliw. Valleys above Llangower and Rhosygwalliau. Nr. Gefnhr, Arthog.

**G. rivale** × **urbanum**. HYBRID A. Torrent Walk, Dolgellau, in two places (a small population and a single plant), with the parents. [Roadside nr. Pandryodyn, Dolgellau, one plant with *G. urbanum*, *G. rivale* nearby, 1957 but not since.]

**Agrimonia eupatoria** L. COMMON AGRIMONY. L. Local, in bushy places, often with or near *A. odorata*. Morfa Harlech. Mochras, on bank by sea. Nr. Mawddach Crescent, Arthog. Plas Isaf, Corwen.

**A. odorata** (Gouan) Mill. FRAGRANT A. L. Frequent on roadsides and in bushy places. Morfa Harlech. Roadsides btwn. Dolgellau and Caerynwch. Valley above Llangower. Pont Hendre, Llandrillo, R.A.R.C. Plas Isaf, Corwen. Nr. Ynysfechan and Bryn Celyn, Arthog. Nr. Llwyngwrl Stn. Pen-y-wern, nr. Tonfanau.

**Alchemilla vulgaris** L. *sensu lato*. COMMON LADY'S-MANTLE.

*A. vestita* (Buser) Raunk. in *B.S.B.I. Year Book 1950*, 47, has been re-determined as *A. filicaulis*. It is doubtful whether true *A. vestita* has ever been found in Merioneth.

**A. filicaulis** Buser. U, H. Local, in calcareous mountain pastures. W. of Corwen. Dolgellau district—Cwm yr Allt Lwyd; nr. Drwsynant; Ochr-y-foel; nr. Llanfachreth; Brithdir; nr. Cross Foxes; Aran Glen; above Llyn Aran; above Llyn Gafr.

**A. xanthochlora** Neyg. L. Frequent in meadows. Mochras. By the R. Ysgethin below Talybont bridge. Dolgellau district—Pwll-y-gele; Ochr-y-foel; Maes-y-bryner; nr. Brithdir Church in 2 places; Torrent Road; nr. Pandryodyn; nr. Dolrhyd. Shore of Bala Lake at its E. and W. ends. Arenig Fawr, *H. D. Smith* det. *S. M. Walters*. Plas Isaf, Corwen. Nr. Arthog School.

**A. glabra** Neyg. U, H. Common, mountain streamsides and damp pastures. Rare nr. sea level—Y Marian, Dolgellau, on river bank.

**Aphanes microcarpa** (Boiss. & Reut.) Rothm. PARSLEY PIERT. L, U. Rather common, dry paths and bare ground, and ant-hills.

**Sanguisorba officinalis** L. GREAT BURNET. L. 1 locality only. Meadows and roadsides nr. Braich-y-ceunant, Brithdir.

**Rosa arvensis** Huds. FIELD ROSE. L. Common, hedges, thickets.

**R. pimpinellifolia** L. BURNET R. C. Abundant in the duneland. Morfa Harlech. Morfa Dyffryn. Barmouth. Aberdovey.

Rare elsewhere. Hill S. of Talsarnau. Rocky ground by Heatherbank, Barmouth. Thickets by shore of estuary at Arthog.

**R. canina** L. Dog R. L, U. Common in hedges and thickets.

'*R. dumetorum* Thuill.', sometimes treated as a distinct species, is rare. Nr. Pandryodyn, Dolgellau (var. *calophylla* Rouy), and Penhelyg, Aberdovey (var. *hemitricha* (Rip.) W.-Dod), both *J. A. Webb* det. *E. B. Bishop*.

**R. canina** × **rubiginosa**. 1 bush in Mynach Rd., Barmouth, with *R. canina*, *R. rubiginosa* formerly in same spot, *P. M. Benoit* conf. *R. Melville*.

**R. dumalis** Bechst. Dog R. Rare. Bala ('*R. afzeliana* Fr. var. *glaucophylla* (Winch) W.-Dod'), and Llanuwchllyn ('*R. coriifolia* Fr. var. *watsoni* (Baker) W.-Dod'), both *J. A. Webb* det. *E. B. Bishop*. Nr. Llwyn, Dolgellau, 1 bush, *P. M. Benoit* det. *J. Heslop-Harrison* and *E. F. Warburg*.

**R. tomentosa** Sm. DOWNY R. L. Rare. Ganllwyd, *J. A. Webb* det. *E. B. Bishop*; and Llwyn Talcen, Brithdir, 1 bush, *P. M. Benoit* det. *R. Melville* (both var. *pseudocuspidata* (Crép.) Rouy). Nr. Glandwr, Barmouth, 1 bush (formerly 2), *P. M. Benoit*.

+**R. sherardii** Davies. DOWNY R. L, U. Frequent, especially in hedges

in E. of county. Frongoch, Bala ; nr. Cefn-y-maes, Brithdir ; and Bala road nr. Dolgellau (all var. *omissa* (Deségl.) W.-Dod.) ; btwn. Glanllyn and Parc, Bala ; nr. Glanllyn Halt ; and Llanuwchllyn (all f. *resinoides* (Crép.) W.-Dod.) ; old mine, Hermon, nr. Dolgellau (var. *suberecta* (A. Ley) W.-Dod.) ; all *P. M. Benoit* det. *R. Melville*. Btwn. Coed-y-brenin and Trawsfynydd Camp, *J. A. Webb* det. *E. B. Bishop* (var. *typica* W.-Dod). Cynwyd. Common in Bala district. Rhydymain.

*R. villosa* L. DOWNY R. L, U. Rare. Dolgellau district—nr. Cross Foxes, *J. H. Salter et al.* ; nr. Troed-y-gader, 1 bush, and nr. Dyffrydan, 2 bushes, both *P. M. Benoit* det. *J. Heslop-Harrison*. Bwlch-gwyn, Fairbourne, 1 bush, *P.M.B.* det. *J.H.-H.*

Downy Roses which have not been determined (probably mostly *R. sherardii*). N.W. of Minffordd, Penrhyndeudraeth. Nr. Craig Artro, Llanbedr. Track below Dyffryn Stn. Field below Talybont bridge. Nr. Cellfawr, Barmouth. By Trawsfynydd Lake Halt. Nr. Rhosygwaliau, Bala. Blaen Pennant, Llanymawddwy. Nr. Cors-y-garnedd and Hafod-y-meirch, Dolgellau. Below Llanelltyd bridge. Nr. Trefeddian, Aberdovey.

\**R. rubiginosa* L. SWEET BRIAR. L. Rare introduction. [By a garden, Mynach Road, Barmouth ; 1 bush, now destroyed.] Hedge nr. Bronmeirion, Arthog, 1-2 bushes. Nr. Borthwen, Llwyngwrl, 1 bush.

*R. micrantha* Borr. ex Sm. SWEET BRIAR. L. Very local. Arthog—1 bush nr. the Church and 3 nr. the P.O.

*Prunus spinosa* L. BLACKTHORN, SLOE. L, U. Common in thickets.

\**P. domestica* L. WILD PLUM. L. Frequent in hedges and nr. cottages. Nr. Bodowen, Barmouth. Nr. Dr. Williams' School, Dolgellau.

*P. avium* (L.) L. GEAN. L, U. Frequent in woods and hedges. Talybont Wood. Bodowen, nr. Barmouth, Dolgellau district—Hengwrt ; Fronallt woods, *Misses E. and M. Morgan* ; Rhydwen ; Dolgun, Torrent Walk, Brynbras, Brithdir School and Tabor, all *Mrs. K. M. Stevens*. Fachddeiliog, Bala ; nr. R. Dee, Llandderfel ; Efail-y-bont, btwn. Llandrillo and Cynwyd ; Bonwm, Corwen, by old tramway ; and by A5 road nr. Carrog ; all *Mr. and Mrs. J. H. Armsfield*.

\**P. cerasus* L. WILD CHERRY. L. Nr. Towyn, and N. of Aberdovey, *J. A. Webb*, WFP, 72.

*P. padus* L. BIRD C. L, U. Wood above Tyddyn Ednyfed, Dolgellau. Common in woods and hedges in Dee valley—Llangower, Llandderfel, Llandrillo, Cynwyd, etc.

\**Cotoneaster simonsii* Bak. L. Rarely naturalised. Track behind Bodowen, Barmouth. Fegla Fawr knoll, Arthog, in 2 places.

*Crataegus monogyna* Jacq. HAWTHORN. L, U. Common.

*Sorbus aucuparia* L. ROWAN. L, U, H. Common, woods and cliffs.

*S. aria* (L.) Crantz *sens. str.* WHITEBEAM. L, U. Very local, in basic woods. Nr. Dolgellau—2 trees (1 now destroyed ?) nr. Ochr-y-foel, and 1 nr. Maes-y-bryner. Wood nr. road at Trefri, Aberdovey.

\**S. terminalis* (L.) Crantz. WILD SERVICE TREE. Aberamffra quay, Barmouth—1 small tree on a bank, probably planted.

\**Pyrus communis* L. WILD PEAR. L. Rare. Quarry nr. Barmouth, and Dolgellau, both 1941, *J. A. Webb*.

*Malus sylvestris* Mill. ssp. *sylvestris*. CRAB APPLE. L. Rather common in hedges and woods ; probably often introduced.

*Sedum rosea* (L.) Scop. ROSEROOT. H. Local, on basic mountain cliffs. Cwm Moch, *R. Eifyn Hughes*. Ceunant Llechwedd Fwyalchen, nr. Llanuwchllyn, *E. Price Evans*. E. face of Aran Mawddwy, *B. Seddon*. Cwm Cowarch, *W. M. Condry*. Cwm Geugraig. Cwm Aran. Cwm Gau. Above Llyn Gafr. Tyrau Mawr, *E. P.E.*

*S. telephium* L. ORPINE. L, U. Frequent on rly. banks and nr. cottages. Rly. at Llanaber. Nr. Cellfawr and Llwyn Gloddaeth, Barmouth. Llanfachreth, Pwll-y-gele, and Benglog, nr. Dolgellau. Cwm Geugraig, *E. Price Evans*. Rly. and road E. of Barmouth Junction. Aberdovey. Also reported from Talsarnau, Arenig, Glyndyfrdwy, Dinas Mawddwy, and Corris



districts. We have not separated the ssp. *purpurascens* (Koch) Syme and *fabaria* Syme.

**S. anglicum** Huds. ENGLISH STONECROP. **L, U, H.** Common on bare ground from sea-level to 2,900 ft. (on the summit of Cader Idris).

\***S. album** L. WHITE S. **L.** Occasional escape. By rly. crossing at Arthog. Wall, Ceilwart Uchaf, Llanaber. Doubtless elsewhere.

**S. acre** L. BITING S. **L.** Common in the dunelands. Also occurs (frequently ?) on walls in the E. of the county, as at Druid.

**S. forsterianum** Sm. (incl. *S. elegans* Lej.). **Rock S. L, U, H.** Local, in calcareous places. A5 road at Druid, on wall; alien. Nr. Drwsynant, Dolgellau, on scree. Llaethnant, on mountain cliffs. Nr. Aberamffra quay, Barmouth, on walls and old lime kiln; alien ? Nr. Trefeddian, Aberdovey, on rocks and walls; alien ?

\***S. reflexum** L. REFLEXED S. Occasional garden escape on wall-tops. Dyffryn, in the village. Nr. Penrallt, Barmouth.

**Umbilicus rupestris** (Salisb.) Dandy. WALL PENNYWORT. **L.** Common in crevices of 'dry' stone walls and rocks.

**Saxifraga stellaris** L. STARRY SAXIFRAGE. **U, H.** Frequent by mountain rills and flushes. Rhaiadr Cwm, Pfestiniog. By R. Ysgethin btwn. Llyn Bodlyn and Llyn Irdy. Above Plas Canol, Llanaber. Afon Llynor, Llandrillo, R.A.R.C. Llaethnant. Pistyll Gwyn, Llanymawddwy. Cwm Cowarch, *W. M. Condry*. Cwm Geugraig. Cwm Aran. Cwm Cau. Foxes' Path to Cader Idris. Above Llyn Gafr. Tyrau Mawr, descending to c. 600 ft. alt. Under Craig Cwm Llwyd.

**S. tridactylites** L. RUE-LEAVED S. Chiefly **C.** Locally abundant on the dunes. Morfa Harlech. Morfa Dyffryn. Aberdovey links.

Very rare elsewhere. Wall of A5 road at Bonwm, nr. Corwen (1949).

**S. granulata** L. MEADOW S. **L.** Very local. River-bank nr. Corwen.

**S. hypnoides** L. MOSSY S. **H.** Local, in wet basic mountain grassland. Cwm Moch, *R. Ellyn Hughes*. Rhinog Fach, *Mrs. H. D. Sedgwick*. Benglog, nr. Dolgellau. E. face of Aran Mawddwy, *B. Seddon*. Llaethnant. Cwm Cowarch, *W. M. Condry*. Cwm Geugraig. Cwm Cau, *E. Price Evans*. Above Llyn Gafr. Tyrau Mawr, *E.P.E.*

**S. oppositifolia** L. PURPLE S. **H.** Very local, on basic mountain rocks. Above Llyn Gafr. Llaethnant, *A. O. Chater*.

**Chrysosplenium oppositifolium** L. OPPOSITE-LEAVED GOLDEN S. **L, U, H.** Common in shady places by springs and rills.

\***Ribes alpinum** L. ALPINE CURRANT. **L.** Rare ? Nr. Dolgellau, and Pale, Llandderfel, *J. A. Webb, WFP, 82*.

\***R. uva-crispa** L. GOOSEBERRY. **L.** In roadside hedges. Nr. Hengwrt, Dolgellau. Btwn. Penmaenpool and Arthog. Common in the Dee valley—Bala, Llandderfel, Cynwyd, Corwen to Llangollen.

**Drosera rotundifolia** L. COMMON SUNDEW. **L, U.** Common in bogs.

**D. anglica** Huds. ENGLISH S. **L, U.** Very local, in bogs. [Arthog Bog, probably extinct, last recorded 1949, *E. Price Evans*.] Nr. Llyn Barfog, *A. O. Chater*.

**D. intermedia** Hayne. LONG-LEAVED S. **L, U.** Local, on bare wet peat. By Llyn Cwmbychan, *F. Rose*. Arthog Bog. Nr. the Crogenen Lakes. Nr. Llyn Barfog, *A. O. Chater*. Gogarth Bog, sparingly.

**Lythrum salicaria** L. PURPLE LOOSESTRIFE. **L.** Common in marshes.

**Peplis portula** L. WATER PURSLANE. **L.** Local, in muddy places. Pond on Mochras. [Nr. shore btwn. Talybont and Llanaber; disappeared.] Dolgellau district—river bank by Dolrhyd; S. end of Llyn Gynwch; Capel Tabor. Gelli-grin, Rhosygwaliau. Fegla Fawr and Bryn Celyn, Arthog. Pont Dysynni. Aberdovey.

\***Hippophae rhamnoides** L. SEA BUCKTHORN. **C.** 1 locality only. In the duneland, Morfa Harlech, 2 patches (1♀, 1♂), rapidly spreading.

**Epilobium hirsutum** L. GREAT HAIRY WILLOWHERB. **L.** Frequent,

marshy places and waste ground; perhaps not native. By the R. Glaslyn, Minffordd (marsh). Mochras estuary (marsh by rubbish tip). W. of Dolgellau Stn. (rly. bank). Bala Junction (rly.). Cynwyd (waste ground by farm). Glyndyfrdwy (rly. bank?), *Miss V. Gordon*. Arthog—nr. the Terrace (gardens), and Afon Morfa (marsh). W. of Aberdovey Stn. (rly. bank).

*E. parviflorum* Schreb. SMALL-FLOWERED W. L. Local. Marshes on Morfa Harlech and Morfa Dyffryn. Glyndyfrdwy, *Miss V. Gordon*. Rly. bank at Bala Junction. Quarry on the Torrent Road, Dolgellau. Arthog Bog. Ditch by Fairbourne Stn., 1 plant 1956.

*E. montanum* L. BROAD-LEAVED W. L,U. Very common, woods, roadsides, waste ground, gardens.

\**E. roseum* Schreb. PALE-FLOWERED W. L. Very local. Roadside at Llandderfel. Roadside at Arthog in one spot; persistent for 11 years. *Map p. 27*.

\**E. adenocaulon* Haussk. AMERICAN W. L. Frequent on waste ground and roadsides; rapidly spreading. *Date is year of discovery*. Aberartro, Llanbedr (1961). Pant Canol, Dyffryn (1961). Dolgellau district—old mine, Hermon (1960); roadsides btwn. the stn. and Dol-rhyd (spread from a rubbish heap by Dr. Williams' School, where first discovered in the county 20.6.1951); Tyn Llidiart, Brithdir (1961); Pont ar Ddibyn (1961); reservoir in Aran Glen (1959); Pandyrodyn (1960); and Penmaenpool sidings (1961). Bala Junction Stn. (1959). Shore of Bala Lake around its E. end (1955) and at Glan-llyn (1959). Ffridd Gate (1959). Penhelyg, Aberdovey (1959). *Map p. 27*.

*E. obscurum* Schreb. SQUARE-STALKED W. L,U,H. Common, rills, ditches, roadsides, waste ground.

*E. palustre* L. MARSH W. L,U,H. Common in marshes and ditches.

\**E. nerterioides* Cunn. (*E. pedunculare* Cunn.). NEW ZEALAND W. U,H. Frequent, mountain cliffs and quarries. *Date is year of discovery*. Blaenau Pffestiniog, on the rly. and in the town, *Miss L. W. Frost* (1947) and other observers. Nr. old mine workings high up in Cwm Nantcol, *J. N. Mills*, det. *J. P. M. Brenan* (1944). Arenig, *Miss M. H. Asterley* (1953), *Miss V. Gordon*. Benglog (1947). Llaethnant (1955). Cwm Cowarch, *W. M. Condry* (1958). Old quarries at Corris, *A. O. Chater* (1958).

NOTE.—*Epilobium* hybrids are listed together alphabetically for convenience.

*E. adenocaulon* × *montanum*. Rare, with the parents. Rubbish heap by Dr. Williams' School, Dolgellau, 1 plant 1955.

*E. adenocaulon* × *obscurum*. Rare, with the parents. Nr. Dr. Williams' School, Dolgellau, 1 plant 1955, 2 plants 1958, 1 plant 1961.

*E. hirsutum* × *parviflorum*. With the parents. Mochras estuary, 1 plant 1958.

*E. montanum* × *obscurum*. Common with the parents.

*E. obscurum* × *palustre*. Locally frequent with the parents. Marshes by R. Wnion W. of Dolgellau. Arthog Bog.

*E. obscurum* × *parviflorum*. Rare, with the parents. Morfa Harlech.

*E. palustre* × *parviflorum*. Locally common with the parents. Morfa Harlech. Morfa Dyffryn.

\**Chamaenerion angustifolium* (L.) Scop. ROSE-BAY. L,U. Common, felled woods, waste places, rly. banks, and gardens. Rarely on mountain cliffs—Cwm Geugraig; Cwm Aran; above Llyn Gafr. Commonly regarded as native on mountain cliffs but probably similar in status there to *Epilobium nerterioides*.

NOTE.—Owing to the unsatisfactory taxonomy of the two following spp., the identifications of the plants in the localities listed here are only tentative.

\**Oenothera biennis* L. COMMON EVENING PRIMROSE. L. Local. Dunes and waste ground at Barmouth, in quantity. Rly. bank at Barmouth Junction, sparingly. Pollen with high proportion of sterile grains in both localities.

\**O. erythrosepala* Borbás. L. Locally common. Rly. sidings at Minffordd Stn., *Miss A. P. Conolly*. Harlech dunes, in quantity. Aberartro, Llanbedr, *Mrs. M. D. G. Jones*. Aberdovey dunes, this sp.?

\**O. stricta* Ledeb. ex Link. FRAGRANT E. L. 1 locality only. Rly. bank by Aberdovey Stn., in some quantity.

**Circaea lutetiana** L. COMMON ENCHANTER'S NIGHTSHADE. L, U. Common, woods, roadsides, gardens.

**C. × intermedia** Ehrh. INTERMEDIATE E. L, U. Frequent; usually in an 'alien' habitat. Garden of Victoria Hotel, Llanbedr. Gardens in Bala town, *Miss V. Gordon*, and about the shore of Bala Lake at its E. end. Garden at Ty Newydd, Parc, Bala, *Mr. and Mrs. J. H. Armfield*. Sides of farm tracks in valleys above Llangower. Roadside  $\frac{1}{2}$  mile N. of Llanydawddwy, *P. H. Raven*. Dolgellau district — roadsides btwn. Bontnewydd and Brithdir and at Tanyfron and Hengoed, and garden at Rhug.

**C. alpina** L. ALPINE E. H. 1 locality only. Shady calcareous mountain cliffs in Llaethnant.

**Myriophyllum verticillatum** L., Whorled Water Milfoil, is recorded from Aberdovey in *B.S.B.I. Year Book 1950*, 48, apparently in error for the next.

**Myriophyllum alterniflorum** DC. ALTERNATE-FLOWERED WATER MILFOIL. L, U. Frequent in deeper water. Pools on Morfa Harlech. Hafod-y-llyn. R. Nantcol nr. Pen-isa'r-cwm. Glyndyfrdwy, *Miss V. Gordon*. R. Dee by Llandderfel Bridge. R. Lliw at Llanuwchllyn. Pwll-y-gele lake, nr. Dolgellau. Backwater of R. Wnion nr. Dr. Williams' School, Dolgellau. Stream draining Llyn Gwernan. Stream nr. Nant-y-gwyrddail, Islawrdref. Crogenen Bog. Ditch nr. Fairbourne Stn. Ditch nr. Pont Dysynni, Brynecrug. Stream running into E. end of Talyllyn Lake.

**Hippuris vulgaris** L. MARE'S-TAIL. L. 1 locality only. Common in swamps and ditches on Morfa Harlech. *Map p. 27*.

**Callitriche stagnalis** Scop. WATER STARWORT. L, U. Common in streams, ditches, and muddy places trampled by cattle.

**C. obtusangula** Le Gall. L. Frequent in ditches nr. sea. Below Dyffryn Stn. N. side of mouth of R. Ysgethin. Nr. shore btwn. Talybont and Llanaber. Arthog Bog. By Fairbourne Stn. Aberdovey golf-links. *Map p. 27*.

**C. intermedia** Hoffm. L, U. Common in lakes, rivers, and ditches. R. Nantcol nr. Pen-isa'r-cwm. Llanelltyd. Backwater of R. Wnion nr. Dr. Williams' School, Dolgellau. R. Lliw at Llanuwchllyn. Bala Lake nr. Fachddeiliog. R. Dee by Llandderfel bridge. Llyn Aran, *E. R. S. Winter*. Stream nr. Nant-y-gwyrddail, Islawrdref. E. end of Talyllyn Lake. Ditch nr. the Bird Rock. Deep drain btwn. Brynecrug and Pont Dysynni.

**Hedera helix** L. IVY. L, U. Common, woods, tree-trunks, walls, etc.

**Hydrocotyle vulgaris** L. MARSH PENNYWORT. L. Common in marshes.

**Sanicula europaea** L. WOOD SANGLE. L, U. Frequent in woods with rich humus. Ceunant Llenyrch, *F. Rose*. Llechwedd Wood, Harlech. Talybont Wood. Orielson Woods, Barmouth. Glyndyfrdwy, *Miss V. Gordon*. W. of Corwen. Btwn. Llandderfel and Rhosygwaliau. Nr. Aber Rhiwlech, Llanydawddwy. Dolgellau district — bank of R. Wnion; Fronallt woods; Nannau woods; nr. Rhydymain; and Aran Glen. Nr. Arthog Church. Reported from Aberdovey.

**Eryngium maritimum** L. SEA HOLLY. C. Frequent on dunes. Morfa Harlech. Mochras. Below Talybont. Llanaber. By Ty Crwn, Barmouth. Barmouth Junction. Btwn. Towyn and Aberdovey.

**Chaerophyllum temulentum** L. WILD CHERVIL. L. Common, roadsides.

**Anthriscus sylvestris** (L.) Hoffm. BEAKED PARSLEY. L. Common, roadsides on the more fertile soils, rly. banks; perhaps not native.

\***Myrrhis odorata** (L.) Scop. SWEET CICELY. L. Occasional nr. cottages. Trawsfynydd Stn., *R.A.R.C.* Bryn Banon, Bala. Nr. Bala Junction, *Miss V. Gordon*. Efail-fach, Cross Foxes Inn (destroyed?), and Tai-newyddion, Dolgellau. Btwn. Kings and Arthog, *Miss V. G.*

**Torilis japonica** (Houtt.) DC. UPRIGHT HEDGE PARSLEY. L. Common on roadsides and in hedgebanks.

\***Smyrniium olusatrum** L. ALEXANDERS. L. Local, on waste ground and nr. dwellings. Under Harlech Castle. Council houses and Penygraig, Barmouth.

\***Conium maculatum** L. HEMLOCK. L. Frequent, in waste places, nr. farms, etc. Under Harlech Castle. [Roadside nr. Dolgau and Bryntirion, Dyffryn; disappeared.] Cellfechan, Barmouth. Fachddeiliog, Bala. Fegla Fawr, Arthog. Nr. Llwyngwrl Stn. lane. Rhyd-y-garnedd and Pen-y-wern, nr. Tonfanau. Aberdovey—refuse tip on Towyn road and rly. bank nearby.

**Apium graveolens** L. CELERY. C. Very rare, in the upper parts of salt-marshes. Nr. Talsarnau, several plants 1958. Morfa Harlech, 1 plant 1958. Arthro estuary, c. 3 plants 1956, 1958, 1959. Mouth of R. Ysgethin, 1 plant 1949. Nr. Arthog, 3 plants 1961.

**A. nodiflorum** (L.) Lag. MARSHWORT. L, U. Common in wet places.

**A. inundatum** (L.) Rchb. f. LESSER M. L, U. Rather frequent in ponds and slow streams. Swamps on Morfa Harlech. Pond on Mochras. R. Nantcol nr. Pen-isa'r-cwm. Swamp nr. Bala Junction. R. Lliw at Llanuwchllyn. Dolgellau district—Pwll-y-gele lake; Llyn Cynwch, in quantity and very fine; backwater of R. Wnion nr. Dr. Williams' School; and stream draining Llyn Gwernan. Btwn. Towyn and Aberdovey.

+\***Petroselinum crispum** (Mill.) Nyman. PARSLEY. C. Garden escape well-naturalised on bank by shore, Llechollwyn, nr. Harlech.

\***Falcaria vulgaris** Bernh. LONGLEAF. Rly. sidings by the Marine Hotel, Barmouth, 1 patch persistent for at least 20 years.

**Carum verticillatum** (L.) Koch. WHORLED CARAWAY. L. 1 locality only. Meadows by R. Glaslyn nr. Minffordd, in some quantity.

**Conopodium majus** (Gouan) Loret. PIGNUT. L, U. Common in pastures.

**Pimpinella saxifraga** L. BURNET SAXIFRAGE. L, U, H. Common in dry pastures on the more calcareous soils. Harlech duneland. Roadside at Llanfair. Below Llanddwywe Church. Below Talybont Halt. Ceilwart Uchaf, Llanaber. Barmouth dunes. Moel y Calch, Llandderfel. Valleys above Rhosygwaliau and Llangower. Blaen Lliw. Llaethnant. Cwm Cowarch. Dolgellau district—Careg-arw; Llanfachreth; nr. Drws-y-nant; Brithdir; nr. Cross Foxes; Aran Glen; and Fronallt. Tyrau Mawr, E. Price Evans. Roadside nr. Llangelynin. Corris and Abergynolwyn districts, Mrs. A. G. Side. Aberdovey.

\***Aegopodium podagraria** L. GOUTWEED. L. Common, waste ground, gardens.

**Crithmum maritimum** L. SAMPHIRE. C. Local. Rocks nr. Portmeirion, Mrs. M. D. G. Jones. Stony shore nr. Llandanwg, rare. Nr. Pensarn, on sea-wall, 1 plant 1954 but not since. Rocks at Barmouth, frequent. Nr. Llangelynin, E. H. T. Bible.

**Oenanthe fistulosa** L. TUBULAR WATER DROPWORT. L. 1 locality only. Marsh btwn. Towyn and Aberdovey, 1 small patch.

**O. lachenalii** C.C. Gmel. PARSLEY W. C. Common in salt-marshes. Morfa Harlech. Mochras. Mouth of R. Ysgethin. Mawddach estuary as at Bodowen, Penmaenpool, Llanclltyd and Arthog. Dysynni Broadwater. Gogarth.

**O. crocata** L. HEMLOCK W. L, U. Common by streams and ditches.

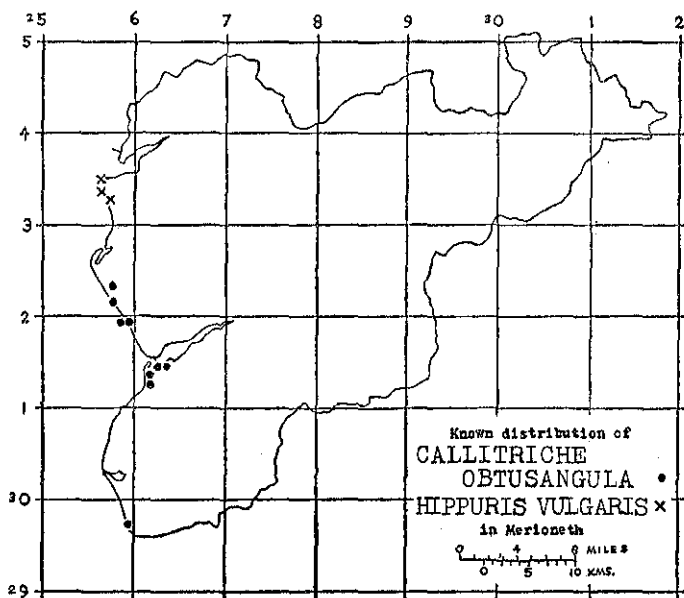
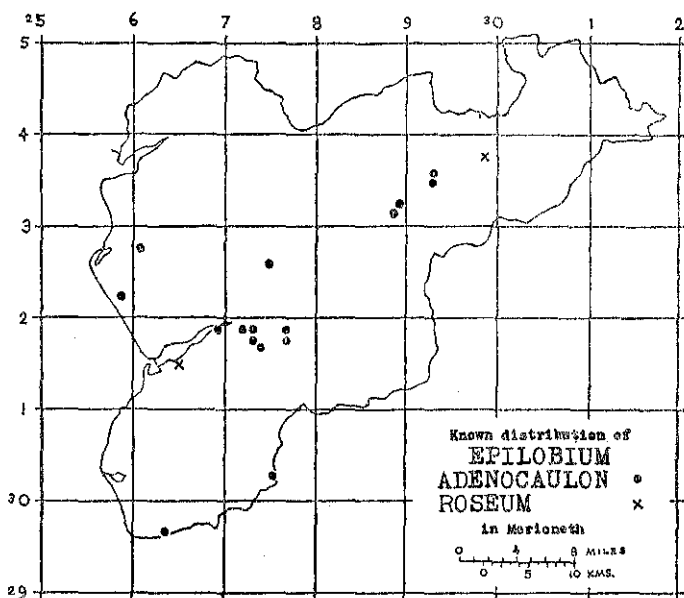
\***Aethusa cynapium** L. FOOL'S PARSLEY. L. Uncommon casual garden weed.

\***Foeniculum vulgare** Mill. FENNEL. L. Frequent. By Pensarn Stn. Mochras, nr. the shore. Waste ground in Marine Road and nr. Porkington Terrace, Barmouth. By rly. at Barmouth Junction Stn. Rly. bank by Aberdovey Stn.

\***Meum athamanticum** Jacq. SPIGNET. U. Very local, in upland farm fields. Dolgellau district—nr. Helygog; and nr. Gwerngraig (apparently the southernmost British locality).

**Angelica sylvestris** L. WILD ANGELICA. L, U. Common, meadows, ditches.

\***Pastinaca sativa** L. PARSNIP. L. Local. Portmadoc embankment, on waste ground, Miss A. P. Conolly. N. end of Morfa Harlech, in one spot on sandy ground. Dunes below Llanddwywe Church, in quantity.



(The maps show the 10-km. squares of the Ordnance Survey National Grid. Each symbol represents a 1-km. square for which there is a record.)

- Heracleum sphondylium** L. HOGWEED. L, U. Common, roadsides, meadows.
- Daucus carota** L. ssp. *carota*. WILD CARROT. Chiefly C. Common nr. sea, on cliffs and banks and in grassy places ; rare inland.
- Mercurialis perennis** L. DOG'S MERCURY. L, U. Common in woods with rich humus ; locally dominant in field layer.
- \***M. annua** L. ANNUAL D. L. Very local. Frequent in waste places at Barmouth. Aberdovey, *J. A. Webb*.
- \***Euphorbia helioscopia** L. SUN SPURGE. L. A common weed.
- \***E. peplus** L. PETTY S. L. A common weed.
- E. portlandica** L. PORTLAND S. C. 2 localities only, on old stable acid dunes. Morfa Harlech. Mochras.
- E. paralias** L. SEA S. C. Common on 'white' dunes. Morfa Harlech. Morfa Dyffryn. Min-y-mor, Barmouth. Barmouth Junction. Aberdovey.
- E. paralias** × **portlandica**. Sparingly, with the parents. Morfa Harlech. Morfa Dyffryn.
- E. amygdaloides** L. WOOD S. H. 2 localities only, on calcareous mountain rocks. Nr. Drwsynant. Llaethnant. Sparingly in both places.
- Polygonum aviculare** L. *sens. str.* KNOTWEED. L. Common, though less so than the next, chiefly on waste ground.
- P. aequale** Lindm. L, U. Common, trampled meadows, puddles, farm tracks, waste ground.
- P. raii** Bab. RAY'S K. C. Rare, about drift line on the shore. [Talybont and Barmouth ; disappeared.] Nr. Arthog and Fairbourne, sparingly.
- P. amphibium** L. AMPHIBIOUS PERSICARIA. L. Common on the coast ; apparently absent inland. Swamps on Morfa Harlech. Swamp below Harlech Castle. Pond on Mochras. Marshes and ditches on Morfa Dyffryn in many places. Mouth of R. Ysgethin. Marshes and shingle banks btwn. Talybont and Llanaber. Waste ground below Plas Mynach, Barmouth. Shingle beach at Llwyngwril. Pond at Tonfanau. Marsh btwn. Towyn and Aberdovey.
- P. persicaria** L. COMMON P. L, U. A common agricultural weed, especially in poor oat fields ; also frequent on river shingle, though perhaps not a true 'native'.
- \***P. lapathifolium** L. PALE P. L, U. Common agricultural weed.
- P. hydropiper** L. WATER-PEPPER. L, U. Common, marshy places and ditches.
- \***P. convolvulus** L. BLACK BINDWEED. L. Rare ; casual weed of cultivation.
- \***P. cuspidatum** Sieb. & Zucc. JAPANESE KNOTWEED. L. Common on waste ground and nr. cottages. Maentwrog, *Miss V. Gordon*. Harlech. Llanaber. Barmouth. Dolgellau. Bala. Arthog. Abergynolwyn and Corris, *Mrs. A. G. Side*. Llwyn-gwern, *J. A. Webb*. Nr. Machynlleth. Penhelyg, *J. A. Webb*.
- Oxyria digyna** (L.) Hill. MOUNTAIN SORREL. H. Local, on calcareous mountain cliffs. Llaethnant. Cwm Cowarch, descending to c. 700 ft. Cwm Geugraig. Cwm Aran. Above Llyn Gafr. Cwm Gau, *E. Price Evans*.
- Rumex acetosella** L. *sensu lato*. SHEEP'S S. L, U, H. Common in dry acid pastures. Plants from acid dunc grassland on Morfa Harlech, Morfa Dyffryn, and S. side of Dysynni Broadwater have been referred to *R. tenuifolius* (Wallr.) Löve, but they grade into the common type and produce a completely fertile hybrid with it (as proved by experiment) ; we think it best not to list our '*R. tenuifolius*' as a separate species.
- R. acetosa** L. COMMON S. L, U, (?H). Common, pastures, meadows, roadsides.
- R. hydrolapathum** Huds. GREAT WATER DOCK. L. Local, in swamps. Morfa Harlech? Mouth of R. Ysgethin. Btwn. Talybont and Llanaber. Btwn. Towyn and Aberdovey.
- R. crispus** L. CURLED D. L, U. Common.
- R. obtusifolius** L. BROAD-LEAVED D. L, U. Common.
- R. sanguineus** L. GREEN-VEINED D. L. Common, shady places, roadsides.

**R. conglomeratus** Murr. SHARP D. L. Common in marshes. Morfa Harlech. Morfa Dyffryn. W. of Dolgellau. Arthog Bog. Pont Dysynni, Brynecrug. Dysynni Broadwater. Aberdovey golf-links.  
NOTE.—*Rumex* hybrids are listed together alphabetically for convenience.

**R. conglomeratus** × **crispus**. Occasional, with the parents. Harlech golf-links. Mochras estuary, in two places.

**R. conglomeratus** × **obtusifolius**. Rare, with the parents. Meadow nr. Pandyrodyn, Dolgellau.

**R. conglomeratus** × **sanguineus**. Difficult to distinguish because the parent species are so much alike and both variable; they seldom grow together so the hybrid is probably rare. Roadside nr. Mawddach Crescent, Arthog, 1 plant.

**R.** (?**crispus**) × **hydrolapathum**. Marsh at mouth of R. Ysgethin, 1 plant with *R. hydrolapathum*, *R. crispus*, and *R. conglomeratus*, 1955.

**R. crispus** × **obtusifolius**. Common; usually to be found where the parents grow together, as they so often do. Nr. Harlech Stn. Roadside below Talwrn Bach Halt. Nr. Felin Ceilwart, Llanaber. Barmouth—below Plas Mynach, garden of Tyn-y-ffynon, and roadside at Bodowen. About Arthog in various places. Roadside nr. Fachddeiliog, Bala.

**R. crispus** × **sanguineus**. Occasional, with the parents. Roadside nr. Bronfegla, Arthog.

**R. obtusifolius** × **sanguineus**. Occasional, with the parents. Roadside nr. Bronfegla, Arthog.

\***Parietaria diffusa** M. & K. PELLETORY-OF-THE-WALL. L. Local, on walls nr. dwellings. Harlech, *Miss V. Gordon*. Tai-newyddion, Llanaber. By St. John's Church and Aberamffra quay, Barmouth. Cymmer Abbey (destroyed?). Nr. Arthog School. Nr. Aberdovey Stn. No doubt elsewhere.

\***Urtica urens** L. SMALL NETTLE. G. Local, on waste sandy ground. Morfa Harlech, nr. the old Race Course House. Common on Fairbourne Spit. N. end of Aberdovey golf-links.

**U. dioica** L. STINGING N. L, U. Common, woods and roadsides with rich humus, manure heaps, waste ground.

\***Humulus lupulus** L. HOP. L. Occasional on walls nr. cottages. Mynach Road and nr. Siloam Cottages, Barmouth. Pandyrodyn, Dolgellau. Nr. Cynwyd. Corris district, *Mrs. A. G. Side*.

**Ulmus glabra** Huds. WYCH ELM. L, U. Common, woods with rich humus, hedges.

\***U. procera** Salisb. ENGLISH E. L. Rare; planted. Bottom of Llanfachreth road, Dolgellau, in hedge; this sp. ? Wood by Llwyn-du, Llwyngwrl, 1 tree, det. *R. Melville*.

\***U. × hollandica** Mill. DUTCH E. L. Towyn and Mathafon, *J. A. Webb*, *B. E. C. Rept. 1941-42*, 503.

**Myrica gale** L. SWEET-GALE. L, U. Abundant in bogs.

**Betula pendula** Roth. SILVER BIRCH. L, U. Common in dry woods and heathy places, but less so than the next, with which it usually grows.

**B. pubescens** Ehrh. COMMON B. L, U, H. Abundant in dry woods and heathy places; locally dominant.

**Alnus glutinosa** (L.) Gaertn. ALDER. L, U. Common in swamps.

\***Carpinus betulus** L. HORNBEAM. L. Commonly planted in woods and hedges, especially in the Dolgellau district.

**Corylus avellana** L. HAZEL. L, U. Common, woods, streamsides, hedges; locally forming thickets on the more fertile soils.

\***Fagus sylvatica** L. BEECH. L. Commonly planted and regenerating; especially in Talybont Wood and on Nannau and Caerynwch estates, Dolgellau.

+\***Castanea sativa** Mill. SWEET CHESTNUT. L. Occasionally planted. Talybont Wood. Woods btwn. Panorama Walk and Bodowen, Barmouth. Torrent Walk, Dolgellau.

+\***Quercus cerris** L. TURKEY OAK. L. Occasionally planted. Dolgellau—nr. Maes-y-bryner and Ochr-y-foel. Arthog below Pant Phylip, nr. the Hall Farm, and lane to stn.

\***Q. robur** L. ENGLISH O. L. Common in Dolgellau district, where probably originated as plantings on Hengwrt, Nannau, Dolserau, and Caerynwch estates; local elsewhere. Very doubtfully native, chiefly in roadside hedges. Btwn. Dyffryn and Talybont. Dolgellau district — by the Barmouth, Bala, Welshpool, and Towyn (coast) roads; Aran Glen; Brithdir; Bontnewydd Stn.; and nr. Drwsynant. Bala. Nr. Llandderfel bridge. Cynwyd. Glyn-dyfrdwy, *Miss V. Gordon*. Nr. the Bird Rock, Towyn.

**Q. petraea** (Mattushka) Leibl. SESSILE O. L, U. Abundant; the most usual dominant tree of woodland.

**Q. petraea** × **robur**. Suspected to be common with the parents, but not recorded in absence of fruit. Llanfachreth. Roadside nr. Dol-rhyd, Dolgellau. Shore of Bala Lake nr. Glanllyn Halt. Side of main Dolgellau road just outside Bala.

**Populus tremula** L. ASPEN. L, U, H. Probably usually planted. Nr. Garneddwen Halt. Llanymawddwy, *A. O. Chater*. Tallylyn. Cliffs in Cwm Cau, *E. Price Evans*. Nr. the shore at Arthog.

Other species and hybrids of *Populus* are commonly planted.

\***Salix pentandra** L. BAY WILLOW. L. Rarely planted. Pwll-y-gele lake, nr. Dolgellau, 1 ♀ tree. Swamp nr. Llanfor, several saplings.

\***S. alba** L. WHITE W. L. Rarely planted. By the refuse tip btwn. Llanbedr and Talwrn Bach, 1 tree.

\***S. fragilis** L. CRACK W. L. Sometimes planted in wet places. Below Plas Mynach, Barmouth. Banks of R. Dee at Glyn-dyfrdwy (*Miss V. Gordon*), Cynwyd, Llandrillo, and Llandderfel. N. side of Dysynni Broadwater. Seedlings established naturally in dune slacks on Morfa Harlech.

\***S. viminalis** L. OSIER. L. Sometimes planted. By Harlech Stn., 1 tree. By the road below Talwrn Bach Halt, 1 tree. Bank of R. Aran, Dolgellau, 1 tree. Llanfachreth, 1948, *B.S.B.I. excursion*. Nr. Glanllyn Halt, Bala. Seedlings established naturally in dune slacks on Morfa Harlech and Morfa Dyffryn.

**S. caprea** L. GOAT W. L. In marshes and ditches, especially on the more calcareous soils. Common in Dolgellau district—Glasdir; Llanfachreth; Benglog; nr. Wnion Halt; Dolserau; quarry on Torrent Road; Aran Glen; and Pandryodyn.

Rather rare elsewhere. Dune slacks on Morfa Harlech. Talybont Wood. Nr. Ceilwart Uchaf, Llanaber. Nr. Goesfaen, Barmouth. Glyn-dyfrdwy, *Miss V. Gordon*. Arthog Bog. Barmouth Junction Stn.

**S. caprea** × **cinerea**. Rare. Nr. Dol-gun, Dolgellau, with parents.

**S. cinerea** L. ssp. **atrocinerea** (Brot.) Silva & Sobr. COMMON SALLOW. L, U. Very common, swamps, wet woods, roadsides, and especially the reedy ditches bordering the rlys.

\***S. cinerea** × **viminalis**. L. Sometimes planted. By the refuse tip btwn. Llanbedr and Talwrn Bach. Behind Pencarreg, Barmouth. By the fountain at Llanelltyd. Roadsides nr. Glanllyn Halt and Llangower, Bala. 1 tree in each case.

**S. aurita** L. EARED W. L, U. Common, boggy places, scrubby woods, and wall-tops, especially in the uplands where it is usually the only sp. of *Salix*.

**S. aurita** × **cinerea**. Frequent with the parents. Lane nr. R. Glaslyn, Minffordd. Morfa Harlech in dune slacks. Llanelltyd. Nr. Pandryodyn, Dolgellau. Nr. Glasgoed, Llanfachreth. Brithdir, on roadside.

**S. repens** L. CREEPING W. Chiefly G. Abundant in the duneland of Morfa Harlech and Morfa Dyffryn; often the dominant plant in the slacks. Marsh by R. Glaslyn nr. Minffordd.

Very sparingly in boggy ground in a few places inland. Above Rhosygwaliau, Bala. Hermon, nr. Dolgellau. Ffridd above Bryn-rhug, nr. Dolgellau, *E. Price Evans*. Nr. Hafod, above Arthog. Arthog Bog.

+**Rhododendron ponticum** L. RHODODENDRON. L. Commonly planted and seeding in woods on estates. Naturally sown seedlings occur in natural vegetation in Arthog Bog.

**Andromeda polifolia** L. ANDROMEDA. L, U. Very local, on *Calluna*-moor. On the Berwyn above Llandrillo. Arthog Bog.



**Calluna vulgaris** (L.) Hull. LING. L, U, H. Abundant on dry to moderately wet, acid soils; often dominant, especially on N. side of Mawddach estuary, in Ganllwyd valley, and on Rhinog mountains. On sandy ground nr. sea at Ynys, Harlech.

**Erica tetralix** L. CROSS-LEAVED HEATHER. L, U, H. Common in bogs.

**E. cinerea** L. BELL H. L, U. Abundant on acid, stony or peaty ground.

**Vaccinium vitis-idaea** L. COWBERRY. H. Local, in high mountain grassland; often stunted and barren. Rhinog hills (reported). Arenig, *B.S.B.I. excursion*. On the Berwyn at Moel Fferna, *K. S. Cansdale*. Cader Idris—Cwm Geugraig; Mynydd y Gader, *E. Price Evans*; Cwm Aran, *E. R. S. Winter*; above Llyn Gafr; and Cyfrwy.

**V. myrtillus** L. BILBERRY. L, U, H. Common, pastures, screes, walls.

**Oxycoccus quadripetalus** Gilib. CRANBERRY. L, U, H. Rather rare, in bogs. Nr. Pen-isa'-cwm, Llanbedr. On the Berwyn at Moel Fferna, *K. S. Cansdale*, and above Llandrillo, *R.A.R.C.* Llyn Caer Euni. Cors Sarnau. Cwm Llafar and Cwm Tylo, Parc, Bala. Arthog Bog. E. end of Tallyllyn Lake. Nr. Llyn Barfog.

+ **Orthilia secunda** (L.) House (*Ramischia secunda* (L.) Garcke). TOOTHED WINTERGREEN. H. 1 locality only. Acid cliff nr. Llanuwchllyn, *D. A. Ratcliffe*.

**Empetrum nigrum** L. CROWBERRY. H. Common on high moorland, rare below 1,000 ft. alt. and never at sea level. Moelwyns, *Miss V. Gordon*. Cwm Nantcol, descending to c. 450 ft. Top of Diphwys, Craig y Cae, *K. S. Cansdale*, and Craig y Ganllwyd, *K.S.C.*, all nr. Ganllwyd. (Probably common in Arduwy mountains.) Arenig Fawr, *Miss V. G.* Common on the Berwyn above Glyndyfrdwy (*Miss V. G.*), Corwen (*K.S.C.*), Llandrillo (*R.A.R.C.*), and Rhosygwallau. Aran Mawddwy. Cader Idris—Cwm Aran, *E. R. S. Winter*; above Bryn-rhug; above Llyn Gafr; Pony Track; Craig Llyn Cyri; etc. Nr. the Crogenen Lakes, Arthog, at 750 ft.

**Limonium vulgare** Mill. COMMON SEA LAVENDER. G. Local, in the firmer drier parts of salt-marshes. Mochras estuary. Nr. Bodowen, Barmouth. W. of Penmaenpool. By Arthog Stn. Sparingly in each case.

**L. humile** Mill. FEW-FLOWERED S. G. Local but locally abundant, in wet muddy salt-marshes. Mochras estuary. Nr. Bodowen, Barmouth. Nr. Arthog Stn. *Map. p. 37.*

**Armeria maritima** (Mill.) Willd. THRIFT. Chiefly G. Abundant on coastal mudflats and rocks. Inland on mine spoil heaps and stream-bank at Hermon, nr. Dolgellau; and on the precipice just N. of the summit of Cader Idris.

**Primula veris** L. COWSLIP. L. Very local, in pastures. Dolgellau road just outside Barmouth, in two places (in quantity in one). Brithdir, sparingly.

**P. vulgaris** Huds. PRIMROSE. L, U, H. Frequent, banks and pastures (esp. nr. sea), woods, streamsides, and mountain cliffs. Abundant on boulder clay sea-cliffs nr. Llandanwg and btwn. Friog and Tonfanau.

**Lysimachia nemorum** L. YELLOW PIMPERNEL. L, U. Common, wet shady places.

**L. nummularia** L. CREEPING JENNY. L. Local but locally common in marshes. By R. Glaslyn nr. Minffordd. By R. Wnion W. of Dolgellau.

**L. vulgaris** L. YELLOW LOOSESTRIFE. L. Local, in marshes. Mochras estuary, sparingly. Swamps btwn. the mouth of the R. Ysgethin and Llanaber, in quantity. By the R. Wnion, Dolgellau, sparingly.

**Anagallis tenella** (L.) L. BOG PIMPERNEL. L, U. Common in bogs and dune slacks.

**A. arvensis** L. SCARLET P. L. Local on stable dunes. Morfa Harlech. Mochras. A frequent weed of gardens and waste ground.

**A. minima** (L.) E. H. L. Krause (*Centunculus minimus* L.). CHAFFWEED. C. Occasional in wet sandy places nr. the sea. Morfa Harlech. Morfa Dyffryn. Barmouth dunes. Shore at Arthog. Hill lane past the cemetery, Aberdovey.

**Glaux maritima** L. SEA MILKWORT. C. Common in salt-marshes.

**Samolus valerandi** L. BROOKWEED. G. Frequent, less saline parts of salt-marshes, dune-slacks. By R. Glaslyn nr. Minffordd. Morfa Harlech.

Mochras. Mouth of R. Ysgethin. Below Llwyn-wcws, Llanaber. Nr. Bodowen, Barmouth. Arthog. S. side of Dysynni Broadwater. Nr. Gogarth.

+\**Buddleja davidii* Franch. BUDDLEIA. L. Common on waste ground by the 'new' road nr. Glan-mawddach, Barmouth.

*Fraxinus excelsior* L. ASH. L, U. Common generally in lowlands. Woods of saplings or small trees occur locally on calcareous scree in the Dolgellau district.

*Ligustrum vulgare* L. WILD PRIVET. L. Frequent in thickets on the more calcareous soils. Mochras. Nr. Alltawr and Aberamfira, Barmouth. Nr. Llwyn, and old Cross Foxes road, Dolgellau. W. of Corwen. Trefri, Aberdovey. Sometimes planted, as at Talybont bridge and the lower Nannau lodge, Dolgellau, and probably in the Glyndyfrdwy, Corris, and Abergynolwyn districts from which it has also been reported.

*L. ovalifolium* Hassk., Garden P., is often planted.

*Vinca major* L., Greater Periwinkle, is commonly grown in gardens and sometimes escapes.

*Centaurium pulchellum* (Sw.) Druce. C. Rare, in damp sandy places nr. sea. Morfa Harlech, 1952, 1953. Morfa Dyffryn, regularly. Mouth of R. Ysgethin, 1956. N. side of Dysynni Broadwater, 1954. Aberdovey links, 1955.

*C. erythraea* Rafn (*C. minus* auct.). CENTAURY. Chiefly C. Very common on dunes. Morfa Harlech. Morfa Dyffryn. Barmouth dunes. Aberdovey links. Local on dry basic soils elsewhere. E. end of Portmadoc embankment, *Miss A. P. Conolly*. Field on Mochras. Nr. Aberartro, Llanbedr, *Mrs. M. D. G. Jones*. Roadside nr. Careg-arw, Ganllwyd valley. Nr. Fronallt, Dolgellau. Moel y Calch, Llandderfel. Nr. the shore at Arthog.

*C. erythraea* × *littorale*. Occasional with the parents on Morfa Dyffryn.

*C. littorale* (D. Turn.) Gilm. C. 1 locality only. Morfa Dyffryn, in damp sandy places; now much reduced.

*Gentianella campestris* (L.) Börner. FIELD GENTIAN. L. Local, in calcareous pastures. Morfa Harlech, in dune slacks; small 1-fl. plants have been determined as *G. baltica* (Murb.) H. Sm. by *E. F. Warburg* but grade into normal *campestris*. Mochras. Below Talybont Halt. Nr. Rhydwen, Llangower. Valley above Rhosygwallau. Moel y Calch, Llandderfel.

*Menyanthes trifoliata* L. BOGBEAN. L, U. Frequent in swampy places, esp. on peat. Morfa Harlech. Cwmbychan, *F. Rose*. Mochras. Btwn. Talybont and Llanaber. Nr. Cellfawr, Barmouth. S.W. shore of Trawsfynydd Lake. Llanfachreth. Cwm Tylo, Parc, Bala. Cors Sarnau, btwn. Bala and Corwen. Ffridd-y-beudail and Hafotty Fach, above Arthog. Nr. Barmouth Junction. Btwn. Towyn and Aberdovey.

*Cynoglossum officinale* L. COMMON HOUND'S-TONGUE. C. Local, in duneland frequented by rabbits. Morfa Harlech. Morfa Dyffryn. Fairbourne Spit, very sparingly. Btwn. Towyn and Aberdovey.

\**Symphytum asperum* Lepech. × *officinale* L. (*S. peregrinum* auct.). L. Frequent on roadsides and nr. cottages. Portmeirion. Harlech — nr. the stn. and St. David's Hotel. Btwn. Talwrn Bach and Llanbedr. Footpath by R. Ysgethin below Talybont. Jubilee Road, Barmouth. Llanuwchllyn, *J. A. Webb* spec. Herb. NMW. Abergynolwyn district, *Mrs. A. G. Side*. Nr. Llwyn-du, Llwyngwrl. Trefeddian, Aberdovey, with blue flowers.

\**Pentaglottis sempervirens* (L.) Tausch. EVERGREEN ALKANET. L. Locally common. Pasture and roadsides about Hendre Mynach, Barmouth. Roadside by the Halfway House, Bontddu. Dolgellau — in great quantity on rly. bank nr. the stn. and by sides of old Cross Foxes road. Llanuwchllyn, *R.A.R.C.* In quantity by a track at Llwyn Du, Llwyngwrl.

\**Lycopsis arvensis* L. BUGLOSS. C. Rare, in disturbed or waste sandy places. Morfa Harlech. Mochras. Barmouth town refuse tip.

*Myosotis scorpioides* L. (*M. palustris* (L.) Hill). WATER FORGETMENOT. L. Local but locally abundant, in lowland marshes. By the R. Glaslyn, Minffordd. Nr. Tygwyn Halt. Under Harlech Castle. By the R. Wnion below Dolgellau. By Plas Isaf, Corwen. Often recorded in error for the next.

**M. secunda** A. Muir. CREEPING F. L. U. Common in bogs and black peat ditches ; the characteristic water forgetmenot of the hill-country.

**M. caespitosa** K. F. Schultz. TUFTED F. L. Common in marshes.

**M. caespitosa** × **scorpioides**. By the R. Glaslyn, Minffordd, in quantity with parents. Nr. Tygwyn Halt, commonly with parents. Y Marian, Dolgellau, sparingly with parents 1956-9, now died out. Marsh nr. Llanfor, Bala, in quantity without either parent.

\***M. arvensis** (L.) Hill. FIELD F. L. An occasional weed of cultivation. Persistent on disturbed sandy ground on Morfa Harlech and Mochras.

**M. discolor** Pers. PARTI-COLOURED F. C. Local, on acid stable duneland. Morfa Harlech. Morfa Dyffryn. An occasional weed of cultivation elsewhere.

**Echium vulgare** L. VIPER'S BUGLOSS. C. Local. Sandy field nr. shore on Mochras, in quantity. Rly. bank at Barmouth Junction Stn., sparingly. Rly. bank nr. Aberdovey Stn., in quantity.

\***Convolvulus arvensis** L. SMALL BINDWEED. L. Frequent about rlys. Harlech Stn. By the Council houses, Marine Road, and Jubilee Road, Barmouth. Glyndyfrdwy, Miss V. Gordon. Barmouth Junction Stn. Nr. Aberdovey Stn.

**Calystegia sepium** (L.) R. Br. GREATER B. L. Common, shingle beaches, reedswamps, roadsides, gardens. With pink flowers in reedswamps nr. rly. btwn. Talybont and Llanaber and btwn. Arthog and Barmouth Junction, on shingle beach at Llwyngwrl, and reported by R. K. Brummitt from nr. Tonfanau and Llanegryn.

A plant with 'small' pink flowers and inflated bracteoles ('*C. sepium* var. *americana* auct. scand.', teste R. K. Brummitt) occurs on roadside at Bronfegla, Arthog.

+\***C. pulchra** Brumm. & Heyw. L. Rare. Nr. Bontnewydd Stn., R. K. Brummitt.

\***C. silvatica** (Kit.) Griseb. (*C. sylvestris* (Willd.) R. & S.). L. Common, waste places, rubbish heaps, gardens.

**C. soldanella** (L.) R. Br. SEA B. C. Fairly frequent on dunes. Morfa Harlech. Nr. Llandanwg Church. Mochras. Mouth of R. Ysgethin. Below Egryn, Talybont. Llanaber. Tonfanau. BTWN. Towyn and Aberdovey.

\***Cuscuta epithimum** (L.) L. COMMON DODDER. Very rare. Pasture nr. Fronallt, Dolgellau, sparingly but persistent for at least 6 years ; shown to us by the Misses E. and M. Morgan.

\***Hyoscyamus niger** L. HENBANE. C. 2 localities only, on waste sand. Mochras, sparingly but persistent for at least 60 years. Fairbourne Spit, 1943-54 and 1959 (1 plant), decreasing, probably died out.

**Solanum dulcamara** L. WOODY NIGHTSHADE. L. Frequent, marshes, reedswamps, thickets, shingle beaches ; but not a very common plant.

\***S. nigrum** L. BLACK N. C. Rare, on waste sand. Fairbourne Spit, sparingly but known there for 18 years.

\***Verbascum thapsus** L. GREAT MULLBAIN. L. Frequent, waste sand-dunes, quarries, rly. banks, refuse tips, etc.

\***Misopates orontium** (L.) Raf. WEASEL-SNOOT. L. Very rare. Henborth Mawr, Talybont, on top of wall for several years 1940s, now disappeared. Rhyd-y-garnedd, nr. Tonfanau, 1 plant on side of track 1954.

\***Linaria repens** (L.) Mill. PALE TOADFLAX. L. Local, on rlys. E. end of Portmadoc embankment, 1961, Miss A. P. Conolly. Penrhyndeudraeth Stn., 1960 P. M. Benoit, 1961 Mrs. M. D. G. Jones. Barmouth Junction, 1945 but not since.

**L. vulgaris** (L.) Mill. YELLOW T. L. Frequent, thickets, shingle beaches, derelict fields, roadsides.

\***Chaenorhinum minus** (L.) Lange. SMALL T. L. Frequent on rlys. Penrhyndeudraeth, Miss A. P. Conolly, Mrs. M. D. G. Jones. Harlech. Talybont. Llandrillo, R.A.R.C. 1 mile N.W. of Frongoch. Bontnewydd. Dolgellau. Penmaenpool. Barmouth Junction. Fairbourne.

\***Cymbalaria muralis** G. M. & S. IVY-LEAVED T. L. Common on walls.

*Scrophularia nodosa* L. KNOTTED FIGWORT. L. Common, thickets, roadsides.

\**S. aquatica* L. WATER F. L. Rare. Glyndyfrdwy, Miss V. Gordon, native? In a stone quarry btwn. Dolgellau and Penmaenpool. Waste ground nr. Aberdovey Stn.

\**Mimulus guttatus* DC. YELLOW MONKEY FLOWER. L. Locally abundant in ditches and marshes. Dolgellau district — btwn. Dolgellau and Llanelltyd in quantity; Maes-y-bryner; nr. Rhydymain; side of Cader Road. Blaen Lliw, B.S.B.I. excursion. R. Alwen nr. Corwen.

\**M. guttatus* × *luteus* L. 1 locality only. Swamp by Harlech Stn., in quantity without either parent, R. H. Roberts and P. M. Benoit.

\**M. moschatus* Dougl. ex Lindl. MUSK. L. Local. Bank of stream N. of Llandderfel. Ditch running to the shore nr. Llwyngwrlil, in quantity.

*Limosella subulata* Ives. SUBULATE-LEAVED MUDWORT. C. 2 localities only but locally abundant, on muddy shores of brackish rivers. R. Glaslyn nr. Minffordd, Penrhyndeudraeth. R. Dysynni nr. Bryncreg, shown to us by Miss C. M. Goodman.

*Digitalis purpurea* L. FOXGLOVE. L, U, H. Common, dry acid woods, slopes, banks; often abundant after burning.

*Veronica beccabunga* L. BROOKLIME. L. Frequent. Marsh by R. Glaslyn nr. Minffordd. Marsh nr. Tygwyn Halt. Ditch by Barmouth road just outside Harlech. Stream in dunes at Llanaber. Dolgellau district — marshy meadows nr. Pandyrodyn; ditch by side of Cader Road; quarry on Torrent Road; and Brithdir. Shore of Bala Lake nr. Hen Glan-llyn. Marshy meadow W. of Corwen. Glyndyfrdwy, Miss V. Gordon. Roadside ditch at Friog. Ditch by lane nr. Pen-y-wern, Tonfanau. Aberdovey (reported).

+*V. anagallis-aquatica* L. BLUE WATER SPREDWELL. L. Marshy ditch nr. the Mochras estuary, 1 plant only, 1960.

*V. catenata* Pennell. PINK WATER S. L. 1 locality only. Swamps and ditches on Morfa Harlech, sparingly.

*V. scutellata* L. MARSH S. L, U. Frequent in bogs and marshes but appears erratically. Morfa Harlech, 1955. Below Dyffryn Stn., 1 plant 1955. Graigwen, nr. Bontddu, 1961, Mrs. M. D. G. Jones. S.W. shore of Trawsfynydd Lake, regularly. Corwen district, 1956, R. E. Collins. Llyn Caer Euni, 1959, B.S.B.I. excursion. Pool nr. Llandderfel, 1955. Nr. Rhydwen, Llangower, 1959. Below Dr. Williams' School, Dolgellau, 1953. Nr. Cefn Maelan, Dolgellau, 1 plant 1960. Llyn Cynwch, 1961. Tyn Llidiart, Brithdir, 1958. Aran Glen, Dolgellau, 1958. Arthog Bog in several spots, 1949 and 1951 (both var. *villosa* Schum.) and 1955. Nr. Tonfanau Stn., date? Btwn. Towyn and Aberdovey, 1955.

*V. officinalis* L. COMMON S. L, U, H. Common in dry pastures.

*V. montana* L. WOOD S. L. Local, in woods with damp rich humus. Minffordd-Portmadoc road. Talybont Wood. Hengwrt and Pandyrodyn, Dolgellau. Nr. Glan-nant, Arthog. Hafotty, nr. Machynlleth, A. O. Chaier.

*V. chamaedrys* L. GERMANDER S. L, U. Common in dry pastures.

*V. spicata* L. ssp. *hybrida* (L.) E. F. Warb. SPIKED S. L. 2 localities only. Long known on low rocks nr. the shore btwn. Barmouth and Borthwen Terrace and on a rocky knoll just outside Barmouth on the Harlech road, nr. the old turnpike, "above the lime kilns"; but we have failed to find it; last report c. 1940. Rocks opposite Aberdovey Stn. (now enclosed within a garden?); last report late 1950s, E. H. T. Bible; very probably still exists.

*V. serpyllifolia* L. THYME-LEAVED S. L, U. Common, woods, paths, gardens.

*V. arvensis* L. WALL S. L. Common, dunes, wall-tops, etc.

*V. hederifolia* L. IVY-LEAVED S. L. Frequent, woods, shady pathsides, and gardens, on damp fertile soils. Below Harlech Castle. Nr. Dyffryn Stn. Nr. Llanddwywe Church. Talybont Wood and Bridge. Ceilwart, Llanaber. Glyndyfrdwy, Miss V. Gordon. W. of Corwen. Brithdir. Nr. Dr. Williams' School, Dolgellau. Llwyn-du, Llwyngwrlil.

\**V. persica* Poir. BUXBAUM'S S. L. Common garden weed.

*V. polita* Fr., Grey S., is occasionally reported, apparently in error for *V. agrestis*.

\**V. agrestis* L. FIELD S. L. An occasional weed of cultivation.

\**V. filiformis* Sm. L. Frequent garden escape. By end of road to sea from Llanddwywe. Refuse-tip btwn. Llanbedr and Talwrn Bach. Footpath below Talybont Bridge. Rubbish heap below Dr. Williams' School, Dolgellau. Glyndyfrdwy, *Miss V. Gordon*. Corwen area, *R. E. Collins*. Roadside, Bronmeirion, Arthog.

*Pedicularis palustris* L. MARSH RED RATTLE. L, U. Common on wet base-rich peat. Nr. R. Glaslyn, Minffordd. Nr. Tygwyn Halt. Swamps on Morfa Harlech. Mochras. Nr. Pen-isa'r-cwm, Llanbedr. Nr. Cellfawr, Barmouth. Dolgellau district—Llanfachreth; Coed; Bwlch Coch; Bryn Rhug. Llanymawddwy, *A. O. Chater*. Nr. Rhyd-wen, Llangower.

*P. sylvatica* L. HEATH RED R. L, U. Common in wet heathy places.

*Rhinanthus minor* L. YELLOW R. L, U, H. Common, dune grassland, meadows, hayfields, mountain cliffs.

*Melampyrum pratense* L. COMMON COW-WHEAT. L, U. Common in dry woods. Maentwrog—Tanygrisiau district, *Miss V. Gordon*. Ceunant Llenyrch *F. Rose*. Nr. Llyn Tecwyn Isaf. Aberartro wood, Llanbedr. Talybont wood. Orierton wood, Barmouth. Nannau woods and Torrent Walk, Dolgellau. Valley above Llangower. Glyndyfrdwy, *Miss V. G. Arthog*. N. cliff of Tyrau Mawr, *E. Price Evans*. Corris and Abergynolwyn districts, *Mrs. A. G. Side*.

*Euphrasia officinalis* L. *sensu lato*. COMMON EYEBRIGHT.

*E. scottica* Wettst. U. Local, in calcareous hill-bogs. Nr. Cross Foxes, Dolgellau, *E. Milne-Redhead*, *P. M. Benoit*, both det. *P. F. Yeo*. Llanfachreth? Nr. Drwsynant?

*E. occidentalis* Wettst. C. Locally abundant in the dunelands; usually (always?) var. *calvescens* Pugsl., and often grading into the next. Morfa Harlech, *P. W. Richards* det. *E. F. Warburg*; *M. Richards* and *P. M. Benoit*. Morfa Dyffryn, *E. Milne-Redhead* det. *E.F.W.*; *M.R.* and *P.M.B.* Aberdovey golf-links, *E.M.-R.* det. *E.F.W.*, *P. F. Yeo*; *M.R.* and *P.M.B.*

*E. nemorosa* (Pers.) Wallr. L, U. Common in pastures; very variable. Post-1940 specimens det. thus—mouth of R. Ysgethin; Glasgoed, Llanfachreth (near *E. confusa*); nr. Fegla Fawr, Arthog; all *P. M. Benoit* det. *P. F. Yeo*.

*E. confusa* Pugsl. U. Local. Roadside, Cwmbychan, Llanbedr, lax and straggly form; meadow by Llyn Cynwch; mountain pastures, Llyn Cau and above Dol-y-cae, Cader Idris; all *E. K. Horwood* det. *P. F. Yeo*. Stabilised dunes, Morfa Harlech, *I. M. Vaughan* det. *P.F.Y.* W. of Hafotty Fach, above Arthog, *E. Milne-Redhead* det. *P.F.Y.*

*E. brevipila* Burn. & Grem. L, U. The commonest *Euphrasia* of meadows and hayfields. Post-1940 specimens det. thus—heathy field nr. Cross Foxes, eglandular, *N. Y. Sandwith* det. *P. F. Yeo*; Hafod-y-meirch, nr. Dolgellau, *E. Milne-Redhead* det. *E. F. Warburg*, *P.F.Y.*; nr. Llyn Gafr, *E.M.-R.* det. *E.F.W.*; Dyffrydan, Islawrdref, *E.M.-R.* det. *P.F.Y.*; just W. of Hafotty Fach, above Arthog, *E.M.-R.* det. *E.F.W.*, *P.F.Y.*

*E. rostkoviana* Hayne *sensu lato*. GLANDULAR E.

The following two species are common in meadows and pastures, esp. on the more calcareous soils. They intergrade, plants more or less intermediate in character, though usually nearer *E. rostkoviana*, being apparently commoner than 'typical' plants of either sp.

*E. rostkoviana* Hayne. L, U. Post-1940 specimens det. thus—btwn. Tabor and Cross Foxes, *N. Y. Sandwith* det. *P. F. Yeo*; Hafod-y-meirch, nr. Dolgellau, *E. Milne-Redhead* det. *E. F. Warburg*, *P.F.Y.*; Dyffrydan, Islawrdref, *E.M.-R.* det. *P.F.Y.*; S. side of Taren Cadian, Corris, *V. S. Summerhayes* det. *P.F.Y.*

*E. anglica* Pugsl. L, U. Post-1940 specimens det. thus—by R. Ysgethin below Talybont bridge, *P. M. Benoit* det. *P. F. Yeo* ("does seem to be *anglica*"); nr. Llyn Gafr, *E. Milne-Redhead* det. *E. F. Warburg*. Also

Pwll-y-gele lake, nr. Dolgellau, *P. M. Benoit*, matches specimens det. as *E. anglica* by *E.F.W.*, teste *A. E. Wade*.

**Odontites verna** (Bell.) Dum. ssp. **serotina** (Wettst.) E. F. Warb. RED BARTSIA. L. Locally abundant in upper parts of salt-marshes. Mochras estuary, amongst *Juncus maritimus*. Boggy place by Mawddach estuary nr. Bontddu.

Casual on roadsides, etc., elsewhere. Talsarnau, 1957 (reported). Heol-ganol, Gynwyd, 1947, *Miss L. W. Frost*. Nr. Hafod-y-meirch, Dolgellau, 1956. Abergynolwyn, 1956, *Mrs. A. G. Side*. Nr. Ynys-faig, Fairbourne, 1940s. Llwyngwriil, 1951. N. side of Dysynni Broadwater, 1954.

**Orobanche rapum-genistae** Thuill. GREAT BROOMRAPE. L. Very rare. Fegla Fawr knoll, Arthog, 1 plant on *Sarothamnus scoparius* or *Ulex gallii*, 1957, *R. G. Perry* det. *A. E. Wade*.

**O. hederæ** Duby. IVY B. L. 2 localities only; on *Hedera helix*. Nr. Borthwen, Barmouth, very sparingly, 1951 (c. 8 spikes), 1953 (8 spikes), 1958 (1 spike). Aberdovey — said to be fairly frequent especially at Penhelyg.

**Pinguicula vulgaris** L. BUTTERWORT. Chiefly U. Common in upland sphagnum bogs; in lowlands only, sparingly, in a dune slack on Morfa Dyffryn and in Arthog Bog.

**Utricularia neglecta** Lehm. COMMON BLADDERWORT. L. Very local. Swamps on Morfa Harlech; seen flowering freely on 20.7.1955, otherwise barren. Peat ditches in Arthog Bog; always barren.

**U. minor** L. LEAST B. L, U. Local, in acid peat pools; always barren. Above Gwanas-fawr, nr. Dolgellau. Btwn. Mynydd y Gader and Mynydd Moel. Crogenen Bog. Arthog Bog, 1953 but not since.

\***Verbena officinalis** L. VERVAIN. L. Rare. [By the end of road to sea from Llanddwywe Church, 1 plant 1955.] Waste ground by Aberdovey Golf Club House, sparingly. Roadside at Pennal, in quantity.

**Mentha arvensis** L. CORN MINT. Chiefly L. Local, in marshes. Shore of Bala Lake nr. Glan-llyn. Below Dr. Williams' School, Dolgellau. Nr. Kings, Dolgellau, *Miss V. Gordon* det. *R. A. Graham*. E. end of Tallylyn Lake. The plants in all these localities have exerted stamens and fertile pollen, and set seed. Similar plants elsewhere, having included stamens with indehiscent anthers and not setting seed, are sterile *M. arvensis* or forms of *M. × verticillata* near *M. arvensis*.

**M. arvensis × spicata** (*M. × gentilis* L.). FRINGED M. L. Rare. Marshy places by the R. Wnion W. of Dolgellau, sparingly.

**M. aquatica** L. WATER M. L, U. Common in wet places.

**M. aquatica × arvensis** (*M. × verticillata* L.). WHORLED M. L. Common in wet places. Pant-mawr, Harlech. Pond on Mochras. Morfa Dyffryn. Glyndyfrdwy, *Miss V. Gordon*. Lake-shore btwn. Bala and Llanycil. Dolgellau district — Brithdir; nr. Cross Foxes; Tyn-sarn; Bwlch Coch; and nr. Dr. Williams' School. Fegla Fawr and Ynys Gyfflog, Arthog.

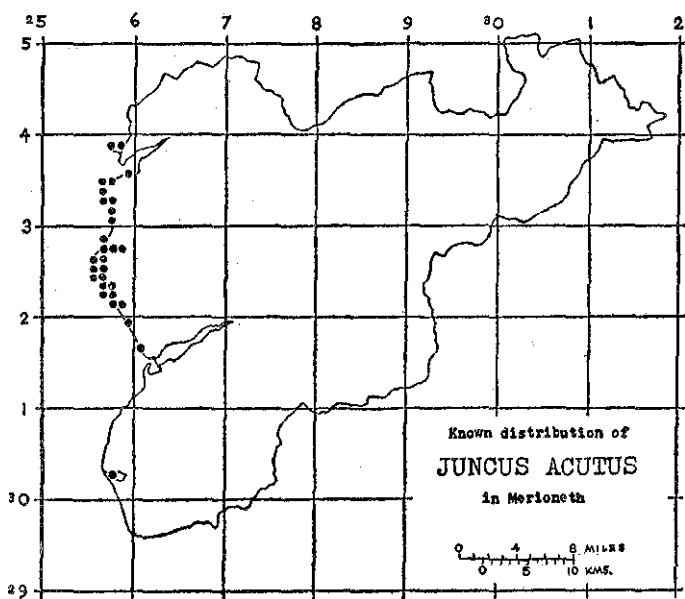
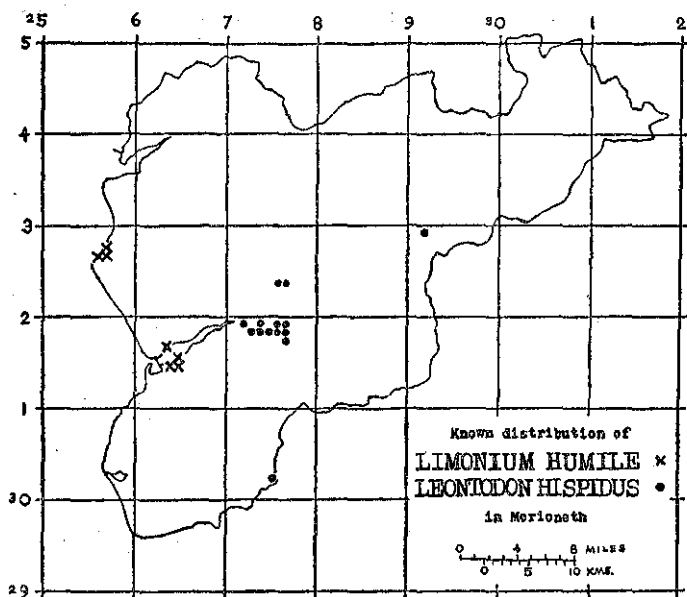
\***M. aquatica × spicata** (*M. × piperita* L.). PEPPER M. Rare; apparently always an escape. Dolgellau district — marshes nr. Dr. Williams' School; Glasgoed, Llanfachreth; Hen-siop, Tabor. Glyndyfrdwy, *Miss V. Gordon*.

*M. spicata* L., Spear M., is often grown in gardens but we have not found it escaped.

\***M. rotundifolia** (L.) Huds. APPLE M. L. A frequent garden escape. Wet place by road nr. Llechwedd-du-bach, Harlech. By Harlech Stn. By Pensarn Stn. Nr. Bwlch Coch, Dolgellau. Nr. the rly. bridge at Friog. Below the cemetery btwn. Towyn and Aberdovey.

**Lycopus europaeus** L. GIPSWORT. L. Frequent in marshes. Morfa Harlech. Morfa Dyffryn. Bryn Mynach lake, Barmouth. Glyndyfrdwy, *Miss V. Gordon*. Nr. Llanelltyd bridge, Corris, *Mrs. A. G. Side*. Arthog Bog. N. side of Dysynni Broadwater. Btwn. Towyn and Aberdovey. Gogarth Bog.

**Origanum vulgare** L. MARJORAM. L, U. Frequent, dry woods and banks on more calcareous soils. Nr. E. end of Portmadoc embankment. Y Garth, nr. Penrhyndeudraeth, *A. O. Chater* and *Miss A. P. Conolly*. Barmouth —



(The maps show the 10-km. squares of the Ordnance Survey National Grid. Each symbol represents a 1-km. square for which there is a record.)

in several places just outside the town on the Harlech and Dolgellau roads ; Llwyn Gloddaeth. Btwn. Bontddu and Llanelltyd. Nr. Drwsynant. Cliffs in Llaethnant. Corris district, *Mrs. A. G. Side*. Nr. Trefeddian and Trefri, Aberdovey.

*Thymus drucei* Ronn. WILD THYME. L, U, H. Common in dry pastures.

*Clinopodium vulgare* L. WILD BASIL. L. Rare, thickets and roadsides on dry more calcareous soils. Mochras. Laneside bank nr. Corwen. Glyn-dyfrdwy, *Miss V. Gordon*. Thicket nr. Fegla Fawr, Arthog.

\**Melissa officinalis* L. BALM. L. Occasional garden escape. Roadside nr. Gwynfryn, Llanbedr. Roadside at Fairbourne.

\**Salvia horminioides* Pourr. CLARY. I locality only. Waste ground nr. Aberdovey Stn.; last noticed 1948.

*Prunella vulgaris* L. SELF-HEAL. L, U, H. Common in damp grassland.

*Betonica officinalis* L. BETONY. L, U. Common, dry heathy places.

\**Stachys arvensis* (L.) L. CORN WOUNDWORT. L. Rather uncommon weed of arable land. Talybont, cornfields and tracksides esp. about the rly. halt and Egryn, most years. Glyn-dyfrdwy, 1959, *Miss V. Gordon*. Tyddyn Angharad, Corwen, 1960, *Mrs. Goodman*. Llandrillo, 1959, *R.A.R.C.* Rhydymain, 1953. Tyddyn Bach, Dolgellau, 1961. Nr. Arthog Church, 1952. Nr. shore at Llwyngwrl, 1951. Abergynolwyn, 1956, *Mrs. A. G. Side*. Rhyd-y-garnedd, nr. Tonfanau, 1954.

*S. palustris* L. MARSH W. L. Common in marshes and ditches.

*S. palustris* × *sylvatica*. HYBRID W. L. Local. By the Victoria Hotel, Llanbedr; with *sylvatica*, *palustris* nearby. By the stream below Bontddu bridge; *sylvatica* nearby. Glasdir mine, nr. Dolgellau; without either parent. By Bontnewydd Stn.; with and very much like *palustris*, *sylvatica* nearby. Roadside nr. Sarnau btwn. Bala and Corwen; without either parent.

*S. sylvatica* L. HEDGE W. L. Common, roadsides, shady places.

\**Ballota nigra* L. BLACK HOREHOUND. L. Very rare. Waste ground nr. Aberdovey Stn.

*Galeobdolon luteum* Huds. YELLOW ARCHANGEL. L. Local, in woody places with rich humus, always sparingly. Llechwedd Hill, Harlech. Ceilwart, Llanaber. Nr. Dolgun and Caerynwhc, Dolgellau.

\**Lamium purpureum* L. RED DEAD-NETTLE. L. An occasional weed of cultivation; not a common plant.

\**L. album* L. WHITE D. L. Rare. Waste ground, Hafod-y-calch, Corwen. Nr. Cynwyd Bridge. Roadside btwn. Llandderfel and Bala.

*Galeopsis tetrahit* L. COMMON HEMP-NETTLE. L, U. Common in wet woods and as a weed of agriculture; with pink or white corollas.

*G. bifida* Boenn. L, U. Frequent, usually with the last. By R. Glaslyn nr. Minffordd, in marshy thicket. Nr. Rhyd-wen, Llangower, in cultivated fields. Ty Glas, Brithdir, in potato field. Nr. Coed, Dolgellau, on roadside. Nr. Arthog P.O., in damp shady place.

\**G. speciosa* Mill. LARGE-FLOWERED H. L, U. Frequent weed of poor oat-fields in hill-country. Llwyn-onn, Barmouth, 1949, 1956. Dolgellau district—bank of R. Wnion below Dr. Williams' School, 1954; Penariag, 1956; Braich-y-fedw, 1953, 1959; Ty Glas, Brithdir, 1957; Hafod-y-meirch, 1956; and nr. the Hospital, 1942. Corwen, 1960, *Mrs. Goodman*. Rhyd-y-garnedd, nr. Tonfanau, 1954.

*Glechoma hederacea* L. GROUND-IVY. L, U. Common, pastures, hedgebanks.

\**Marrubium vulgare* L. WHITE HOREHOUND. L. Very rare. By the old Race Course House on Morfa Harlech.

*Scutellaria galericulata* L. SCULLCAP. L. Frequent in marshes. Morfa Harlech. Morfa Dyffryn. Nr. Garth Maelan, Dolgellau. By the R. Wnion W. of Dolgellau. Arthog Bog. Dysynni Broadwater. Nr. Pont Dysynni, Brynrcrug. Abergynolwyn, *Mrs. A. G. Side*. E. end of Talyllyn Lake. Btwn. Towyn and Aberdovey.



**S. minor** Huds. LESSER S. L, U. Frequent in bogs. Cwm Nantcol, Mrs. M. D. G. Jones. Hill above Barmouth. Cors Sarnau, btwn. Corwen and Bala. Nr. Garth Maclan, Dolgellau. Btwn. Dolgellau and Penmaenpool. Arthog Bog. Nr. the Crogenen Lakes. Btwn. Towyn and Aberdovey. Gogarth Bog.

**Teucrium scorodonia** L. WOOD SAGE. L, U. Common, dry woods and banks.

**Ajuga reptans** L. BUGLE. L, U. Common, wet meadows and wet woods.

**Plantago major** L. GREAT PLANTAIN. L, U. Common, river shingle, farms, cart-tracks, waste ground.

**P. lanceolata** L. RIBWORT P. L, U. Common, pastures, meadows, roadsides. Plants with anthers sterile (var. *anthoviridis* W. Wats.) or semi-sterile are frequent with the normal type.

**P. maritima** L. SEA P. Chiefly G. Frequent in muddy salt-marshes. Traeth Bach. Mochras estuary. Mawddach estuary, as at Bontddu, Arthog, and Fairbourne. Dysynni Broadwater. Dovey estuary nr. Gogarth.

Rare on rocks by sea at Arthog; and on acidic mountain cliffs on Cader Idris (N. of the summit?), E. Price Evans.

**P. coronopus** L. BUCK'S-HORN P. G. Common by sea on sandy and gravelly or stony ground, and rocks and cliffs. Very variable.

**Littorella uniflora** (L.) Asch. SHOREWEED. L, U, H. Locally abundant in lakes. Llyn Tecwyn Isaf. Llyn Gwmbychan. Trawsfynydd Lake. Llyn Caer Euni. Pool nr. Llandderfel. Bala Lake nr. Llanycil and Fachddeiliog. Llyn Cynwch. Pwll-y-gele lake. Llyn Aran. Talyllyn Lake. Doubtless in most of the lakes.

Rare in other habitats. In the R. Nantcol nr. Pen-isa'r-cwm. Shore of semi-tidal R. Dysynni nr. Brynchrug.

**Wahlenbergia hederacea** (L.) Rchb. IVY-LEAVED BELLFLOWER. L, U. In sphagnum bogs in many places. Cymerau Falls, Ffestiniog, R. E. Collins. Afon Llynor, Llandrillo, R.A.R.C. Pont Rhyd-sarn, nr. Llanuwchllyn (reported). Cwm Cowarch. Dolgellau district — banks of R. Mawddach nr. Tynygroes; nr. Cefn Maclan; Pwll-y-gele lake; Henfaes; Gwerngraig; and nr. Kings. Arthog Bog. Cwm Cau. E. end of Talyllyn Lake, in great quantity.

**Campanula rotundifolia** L. HARBELL. L, U, H. Common, dry pastures from sea-level to 2,900 ft. alt. on summit of Cader Idris.

**Jasione montana** L. SHEEP'S-BIT. L. Common, dry banks, duneland.

**Lobelia dortmanna** L. WATER LOBELIA. U. Frequent in base-poor mountain lakes. Llyn Eiddew Bach. Llyn Tecwyn Isaf. Llyn Gwmbychan. Llyn Irdydy, Mrs. M. D. G. Jones. Llyn Cynwch. Llyn Aran. Llyn Caer Euni.

\***Sherardia arvensis** L. FIELD MADDER. L. Local weed of roadsides. Btwn. Llanfair and Pensarn, 1949. Roadsides at Talybont, frequent and persistent for 20 years. Llanaber churchyard. Sown roadside verge btwn. Coesfaen and Bodowen, Barmouth, frequent 1961. Abergynolwyn district, Mrs. A. G. Side. Roadsides about Tonfanau, common. By Aberdovey Stn., 1948.

**Galium cruciata** (L.) Scop. CROSSWORT. L. Frequent on calcareous roadside banks in east of county; quite absent from west. Glyndyfrdwy, Miss V. Gordon. Cynwyd. W. of Llandrillo, R.A.R.C. Llandderfel (reported). Arenig district, 1959, B.S.B.I. excursion.

**G. odoratum** (L.) Scop. (*Asperula odorata* L.). WOODRUFF. L, U. Common in woods with rich humus. Ceunant Llenyrch, F. Rose. Btwn. Portmadoc and Minffordd. Talsarnau, F.R. Llechwedd Wood, Harlech. Talybont Wood. Orielton Woods, Barmouth. Glyndyfrdwy, Miss V. Gordon. W. of Corwen. Parc Calettwr, nr. Llandderfel. Nr. Drwsynant. Btwn. Bontnewydd and Dolgellau. Torrent Walk and Aran Glen, Dolgellau. Arthog. Abergynolwyn, Mrs. A. G. Side. Aberdovey.

\***G. mollugo** L. HEDGE BEDSTRAW. L. Rare casual. Common on sown roadside verge btwn. Coesfaen and Bodowen, Barmouth, 1961. Llanelltyd churchyard, 1 plant 1948. Field nr. Tyddyn Bach, Dolgellau, 1 plant 1960. Hayfield, Ty Glas, Brithdir, 1 plant 1958. Above Heol-ganol, Cynwyd, 1947, Miss L. W. Frost.

**G. verum** L. LADY'S B. Chiefly L. Abundant in the dunelands. Morfa Harlech. Morfa Dyffryn. Llanaber. Fairbourne. Towyn. Aberdovey.

Local elsewhere, in the more calcareous places. Roadside nr. Cae-garw, Talybont. Berwyn - Carrog, *Miss A. P. Conolly*, and Glyndyfrdwy, *Miss V. Gordon*. Nr. Cynwyd bridge. Pastures in valley above Llangower. Pasture nr. Drwsynant, 1 small patch. Pastures nr. Llanfachreth in two places. Cliffs in Cwm Geugraig. Cliffs above Llyn Gafr, at c. 1,500 ft. alt. (higher than altitudinal limit in Wales in Wilson, A. (1949), *Alt. Range Br. Fl.*, 2nd ed.). Trackside nr. Llwyngwrl Stn. Roadside at Rhoslefain.

**G. saxatile** L. HEATH B. L, U, H. Abundant in dry pastures.

**G. palustre** L. MARSH B. L, U. Common in boggy and marshy places and ditches; we have not attempted to distinguish the cytotypes.

**G. uliginosum** L. FEN B. U. Very rare. Base-rich bog in Cwm Tylo, nr. Parc, Bala, sparingly.

**G. aparine** L. GOOSEGRASS. L. Common, roadsides and thickets.

**Rubia peregrina** L. WILD MADDER. G. Very local, in thickets nr. sea on somewhat calcareous soil. Portmeirion, sparingly, 1951 *Mrs. K. M. Benoit*, 1960-1 *Mrs. M. D. G. Jones*. Barmouth - nr. Borthwen, 1 plant 1960-3; and nr. Coesfaen; 1 plant 1946 but not since. Reported from Aberdovey.

\***Sambucus ebulus** L. DANEWORT. Very local. A patch long known on side of track by Arthog Hall Farm.

**S. nigra** L. ELDER. L. Common, thickets, roadsides, esp. nr. cottages.

**Viburnum opulus** L. GUELDER-ROSE. L. Local in calcareous shady places, always sparingly. W. of Corwen. Valley above Rhosygwaliau. Hedge nr. Caer-gai, Llanuwchllyn. Dolgellau district - nr. Drwsynant; nr. Ochryfoel; Garth Maetan; Brithdir; Dol-gun; and bottom of old Cross Foxes road. Also in a marsh on Morfa Harlech.

+\***Symphoricarpus rivularis** Suksd. SNOWBERRY. L. On the rly. bank nr. Dolgellau Stn., in great quantity. Side of lane to Arthog Stn. Occasionally escapes elsewhere.

**Lonicera periclymenum** L. HONEYSUCKLE. L, U. Common, woods, hedges.

+\***Leycesteria formosa** Wallr. Garden escape. Thicket nr. Craig Fawr, Barmouth. Perhaps in a few places elsewhere.

**Adoxa moschatellina** L. MOSCHATEL. L, U, H. Frequent on woody banks with rich humus. Llwyn-onn, Barmouth. Side of A5 road at Bonwm, Corwen. Laneside W. of Corwen. Nr. Bala Junction Stn., *Miss V. Gordon*. Torrent Walk and about Dol-gun, Dolgellau. Roadside at Arthog. Reported from Dyffryn, Aberdovey.

Also on calcareous mountain cliffs. Above Llyn Gafr. Cwm Cau, *E. Price Evans*.

**Valerianella locusta** (L.) Betsche. COMMON CORNSALAD. L. 2 localities only as an apparent native on dunes. Morfa Harlech (var. *dunensis* D. E. Allen, det. *Allen*). Morfa Dyffryn.

Frequent in artificial habitats. Bank by rly. at Llanaber. Roadside walls btwn. Llanaber and Barmouth in many places, and nr. Porkington Terrace, Barmouth. Rly. W. of Llandrillo Stn., *R.A.R.C.* [Roadside at Ynysfaig, Fairbourne; disappeared.] Roadside walls nr. the stn. and Trefeddian Terrace, Aberdovey.

+\***V. carinata** Lois. KEELED-FRUITED C. L. 1 locality only. Wall of the Dolgellau road just outside Barmouth.

**Valeriana officinalis** L. GREAT VALERIAN. L, U, H. Common in marshes.

*V. dioica* L., Marsh V., in *Price Evans, E. (1945), Journ. Ecol., 32, 171, 172 and 174, is V. officinalis.*

\***Centranthus ruber** (L.) DC. RED V. L. Common, walls, rly banks.

\***Dipsacus fullonum** L. WILD TEASEL. L. Rare. Harlech dunes. Field at Llanfihangel-y-traethau. Field by the Cwmbychan lane, Llanbedr. Field nr. Abertafol Halt.

**Knautia arvensis** (L.) Coult. FIELD SCABIOUS. L. Rare in pastures. Nr. shore on Mochras. Nr. Glan-y-morfa, Llanelltyd; sown meadow? Nr. Cynwyd, and probably elsewhere in far E. of county.

Frequent on rly. banks. Btwn. Llandanwg Halt and Pensarn Stn. Just S. of Talybont Halt. Glyndyfrdwy district, *Miss A. P. Conolly, Miss V. Gordon*. Llandderfel to Llangower, *Miss A.P.C.*; Bala Junction; Llangower Halt.

**Succisa pratensis** Moench. DEVIL'S-BIT S. L, U, H. Abundant in wet places, especially with *Molinia caerulea* on acid peat.

**Bidens cernua** L. NODDING BUR-MARIGOLD. L. Local, in peaty ditches nr. sea. Arthog Bog, sparingly but persistent for at least 20 years. Nr. Fairbourne Stn., occasionally.

**B. tripartita** L. THREE-CLEFT B. L. Local, in marshy places trampled by cattle. Mochras, 1961, *Mrs. M. D. G. Jones*. Nr. Fegla Fawr, Arthog, 1961. N. side of Dysynni Broadwater, 1954.

+ **Galinsoga parviflora** Cav. GALLANT SOLDIER. Rare garden weed. Coed-y-bachau, Dyffryn, c. 1949. Allotments in Park Road, Barmouth, in quantity 1959-61.

**Senecio jacobaea** L. RAGWORT. L, U. Common, fields and dunes. [Var. **discoideus** L., rubbish tip nr. Mochras, 1958 but not since.]

**S. aquaticus** Hill. WATER R. L, U. Common in marshy places. († = with *S. jacobaea* and hybrid.) By R. Glaslyn nr. Minffordd. †By Tygwyn Halt. †Pant-mawr, Harlech. Cwmbychan, *F. Rose*. †Mouth of R. Ysgethin. †Below Bontddu bridge. †Nr. Llanelltyd bridge. Dolgellau district — †by R. Wnion W. of the town; †Glasdir bridge; Llanfachreth; †Coed; Hafod-y-meirch; Gwerngraig; and Bwlch Coch. Cwm Cowarch. †Valley above Llangower. †E. end of Bala Lake. †Bank of R. Dee at Llandderfel. Corwen district, *R.A.R.C. Glyndyfrdwy, Miss V. Gordon*. †Nr. Barmouth Junction. Nr. Fairbourne Stn. Corris and Abergynolwyn, *Mrs. A. G. Side*. N. side of Dysynni Broadwater. Aberdovey.

**S. aquaticus** × **jacobaea**. Usually to be found where the parent species grow together. For localities see *S. aquaticus*. Especially abundant nr. Pandyrodyn, Dolgellau, and around E. end of Bala Lake. 1 plant without either parent nr. Brithdir Church and below Arthog Church, 1955.

\***S. squaridus** L. OXFORD R. L. Common on rly. ballast. Llandecwyn Halt. Talwrn Bach Halt. Barmouth—rly. sidings in Park Rd., and by Victoria Flats. Corwen. Bala Junction. Nr. Arthog. Barmouth Junction. Fairbourne. Friog embankment. S.W. of Llwyngwrlil. Llangelynin Halt. Btwn. Tonfanau and Towyn. Just S.E. of Towyn Stn. Gogarth Halt.

**S. squaridus** × **viscosus**. Rly. crossing btwn. St. Mary's Terrace and Barmouth Junction Stn., 1 plant 1960.

**S. sylvaticus** L. HEATH GROUNDSEL. L, U. Common, dry heathy banks.

\***S. viscosus** L. STICKY G. L. Local. Morfa Harlech, on the stony bed of a wartime tramway, in quantity. On the rly. at Barmouth Junction, occasional. Rly. bank W. of Aberdovey Stn.

**S. vulgaris** L. COMMON G. L. Common, dunes and cultivated ground. Var. **radiatus** Koch frequent, especially on the roadside at Llanaber and rly. at Arthog and Barmouth Junction.

**Tussilago farfara** L. COLTSFOOT. L, U. Rather local on river shingle and in stony stream-beds, where it seems native. Common about rlys. and on roadsides and waste ground.

**Petasites hybridus** (L.) G. M. & S. BUTTERBUR. L. Local. Bank of R. Alwen nr. Corwen; male. Glyndyfrdwy, sex?, *Miss V. Gordon*. Probably elsewhere in far E. of county.

\***P. albus** (L.) Gaertn. WHITE B. L. Very local. Laneside bank nr. Bodlondeb, Dolgellau, in quantity.

\***P. fragrans** (Vill.) C. Presl. WINTER HELIOTROPE. L. Frequent on roadsides. N. side of Harlech. Llanfair old road. Dyffryn. Talybont Bridge. Nr. Hendre Mynach and Bryn-teg, Barmouth. Nr. Dr. Williams' School, Dolgellau. Penhelyg, Aberdovey.

**Inula conyza** DC. PLOUGHMAN'S SPIKENARD. **L.** Rare, on dry (basic?) rocks. Harlech Castle, 3 plants 1960. Wall at Alltfawr, Barmouth, 1 plant 1943 (cf. Barmouth, 1872, *W. A. Shoolbred* spec. in Hb. NMW). Roadside at Aberdovey.

**Pulicaria dysenterica** (L.) Bernh. FLEABANE. **L.** Local, but locally abundant, in marshes. Morfa Harlech. Morfa Dyffryn. Boggy patch on hill above Brynawel Terrace, Barmouth.

**Filago germanica** (L.) L. UPRIGHT CUDWEED. **G.** Rare, on dry acid sandy soils. Morfa Dyffryn, in dune slacks. Nr. Trefeddian, Aberdovey, on roadside (and golf-links?).

**F. minima** (Sm.) Pers. LEAST **G. G.** Local, on acid stable dunes. Morfa Harlech. Morfa Dyffryn. Nr. Trefeddian, Aberdovey (reported). Also as an alien on rly. sidings at Bontnewydd Stn.

**Gnaphalium sylvaticum** L. WOOD **G. L.** Rare, in wet fields trampled by cattle and ruts in seasonally wet farm tracks; perhaps not native. Mochras c. 2 plants 1959-61. Nr. Llyn Caer Euni, 1959, *B.S.B.I. excursion*. Nr. Llanycil, 1959, *B.S.B.I. excursion*.

**G. uliginosum** L. MARSH **G. L.** Common, in same habitats as the last.

\***Anaphalis margaritacea** (L.) Benth. PEARL EVERLASTING. Rare. Llanelltyd, Mallwyd, and Llanfachreth, 1941, *J. A. Webb*.

**Antennaria dioica** (L.) Gaertn. MOUNTAIN **E.** Chiefly **H.** Local, in calcareous mountain grassland. Rhobell Fawr. Cwm Geugraig. Cwm Aran. Mynydd y Gader. Above Llyn Gafr. Also nr. sea level at Mochras, very sparingly.

**Solidago virgaurea** L. GOLDEN-ROD. **L, U, H.** Common, dry heathy woods, banks, and rocks.

**Var. cambrica** (Huds.), chiefly **H.**, on damp rocks in alpine districts. River beds in two places nr. Tyn-y-groes, Dolgellau, descending to c. 150 ft. alt. Cader Idris—Cwm Geugraig; above Llyn Gafr; N. cliff of the Cyfrwy; and probably elsewhere. Variable and grading into the type; the extreme form (as at Tyn-y-groes) very distinctive in its dwarfness and few large capitula, and in flowering May-June, instead of Aug.-Sept. as in the type.

**Aster tripolium** L. SEA ASTER. **G.** Common, muddy salt-marshes. **Var. discoideus** Rchb. occasional with type at Mochras and nr. Bodowen, Barmouth.

+\***A. longifolius** Lam. MICHAELMAS DAISY. **L.** Abundant and completely naturalised in marshes by R. Glaslyn nr. Minffordd. Apparently this.

**Erigeron acer** L. BLUE FLEABANE. **G.** 2 localities only, on fixed dunes. Morfa Harlech, in quantity. Morfa Dyffryn, 1 small patch.

**Bellis perennis** L. COMMON DAISY. **L, U.** Common, pastures, foot-paths.

**Eupatorium cannabinum** L. HEMP AGRIMONY. **L.** Common in marshy and bushy places.

\***Chamaemelum nobile** (L.) All. (*Anthemis nobilis* L.). CHAMOMILE. Very rare. Valley above Llangower, 1 patch on side of track.

**Achillea millefolium** L. YARROW. **L.** Common in pastures.

**A. ptarmica** L. SNEEZEWORD. **L, U.** Common in marshy places.

**Tripleurospermum maritimum** (L.) Koch (*Matricaria maritima* L.). SCENTLESS MAYWEED.

**Ssp. maritimum. G.** 1 locality only. Nr. the shore at Barmouth, a few plants; this ssp. or nearly so.

**Ssp. salinum** (Wallr.) Pedersen. **G.** Common nr. the sea on drift lines, shingle beaches, cliffs, and rlys.

**Ssp. inodorum** (L.) Hyl. ex Vaar. **L.** An occasional weed of cultivated fields and rlys. inland.

Our ssp. *salinum* is apparently series of intermediates or hybrid swarms between ssp. *maritimum* and ssp. *inodorum*.

\***Matricaria recutita** L. (*M. chamomilla* auct.). WILD CHAMOMILE. **L.** Rare. Rhyd-y-wernen, Cwm Main, N.E. of Bala, in a cultivated field, 1959, *J. G. Dony*.

\**M. matricarioides* (Less.) Port. PINEAPPLE-WEED. L, U. Common on farm tracks and in damp trampled fields.

\**Chrysanthemum segetum* L. CORN MARIGOLD. L, U. Rare casual weed of cultivated fields.

*C. leucanthemum* L. OX-EYE DAISY. L, U, H. There appear to be in Merioneth two main types corresponding well with the '*C. leucanthemum* L.' and '*C. ircutianum* Turcz.' of Böcher, T. W., and Larsen, K. (1957), *Watsonia*, 4, 11-16:

(a) Plant with deeply dissected, often bipinnatifid, leaves and 'small' pollen grains. Bird Rock, nr. Towyn, on cliff ledges. Cwm Cau and Tyrau Mawr, on mountain cliffs, *E. Price Evans*, almost certainly this type. Probably a frequent native on mountain cliffs.

(b) Stouter plant with simply pinnatifid or lobed leaves and 'large' pollen grains. Common in lowlands, in hayfields and on roadsides and rly. banks; probably introduced.

Plants having a mixture of 'large' and 'small' pollen grains occur in dune slacks on Morfa Harlech and Morfa Dyffryn and on a rly. bank at Friog; these are possibly hybrids but they appear to be highly fertile. The dissection of leaves in the aggregate is also variable. We have therefore thought it best to list the various types as a single species, *C. leucanthemum* L.

\**C. parthenium* (L.) Bernh. FEVERFEW. L. Occasional garden escape on roadsides. Creigiau Bychain, Bontddu. Nr. Garth Angharad, Arthog. Nr. Arthog P.O.

\**C. vulgare* (L.) Bernh. (*Tanacetum vulgare* L.). TANSY. L. Occasional on waste ground. Mynach Road and Jubilee Road, Barmouth. Rly. bank W. of Dolgellau Stn. Nr. Tonfanau. Also reported from Llanfachreth and Abergynolwyn districts.

\**Artemisia vulgaris* L. MUGWORT. L. Common, roadsides, waste places.

\**A. absinthium* L. WORMWOOD. L. Occasional on waste ground. Nr. E. end of Portmadoc embankment, *Mrs. M. D. G. Jones*. Barmouth — Cellfechan; town refuse tip; Penygraig; nr. Ty-crwn. Cadwst, nr. Llandrillo, R.A.R.C. Aberdovey — refuse tip on Towyn road; waste ground nr. the stn.

*Carlina vulgaris* L. CARLINE THISTLE. L, U. Frequent in dry pastures, esp. on the more calcareous soils. Llandecwyn, nr. the toll bridge. Common on Morfa Harlech and Morfa Dyffryn. S. slope of the Garn, above Barmouth. Glyndyfrdwy, *Miss V. Gordon*. Cwm Gowarch. Nr. shore at Arthog. Aberdovey golf-links.

\**Arctium nemorosum* Lej. (incl. *A. minus* Bernh.). BURDOCK. L. Common about farms and cart tracks; doubtfully native. Plants referable to *A. minus* are rare — Orielson Park, Barmouth, 1951, now disappeared; meadow nr. Pandryodyn, Dolgellau, sparingly; perhaps in a few other places.

\**Carduus tenuiflorus* Curt. SLENDER-HEADED THISTLE. C. Local but locally abundant, on waste sand nr. sea. Fairbourne Spit. Nr. Aberdovey Stn.

\**C. nutans* L. MUSK T. L. Rare casual. Sandy grassland nr. mouth of R. Ysgethin, 1950. Waste ground nr. Aberdovey Stn., 1955.

\**C. acanthoides* L. WELTED T. L. Very local. Nr. Gynwyd, commonly on waste ground by farm, 1955.

*Cirsium vulgare* (Savi) Ten. SPEAR T. L. Common in fields.

*C. palustre* (L.) Scop. MARSH T. L, U. Common, marshes, wet pastures.

*C. arvense* (L.) Scop. CREEPING T. L, U. Common, dry fields, duneland, tracksides, esp. if grazed by sheep or rabbits.

*C. heterophyllum* (L.) Hill. MELANCHOLY T. U. Rare. Arenig, on rly-bank, 1953, *E. H. Chater*; although the habitat was artificial, this sp. has been recorded in the past from Merioneth as an undoubted native.

\**Centaurea scabiosa* L. GREATER KNAPWEED. L. Very local. Rly. bank W. of Aberdovey Stn.

*C. nigra* L. HARDHEAD. L, U. Common, meadows, hayfields, roadsides. Mostly (all?) ssp. *nigra* (*C. obscura* Jord.).

**Serratula tinctoria** L. SAW-WORT. L, U. Frequent, dry bushy places and cliffs. Nr. Gwynfryn, Llanbedr. Cwmbychan, F. Rose. Hafod-y-bryn and Cae-newydd, Barmouth. Ganllwyd-Trawsfynydd road. Dolgellau district—Rhaiadr Ddu; Benglog; Helygog; Cwm Geugraig; and nr. Kings. By the shore at Arthog. Reported from Aberdovey.

**Lapsana communis** L. NIPPLEWORT. L. Common, woods and roadsides with damp rich humus.

**Hypochoeris radicata** L. COMMON CAT'S-EAR. L, U. Common in pastures.

**H. glabra** L. SMOOTH C. C. Local, on bare acid sandy ground. Morfa Harlech. Mochras. Morfa Dyffryn. Fairbourne Spit.

**H. glabra** × **radicata**. Rare, with the parents. Morfa Harlech. Mochras. In both localities a few plants only.

**Leontodon autumnalis** L. AUTUMN HAWKBIT. L, U. Common, meadows, pastures, roadsides. Some salt-marsh plants with nearly entire, fleshy leaves and glabrous involucre, as at Llanfihangel-y-traethau, Pensarn, and nr. Arthog Stn., may be referable to the var. **salina** (Aspegren) Lange.

**L. hispidus** L. ROUGH H. L, U. Frequent in the Dolgellau district but very rare elsewhere, in pastures and on roadsides on the more calcareous soils. Dolgellau district—Llanelltyd churchyard; nr. Cefn Maclan; Maes-y-bryner; nr. Ochr-y-foel; Llanfachreth, in two spots; roadsides btwn. Dolgellau and Bontnewydd and btwn. Dolgellau and Caerynwhc; Brithdir; bank of R. Wnion on the Marian. Nr. Rhydwen, Llangower, 1 plant 1959. Ffridd Gate, nr. Machynlleth, 1 plant 1959. *Map p. 37.*

**L. taraxacoides** (Vill.) Mérat (*L. leysleri* G. Beck). HARRY H. Chiefly C. Abundant in the dunelands. Morfa Harlech. Morfa Dyffryn. Barmouth. Arthog. Fairbourne. Btwn. Towyn and Aberdovey.

Very local in pastures elsewhere. Nr. Llyn Tecwyn Isaf. Nr. Cefn Maclan, Dolgellau.

\***Picris echioides** L. BRISTLY OX-TONGUE. L. Rare weed; probably casual. Nr. Tonfanau, 1955; again 1961, *Mrs. Paish.*

\***Tragopogon pratensis** L. ssp. **minor** (Mill.) Rouy. GOAT'S-BEARD. L. Local, about rlys. Harlech Stn. Towyn Stn. Aberdovey Stn.

Also on sand-dunes at Harlech, in one spot; ssp. not determined but very probably this.

**Mycelis muralis** (L.) Dum. WALL LETTUCE. L. Frequent in rocky woods with rich humus and on damp shady walls. Llechwedd Wood, Harlech. Above Bodowen and nr. Glandwr, Barmouth. Roadside at Ganllwyd. Berwyn to Carrog, *Miss A. P. Conolly, Miss V. Gordon.* Cynwyd. Bontnewydd. Dolgellau. Penmaenpool. Arthog. Abergynolwyn district, *Mrs. A. G. Side.*

**Sonchus arvensis** L. CORN SOW-THISTLE. L. Common in upper parts of salt-marshes and in reed-swamps and waste places.

**S. oleraceus** L. COMMON S. L. A very common weed.

**S. asper** (L.) Hill. ROUGH S. L. A very common weed.

NOTE.—The 20 microspecies of *Hieracium* Subgenus *Hieracium* listed here are divided for convenience into three groups resembling the orthodox species of other genera—'*H. murorum*' comprising the Sections *Oreadea*, *Vulgata*, *Tridentata* and *Foliosa*; '*H. umbellatum*', the Section *Umbellata*; and '*H. sabaudum*', the Section *Sabauda* (cf. *Taraxacum*). Through the kindness of Mr. P. D. Sell, to whom we record our grateful thanks, we are able to list records (distinguished by being printed in parentheses) for the period up to 1940, in addition to later ones as in the rest of this work. All the records are represented by specimens; these have been determined by P. D. Sell and C. West, except *H. lasiophyllum* from near Drwsynant and J. E. Lousley's specimens (all determined by J. E. Raven), and C. E. A. Andrews's specimens. Altitudinal type, frequency, and habitats are given where possible; but these data are incomplete and may need modifying later, for there is still much work to be done on the Merioneth *Hieracium* flora, especially in the east of the county.

'*Hieracium murorum* L.' (H. Sect. *Oreadea*, *Vulgata*, *Tridentata* and *Foliosa*). COMMON or WALL HAWKWEED.

*H. lasiophyllum* Koch. H. Local, on mountain rocks. (Nr. Blaenau Ffestiniog on slate cliff, 1903, *H. J. Riddelsdell.*) (Diffwys, nr. Barmouth, 1914, *H. W. Pugsley.*) Nr. Drwsynant, 1953, *Mrs. M. Richards.*

*H. leyi* F. J. Hanb. H. Local, on calcareous mountain rocks. Nr. Llyn Gafr, n.d., *Mrs. M. Richards.* Probably elsewhere on Cader Idris.

*H. carneddorum* Pugsley. H. Local, on calcareous mountain rocks. E. end of Cader Idris range, 1954, *Mrs. M. Richards.* Cwm Aran, 1961, *E. R. S. Winter*, "Apparently *H. carneddorum* . . . but identification not certain"—*P. D. Sell.*

*H. argenteum* Fries. U, H. Local, on mountain rocks. Ffestiniog district—(Head of the Dolwyddelan road, Blaenau, 1903, *A. Ley*); (Tanygrisiau—Cwm Orthin—Cnicht—Cwm Croesor area, 1880, *C. Bailey*; 1903, *A. Ley*); Cynfal river, 1955, *C. E. A. Andrews* in *Proc. B.S.B.I.*, 2, 33, 1956. (Riverside, Tryweryn glen, nr. Bala, 1891, *A. Ley.*) E. end of Cader Idris range, n.d., *Mrs. M. Richards.* Rocks above Bryn-rhug, nr. Dolgellau, 1953, *J. E. Lousley.*

(*H. orimeles* F. J. Hanb. ex W. R. Lint. Local? Llangower glen, 1903, *A. Ley.*)

*H. caledonicum* F. J. Hanb. Local. Rocks at Pistyll y Cain, 1954, *Mrs. M. Richards.*

*H. vulgatum* Fries. L, U, H. Frequent. (Drwsynant, 1903, *A. Ley.*) Roadsides at Wnion Halt and btwn. there and Bontnewydd, 1953, *J. E. Lousley.* Side of Torrent Road, Dolgellau, 1957, *Mrs. M. Richards.* Dolgellau, 1954, *C. West.* Cliffs nr. Llyn Gafr, 1947, *Mrs. M. Richards*; 1956, *E. K. Horwood.* (Old walls, Arthog, 1915, *W. C. Barton.*) Roadside nr. Trefri, Aberdovey, 1954, *P. M. Benoit and Mrs. M. Richards.*

*H. subamplifolium* (Zahn) Roffey. Dolgellau, 1954, *C. West.*

*H. submutabile* (Zahn) Pugsley. L, U, H. Frequent? Roadsides at Bontnewydd and nr. Wnion Halt, Dolgellau, 1953, *J. E. Lousley.* Cliffs nr. Llyn Gafr, 1953, *J. E. Lousley.*

*H. diaphanoides* Lindeb. L. Local. Laneside at Brithdir, 1953, *J. E. Lousley.*

*H. diaphanum* Fries. L, U, H. Common on rocks, mortared walls, and roadsides. (Ffestiniog, 1892, *E. F. and W. R. Linton*; 1903, *A. Ley.*) Pistyll y Cain, 1954, *Mrs. M. Richards.* Ganllwyd, 1954, *Mrs. M. Richards.* Brithdir, nr. Cross Foxes, Tabor, and above Bryn-rhug, all nr. Dolgellau, 1953, *J. E. Lousley*, det. as *H. daedaloleptoides* (Zahn) Roffey. E. end of Cader Idris range, 1948, *Mrs. M. Richards.* (Arthog, 1915, *W. C. Barton.*) Pennant Dyfi, 1955, *Mrs. M. Richards.* Dolgoch Falls, 1953, *J. E. Lousley*, det. as *H. daedaloleptoides.* (Btwn. Aberdovey and Penhelyg, 1918, *J. C. Melwill.*)

*H. anglorum* (A. Ley) Pugsley. L, U. Local? Ffestiniog district—(1903, *A. Ley*); nr. Tanybwllch, on track of Ffestiniog Rly., 1955, *E. K. Horwood*; Cynfal valley, 1955, *C. E. A. Andrews* in *Proc. B.S.B.I.*, 2, 34, 1956.

*H. strumosum* (W. R. Lint.) A. Ley (incl. *H. lachenalii* auct.). L, U, H. Common on rocks, mortared walls, and roadsides. Nr. Minffordd, Penrhyndeudraeth, 1950, *S. M. Walters*; 1953, *J. E. Lousley*, part det. as *H. lachenalii.* Nannau, 1954, *N. T. Sandwith*; and Dolgellau—Llanfachreth road, n.d., *Mrs. M. Richards.* Nr. Wnion Halt, 1953, *J. E. Lousley.* E. end of Cader Idris range, 1948, *Mrs. M. Richards.* Llyn Aran, 1948, *J. E. Woodhead.* Nr. Llyn Gafr, 1953, *J. E. Lousley*, det. as *H. lachenalii.* By rly. btwn. Dolgellau and Penmaenpool, 1948, *per E. B. Bangarter.* Nr. Arthog, (1915, *W. C. Barton*); 1961, *P. M. Benoit.* By stream running out of Talyllyn Lake; by Talyllyn rly., Abergynolwyn; and Dolgoch Falls; all 1953, *J. E. Lousley.*

*H. sparsifolium* Lindeb. H. Local, on mountain rocks. (Bwlch Tyddiad, 1852, *W. Mathews.*) E. end of Cader Idris range, 1948, *Mrs. M. Richards.* Nr. Llyn Gafr, and Cwm Cau, both 1953, *J. E. Lousley*, det. as *H. stictophyllum* Dahlst.

(*H. scabrisetum* (Zahn) Roffey (*H. pseudacrifolium* Pugsl.). Ffestiniog, 1892, *W. R. Linton*.)

*H. subcrocatum* (E. F. Lint.) Roffey. L. Brithdir, 1953, *J. E. Lousley*, det. as *H. bartonii* Pugsl. Banks at Coed and Helygog, both 1954, *N. Y. Sandwith*. (Cader Idris, 1875, *A. Ley*.)

'*H. umbellatum* L.' (*H. Sect. Umbellata*). UMBELLATE H.

*H. umbellatum* L. L. Rather common, esp. on the more calcareous soils. Ffestiniog, 1956, coll.? Trawsfynydd, 1956, *R. E. Collins*. (Maentwrog, 1916, *W. C. Barton*.) (Cwmbychan, 1895, *W. R. Linton*.) Laneside at Brithdir, 1953, *J. E. Lousley*. Roadside bank, Coed, Dolgellau, 1954, *N. Y. Sandwith*. Rocks by shore at Arthog, 1954, *P. M. Benoit*. Rhowniar, Towyn, 1950, *D. O. Jones*.

*H. bichlorophyllum* (Druce & Zahn) Pugsl. L. Local. (Afon Artro nr. Llanfair, 1895, *W. R. Linton*.) Wood, Bottalog, Towyn, 1956, *E. K. Horwood*.

Undetermined '*H. umbellatum*' also grows in these localities—Harlech duneland; Talybont Wood; wood by Plas Mynach, Barmouth; laneside at Gelli-grin, Rhosygwaliau, Bala; Torrent Road, Dolgellau; and rough grassland nr. Arthog Stn.

'*H. sabaudum* Fries' (*H. Sect. Sabauda*). SAVOY H.

*H. perpropinquum* (Zahn) Druce. L. Very local. Glasdir, 1957, and Llanfachreth, 1961; both nr. Dolgellau, sparingly on acid banks, *P. M. Benoit* and *Mrs. M. Richards*. Roadside nr. Gogarth Halt, 1956, *E. K. Horwood*.

*H. vagum* Jord. L. Very common on dry acid banks, roadsides, and rly. ballast. (Tanybwch, 1915, *W. C. Barton*.) (Minffordd, Penrhynedu-draeth, 1915, *W. C. Barton*.) Harlech duneland, 1954, *N. Y. Sandwith*. (Afon Artro nr. Llanfair, 1895, *W. R. Linton*.) Llanbedr, 1953, *J. E. Raven*. Aber-arto woods, 1961, *Mrs. M. D. G. Jones*. Pwll-y-march, Cwm Nantcol, 1953, *J. E. Raven*. Talybont wood, 1961, *Mrs. M. D. G. Jones*. (Precipice Walk, Dolgellau, 1926, *N. D. Simpson*.) Glasdir bridge, 1957, and Llanfachreth, 1961, both *P. M. Benoit* and *Mrs. M. Richards*. (Dolgellau, 1915, *W. C. Barton*.) (Cefn-y-maes, Brithdir, 1908, *S. J. ff. Chamberlain*), and Brithdir, 1953, *J. E. Lousley*. Coed, Dolgellau, 1953, *J. E. Lousley*; 1954, *N. Y. Sandwith*; 1954, *Mrs. M. Richards*. Roadside nr. Llyn Gwernan, 1956, *E. K. Horwood*. (Foot of Cader Idris, 1892, *A. J. Crossfield*.) Arthog, 1954, *P. M. Benoit*. (Woods, Fairbourne, 1913, *H. H. Haines*.) Fairbourne—Llwyngwrl road, n.d., *Mrs. M. Richards*. Roadside bank S.W. of Craig yr Aderyn, 1956, *E. K. Horwood*. Rhowniar, Towyn, 1950, *D. O. Jones*.

*H. pilosella* L. MOUSE-EAR H. L, U. Common in dry pastures.

\**Crepis vesicaria* L. ssp. *taraxacifolia* (Thuill.) Thell. BEAKED HAWKS-BEARD. L. Very local but locally abundant. Towyn Stn., on rly. Just E. of Aberdovey Stn., on rly. and adjacent dunes.

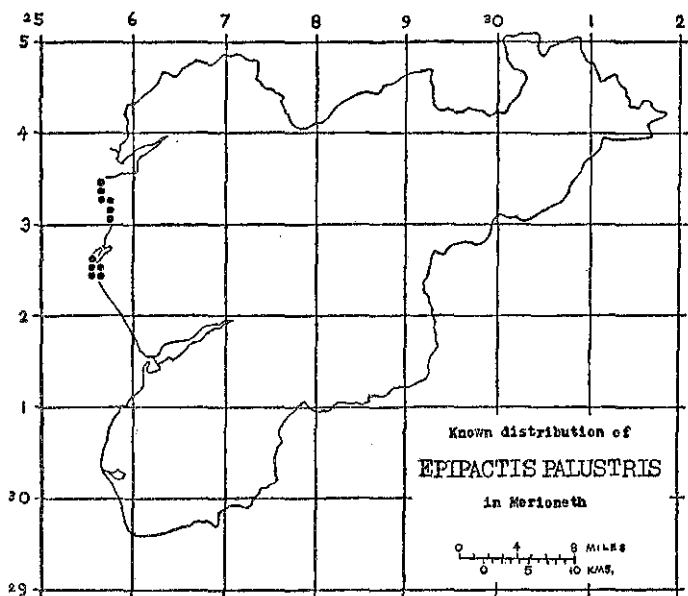
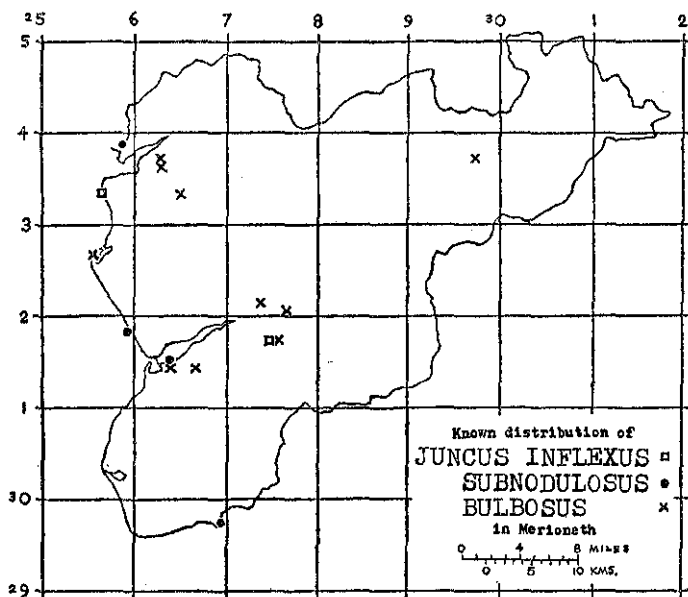
*C. capillaris* (L.) Wallr. SMOOTH H. L. Common, meadows, roadsides.

*C. paludosa* (L.) Moench. MARSH H. U, H, rarely L. Common in the Dolgellau district, local elsewhere; damp woods and rocks, boggy meadows, and streambanks, in the hill-country—esp. if calcareous. Cwm Cynfal, nr. Bontnewydd, Ffestiniog. Cwm Nantcol. Below Talybont bridge. Dolgellau district—R. Camlan at Ganllwyd; Nannau; Llanfachreth; nr. Drwsynant in several places; Brithdir; Torrent Walk; Dolserau; Coed; Bwlch Coch; Cwm Cau, *E. Price Evans*; above Llyn Gafr; Dyffrydan; banks of R. Wnion nr. Dr. Williams' School. R. Twrch at Llanuwchllyn. Valleys above Llangower and Rhosygwaliau. Ffridd Gate, nr. Machynlleth.

'*Taraxacum officinale* Weber' (*T. Sect. Vulgaria*). COMMON DANDELION. Chiefly L. Abundant, road- and path-sides, waste places, gardens. Conventionally classed as a 'native', though apparently always in an 'alien' habitat.

'*T. palustre* (Lyons) DC.' (*T. Sect. Palustria*, '*T. paludosum* (Scop.) Schlecht. ex Crép.') and '*T. spectabile* Dahlst.' (*T. Sect. Spectabilia*). Marsh DD. The Merioneth marsh dandelions have previously been regarded as belonging





(The maps show the 10-km. squares of the Ordnance Survey National Grid. Each symbol represents a 1-km. square for which there is a record.)

to '*T. palustre*'; '*T. spectabile*' is recorded for N. Wales in *WFP*, 111, only from Caernarvonshire (v.c. 49). But recently specimens collected on Cader Idris by Miss V. Gordon have been referred to '*T. spectabile*', and see Allen, D.E. (1961) in *Proc. B.S.B.I.*, 4, 160-1. Our plants need to be re-examined and the occurrence of '*T. palustre*' in Merioneth confirmed. The following entry is therefore for the aggregate '*T. palustre*' plus '*T. spectabile*'.

L, U, H. Frequent in wet places. Marshes on Morfa Harlech. Marshes nr. shore below Talybont and Egryn. Duneland btwn. Llanaber and Barmouth. Rocks by Dolgellau road nr. Barmouth. Meadow by R. Dee at Cynwyd. Side of Bala-Dolgellau road nr. Fronwydd. Rocks on roadside at Corris. Common in Arthog Bog.

+ '*T. spectabile* Dahlst.' (T. Sect. *Spectabilia*). In wet places. Cader Idris—above Llyn Gafr; above Dyffrydan; Mynydd Gwerngraig; and nr. Dol-y-cae, Talyllyn; all Miss V. Gordon det. D. E. Allen.

'*T. laevigatum* (Willd.) DC.' (T. Sect. *Erythroserma*). DUNE D. Chiefly C. Abundant in the dunlands. Morfa Harlech. Morfa Dyffryn. Btwn. Llanaber and Barmouth. Fairbourne Spit. Aberdovey golf-links.

Very local elsewhere. Calcareous wall nr. Cynwyd. Side of footpath nr. Arthog P.O.

*Baldellia ranunculoides* (L.) Parl. LESSER WATER-PLANTAIN. L. Local, in swamps and ditches on coast. Morfa Harlech. Mochras. Morfa Dyffryn. [Below Llwynwews, Llanaber; disappeared.] Aberdovey golf-links.

*Luronium natans* (L.) Raf. FLOATING W. U. Very local, in mountain tarns. Llyn Cwmorthin, N. Woodhead. Llyn Eiddew Bach. [Llyn Cwmbychan; disappeared.] Llyn Cynwch.

*Alisma plantago-aquatica* L. GREAT W. L. Common, swamps, ditches.

\**Elodea canadensis* Michx. CANADIAN WATERWEED. L. Very local. Marsh by Bala Lake, 1954, probably now reduced or extinct through draining of the locality when the level of the lake was lowered in connection with flood control work; barren.

*Triglochin palustris* L. MARSH ARROW-GRASS. L, U. Rather common in marshy places nr. sea. Morfa Harlech. Mochras. Mouth of R. Ysgethin. Nr. shore btwn. Talybont and Llanaber. Nr. Barmouth Junction Stn. Aberdovey links.

Local inland, chiefly in calcareous bogs in the hill-country. Dolgellau district—Llanfachreth; Pwll-y-gele Lake; nr. Drwsynant; nr. Cross Foxes; Bwlch Coch. Bala district—Cwm Tylo, above Parc; Rhyd-wen, above Llangower; valley above Rhosygwaliau.

*T. maritima* L. SEA A. C. Common in salt-marshes. Dwyryd estuary. Arthro estuary. Mouth of R. Ysgethin. Shore below Llwyn-wews, Llanaber. Mawddach estuary as at Bodowen, Penmaenpool, and Arthog. Dysynni Broadwater. Nr. Dovey Junction Stn.

*Potamogeton natans* L. BROAD-LEAVED PONDWEED. L. Frequent in less acid lakes, ponds, and ditches. Morfa Harlech, with *P. polygonifolius*. Mochras. Pool nr. Llandderfel, with *P. polygonifolius*. Llyn Cynwch. Ditch nr. Fairbourne Stn. Talyllyn Lake.

*P. polygonifolius* Pourr. BOG P. L, U. Common in bog-pools and -ditches. The characteristic *Potamogeton* of the hill-country and of acid peat.

*P. pusillus* L. sec Dandy & Taylor. SLENDER P. L. Ditch by R. Glaslyn, Minffordd. Pools on Morfa Harlech. (Both det. J. E. Dandy.)

*P. bertholdii* Fieb. Chiefly L. Fairly frequent. Ditch at Mochras. Llyn Cynwch. Ditch at Penmaenpool. Ditches nr. Barmouth Junction. Talyllyn Lake, I. A. Williams. (All det. J. E. Dandy.)

*P. pusillus sens. lat.* is also known in a ditch nr. the shore btwn. Talybont and Llanaber and a ditch nr. Fairbourne Stn.

*P. pectinatus* L. FENNEL-LEAVED P. C. Very local. Nr. Pensarn in a brackish ditch; disappeared when ditch was cleared out 1961, but may re-establish itself.

*Ruppia maritima* L. (*R. rostellata* Koch). TASSEL P. C. Local, in

brackish ponds and ditches. Mochras estuary. Nr. Arthog Stn. E. of Penmaenpool.

**Narthecium ossifragum** L. BOG ASPHODEL. L, U. Common in bogs.

\***Polygonatum odoratum** (Mill.) Druce. ANGLED SOLOMON'S-SEAL. L. 1 locality only. Mochras, in quantity on sandy bank.

**P. multiflorum** (L.) All. COMMON S. L. 1 locality only. Nr. Corwen, a single patch in a wood on calcareous scree.

**Scilla verna** Huds. SPRING SQUILL. C. Very local, in pastures nr. shore. Portmeirion, A. J. Harthan, Miss A. P. Conolly. Above Talsarnau. Nr. Bontddu, sparingly.

**Endymion non-scriptus** (L.) Garcke. BLUEBELL. L, U. Abundant in woods and pastures.

**Juncus squarrosus** L. HEATH RUSH. L, U, H. Abundant in hill-country, uncommon in lowlands, on wet acid peat.

\***J. tenuis** Willd. SLENDER R. L, U. Common on farm tracks. Harlech. Llanbedr. Barmouth. Bala. Llangower. Brithdir. Dolgellau. Llanelltyd. Penmaenpool. Arthog.

**J. gerardii** Lois. GERARD'S R. C. Common in salt-marches; also occasionally in dune slacks. R. Glaslyn nr. Minffordd. Nr. Talsarnau. Morfa Harlech. Mochras estuary. Mouth of R. Ysgethin. Mawddach estuary. Dysynni Broadwater. Dovey estuary.

**J. bufonius** L. TOAD R. L, U. Common, wet sandy places, margins of ponds, trampled meadows, cart-tracks.

**J. inflexus** L. HARD R. L. Very local. Swamps on Morfa Harlech, sparingly. Quarry on the Torrent Road, nr. Dolgellau, 1 plant, no doubt introduced. *Map p. 47.*

**J. effusus** L. SOFT R. L, U, H. Abundant, often dominant, in wet places.

**J. conglomeratus** L. DENSE-HEADED R. L, U. Common, often dominant, in grassland in damp sandy places nr. sea. By R. Glaslyn nr. Minffordd. Morfa Harlech. Morfa Dyffryn. Mawddach estuary nr. Caerdeen and Arthog. S. side of Dysynni Broadwater. Aberdovey links.

Frequent, but never in quantity, in base-rich bogs of the hill-country. Btwn. Llanaber and Bwlch y Llan. Pool nr. Llandderfel. Nr. Glan-llyn, Bala. Dolgellau district—nr. Rhydymain; Pwll-y-gele; nr. Llanfachreth; nr. Glasdir bridge; nr. Cefn Maelan; Brithdir; Caerynwch; Bwlch Coch; above Bryn Rhug. Nr. the Crogenen Lakes.

Apparently never in the floristically poor, wet, acidic pasture dominated by *J. effusus*.

**J. maritimus** L. SEA R. C. Abundant and one of the most usual dominants in salt-marshes; also occasional in dune slacks.

**J. acutus** L. SHARP R. C. Common in wet places in the dunelands and in upper parts of salt-marshes. R. Glaslyn nr. Portmadoc embankment, the N.-most known locality on W. coast of Britain, a few plants. Marsh nr. Tygwyn Halt, a few plants. Morfa Harlech, abundant, often dominant. Nr. Llandanwg Church, a few plants. Artro estuary and Morfa Dyffryn, abundant, dominant over large area. Btwn. Llanaber and Barmouth, very few plants. S. side of Dysynni Broadwater, a number of plants in one spot, shown to us by Miss C. M. Goodman. Curiously absent from Fairbourne and Aberdovey dunelands. *Map p. 37.*

**J. subnodulosus** Schrank. BLUNT-FLOWERED JOINTED R. C. Local, in brackish marshes. By R. Glaslyn, nr. Minffordd, in quantity. Nr. shore btwn. Talybont and Llanaber, 3 patches. Nr. Arthog Stn., sparingly. (Just outside the county boundary at mouth of R. Llyfnant, Mont., v.c. 47.) *Map p. 47.*

**J. acutiflorus** Ehrh. ex Hoffm. SHARP-FLOWERED JOINTED R. L, U. Abundant, sometimes dominant, in marshes and ditches.

**J. acutiflorus** × **articulatus**. Common with parents in marshy meadows. By R. Glaslyn nr. Minffordd. Morfa Harlech. Mochras. Below Dyffryn and Llanddwywe. Mouth of R. Ysgethin. Mouth of Egryn stream. Swamps S.W. of Bontddu. Moel y Calch, Llandderfel. Tir Stent, nr. Dolgellau. Nr. the Crogenen Lakes, Arthog. Arthog Bog. Btwn. Barmouth Junction and

Fairbourne, nr. shore. (Nr. Dovey Junction Stn. in Mont., v.c. 47, and probably also in Merioneth.)

**J. articulatus** L. COMMON JOINTED R. L, U. Common in marshy places and wet meadows, and as the var. **nigritellus** (D. Don) Druce in dune slacks.

**J. kochii** F. W. Schultz. SIX-STAMENED BULBOUS R. L, U, H. Very common in bogs and peat-ditches, especially in the hill-country.

**J. bulbosus** L. THREE-STAMENED BULBOUS R. L, U. Rather rare, chiefly on boggy shores of lakes in the hill-country; much rarer than the last, with which it usually grows. Llyn Tecwyn Isaf. Llyn Eiddew Mawr. Mochras, very rare. Pool nr. Llandderfel. Pwll-y-gele lake. Llyn Cynwch. Pool nr. Tabor. Crogenen Lakes. Arthog Bog, very rare. *Map p. 47.*

**Luzula pilosa** (L.) Willd. LESSER WOODRUSH. L. Frequent in woods with rich humus. Nr. Aberartro, Llanbedr. Talybont Wood. Dolgellau district—Afon Camlan; Brithdir; Torrent Walk; nr. Pandyrodyn; Abergwynant glen. Nr. Fegla Fawr and Capel Horeb, Arthog. Llanymawddwy, *A. O. Chater.*

**L. sylvatica** (Huds.) Gaud. GREAT W. L, U, H. Frequent in shady rocky places. Maentwrog, *Miss V. Gordon.* Minffordd, Penrhyndeudraeth. Banks of R. Artro at Llanbedr. Roman Steps. Talybont wood. Below the Birmingham Memorial cairn, Barmouth. Glyndyfrdwy, *Miss V. Gordon.* Nr. Cynwyd. Nr. Rhydymain. Llanymawddwy, *A. O. Chater.* Cwm Cowarch. Cwm Geugraig. Cwm Cau. Above Llyn Gafr. Btwn. Cyfrwy and Tyrau Mawr, in wet peaty moorland. Nr. the Church and Fegla Fawr, Arthog. Btwn. Barmouth Junction and Fairbourne, on roadside. Corris, *Mrs. A. G. Side.* Happy Valley, Aberdovey (reported).

**L. campestris** (L.) DC. FIELD W. L, U, H. Common in dry pastures.

**L. multiflora** (Retz.) Lej. MANY-HEADED W. L, U, H. Common in hill-country, local nr. sea-level, in wet peaty places. Nr. sea-level—Morfa Harlech; fields below Talybont Halt and below Llwyn-wcws; nr. Aberamffra, Barmouth; Arthog Bog; Gogarth Bog?

**Allium vineale** L. CROW GARLIC. C. Local. Harlech golf-links in dune grassland, 1956. Mouth of R. Ysgethin, in grass, 1951. Nr. Porkington Terrace, Barmouth, on waste dunes, 1952, 1954. Arthog on rocks nr. shore, persistent. Aberdovey Stn., on rly. bank, 1960. Very sparingly in each case.

**A. ursinum** L. RAMSONS. L. Locally abundant in woods with rich damp humus; sometimes dominant in field layer. Eisingrug, *Miss V. Gordon.* Llechwedd Wood, Harlech. Ceilwart, Llanaber. Hendre Mynach and Orielton woods, Barmouth. Dolgellau district—Dol-y-melynlyn; Hengwrt; Torrent Walk; Aran Glen; Pandyrodyn. Nr. Cynwyd. Glyndyfrdwy, *Miss V. G.* Nr. Barmouth Junction. Nr. Trefedddian, Aberdovey.

**Galanthus nivalis** L., Snowdrop, occurs in quantity in enclosed woodland by Cors-y-gedol, Dyffryn; doubtless originally planted.

**Iris pseudacorus** L. FLAG. L. Very common, marshes, wet meadows.

**Crocsmia** × **crocsmiflora** (Lemoine) N.E. Br., Montbretia, is commonly grown in gardens and sometimes escapes.

**Tamus communis** L. BLACK BRYONY. L. Frequent in thickets and hedges. Nr. R. Glaslyn, Minffordd. Harlech. Talwrn Bach. Talybont. Llanaber. Glyndyfrdwy, *Miss V. Gordon.* Cynwyd. Dolserau, nr. Dolgellau. Arthog. Fairbourne. Llwyngwrl. Aberdovey. Inadequately recorded.

\***Cephalanthera longifolia** (L.) Fritsch. NARROW-LEAVED HELLEBORINE. L. Very local. Wood and rly. bank nr. Aberdovey, in some quantity.

**Epipactis palustris** (L.) Crantz. MARSH H. C. 2 localities only, in dune slacks. Morfa Harlech in great abundance, (including 1 plant of var. **ochroleuca** Barla seen 1950). Morfa Dyffryn. *Map p. 47.*

**E. helleborine** (L.) Crantz. BROAD-LEAVED H. L. Rare. Dolgellau district—Coed y Brenin, on roadside and waste ground, numerous plants, 1960, 1961 (doubtfully native); Llanfachreth, on roadside, 2 plants, 1955 and 1960, *Misses E. and M. Morgan*; Nannau, in wood with rich humus, 1 plant 1950; nr. Caerwynch, in wood, 4 plants 1961, *B. D. Moreton.* Llanymawddwy,

in wood, 1955, *A. O. Chater*. Ffridd Gate, nr. Machynlleth, on roadside, c. 2 plants 1954 and 1956, *Mrs. A. G. Side*.

+*E. phyllanthos* G. E. Sm. PENDULOUS-FLOWERED H. C. 1 locality only. Morfa Dyffryn, in a dune slack, 144 flower spikes in 1959, 196 in 1960.

*Spiranthes spiralis* (L.) Chev. AUTUMN LADIES'-TRESSES. L. Local but locally fairly common, in pastures nr. sea. Morfa Harlech. Mochras. Morfa Dyffryn in several places, now much reduced with the spread of caravan sites around Talybont. By Gwern-wcws, nr. Llanaber, c. 1947 but not since (locality now caravan site). Btwn. Llanaber and Barmouth on garden lawn, shown to us by *Miss Ellis*. Bontddu, shown to us by *G. E. C. Hemingway*. Tonfanau. Aberdovey golf-links. *Map p. 57*.

*Listera ovata* (L.) R. Br. COMMON TWAYBLADE. Chiefly L. Local, in calcareous pastures. Harlech, in quantity in the duneland. Mochras. Below Talybont Halt, probably extinct (locality now caravan site). Nr. Corwen, in wood on calcareous scree. Nr. Rhosygwalliau, in hayfield. About Brithdir and Cross Foxes in boggy places. Arthog Falls in a meadow, 1942-3, still exists? Nr. Aberdovey, *E. H. T. Bible*.

*L. cordata* (L.) R. Br. LESSER T. H. Local, on high *Calluna*-moors. Rhinog. Milltir Gerig, nr. Bala, 1960. *F. Rose*, not certainly inside the Merioneth county boundary; but there are several 19th-century records for *Merioneth* from the high moors of the Berwyn (incl. this locality) and the plant undoubtedly still exists there on both sides of the county boundary.

*Neottia nidus-avis* (L.) Rich. BIRD'S-NEST ORCHID. L. Brithdir churchyard, 1 plant 1952 but not since, shown to us by *Mrs. Gwen Thomas*. *Map p. 57*.

*Hammarbya paludosa* (L.) Kuntze. BOG O. U. Very rare, in (base-rich?) sphagnum bogs. Nr. Cross Foxes, c. 6 plants 1956, *Mrs. A. G. Side*.

*Coeloglossum viride* (L.) Hartm. FROG O. U. Very rare, in calcareous hill pastures. Nr. Rhosygwalliau, 35 plants 1959. Nr. Drwsynant, several plants 1948 but not since; 1 plant in another spot close by, 1958-9. Nr. Cross Foxes, 3 plants 1959, 8 plants 1961.

*Gymnadenia conopsea* (L.) R. Br. FRAGRANT O. Chiefly U. Frequent in the Dolgellau district, local elsewhere, in pastures and boggy places esp. if calcareous. Above Bontnewydd, Ffestiniog. Cwm Nantcol. Nr. Llwyn-onn and road up to Goetre, Barmouth. Dolgellau district—nr. Cefn Maelan; Llanfachreth; nr. Drwsynant; Bryncoedifor; Brithdir; nr. Cross Foxes; nr. Dyffrydan. Nr. the Crogenen Lakes. Arthog Falls. Fegla Fach, Arthog.

*Leucorchis albida* (L.) E. Mey. ex Schur. SMALL WHITE MOUNTAIN O. U. Very rare, in calcareous hill pastures. Nr. Rhosygwalliau, 1 plant 1959. Nr. Rhydymain, several plants 1948, 1954; 7 plants together in another spot 1954, but not since. Brithdir, 1 plant 1956, 1959, 1961; 2 plants 1958. Nr. Cross Foxes, several plants 1948, but not since.

*Platanthera chlorantha* (Cust.) Rehb. GREATER BUTTERFLY O. L, U. Frequent in fertile pastures and hayfields. Cynfal valley above Bontnewydd, Ffestiniog. Talybont, by R. Ysgethin. Nr. Llwyn-onn, Barmouth. Glyndyfrdwy, *Miss V. Gordon*. Dolgellau district—nr. Drwsynant; Llanfachreth; Cefn Maelan; Bryncoedifor; Brithdir; nr. Cross Foxes; Penmaenpool road; nr. Tai-newyddion; Llyn Gwernan; Ty-nant. Arthog—nr. the falls; by the main road; and nr. Fegla Fach.

*P. bifolia* (L.) Rich. LESSER BUTTERFLY O. L, U. Frequent in heathy and boggy pastures. Cynfal valley above Bontnewydd, Ffestiniog. Morfa Harlech. Mochras. Below Talybont, probably extinct (locality now caravan site). Road up to Goetre, nr. Barmouth. Glyndyfrdwy, *Miss V. Gordon*. Dolgellau district—nr. Drwsynant; Bryncoedifor; Brithdir; nr. Cross Foxes; Bryn-rhug, *E. Price Evans*; nr. Llyn Gwernan. Arthog Bog. Happy Valley, Aberdovey (reported).

*Ophrys apifera* L. BEE O. L. 2 localities only, in calcareous grassland; we think it inadvisable to name them because of the persecution that this sp. suffers.



Totals of flowering specimens we have counted each year in locality A are—1950, 3; 1951, 11; 1952, ?; 1953, 24; 1954, 10; 1955, 2; 1956, 1; 1957, c. 10; 1958 (an exceptional year for orchids generally), 101; 1959, 5; 1960, 20; 1961, 57. Said to have been frequent in locality B in the late '30s and early '40s, but we could find only 1 flowering specimen when we searched in 1961.

**Orchis morio** L. GREEN-WINGED O. C. Local but locally common, in pastures nr. sea. Morfa Harlech, in quantity. Mochras. Talybont in several places. [Nr. Felin Ceilwart, Llanaber, c. 6 plants 1941–50 but not since; field now ploughed up.] Aberdovey golf-links.

**O. mascula** (L.) L. EARLY PURPLE O. L, U, H. Rare, in calcareous places. Just on N. side of Barmouth, in wood, 1941 to 1950 (when 10 plants), not again until 1961 (1 plant). Dolgellau district—nr. Ochr-y-foel, in pastures, sparingly; Craig y Benglog, on mountain cliffs, *E. Price Evans*; Brithdir, in pastures, frequent; nr. Cross Foxes, in rocky places, sparingly; nr. Llyn Gaf, on mountain cliffs at 1,500 ft. alt., frequent. Cwm Cowarch, on mountain cliffs, *W. M. Condry*. Nr. Corwen, in wood, c. 12 plants. Fegla Fawr, Arthog, in wood, 1 plant 1955, *Miss V. Gordon*. Llwyngwril, nr. the shore (c. 15 plants) and in wood (c. 5 plants), 1960, *W. M. Condry*. The Corwen plants are very stout with heavily blotched leaves, and resemble the *O. mascula* of woods of lowland England; in the other localities the plants are much more slender with lightly marked or unmarked leaves.

**Dactylorhiza fuchsii** (Druce) Verm. WOOD SPOTTED O. L, U. Local. (a) In damp places in duneland; stout plants with dense inflorescences and whitish-lilac flowers. Morfa Harlech in quantity. Morfa Dyffryn, 1 plant 1958. (b) In calcareous boggy places in the hill-country; weaker, slenderer plants with laxer inflorescences and deeper-coloured flowers. Dolgellau district—nr. Drwsynant, in two places; Brithdir; Torrent Road. Above Llangower and Rhosygwaliau, in quantity.

**D. maculata** (L.) Verm. ssp. **ericetorum** (E. F. Linton) Verm. (*Orchis ericetorum* (E. F. Linton) E. S. Marshall). HEATH SPOTTED O. L, U. Common on wet acid soils.

**D. incarnata** (L.) Verm. (*O. strictifolia* Opiz). EARLY MARSH O.

Ssp. **incarnata**. L, U. Local. In wet calcareous places in the dunelands—Morfa Harlech, sparingly and poor; Morfa Dyffryn, frequent. In calcareous hill-bogs of the Dolgellau district—nr. Cefn Maclan, a few plants, shown to us by the *Misses E. and M. Morgan*; nr. Drwsynant, 1 plant 1958; Brithdir, c. 3 plants 1953–6; nr. Cross Foxes at 1,000 ft. alt., frequent.

+ Ssp. **pulchella** (Druce) H.-Harr. f. L, U. Very local. In calcareous dune slack—Morfa Dyffryn, sparingly. In calcareous hill-bogs—nr. Cefn Maclan, Dolgellau, c. 12 plants, shown to us by the *Misses E. and M. Morgan*; Brithdir, a few plants; nr. Rhosygwaliau, Bala, 3 plants 1959.

+ Ssp. **coccinea** (Pugs.) H.-Harr. f. C. 2 localities only but locally abundant, in wet calcareous places in duneland. Morfa Harlech. Morfa Dyffryn.

The ssp. sometimes grow together. Ssp. *incarnata* and *coccinea* hybridise or intergrade freely wherever they meet, but no 'intermediates' between either of these and ssp. *pulchella* have been found.

**D. praetermissa** (Druce) Verm. ENGLISH MARSH O. C. 1 locality only, in damp calcareous dune grassland. Morfa Harlech, sparingly, referred to *D. praetermissa* by *J. Heslop-Harrison* though differing somewhat from characteristic English populations of the sp.

**D. purpurella** (T. & T. A. Steph.) Verm. DWARF PURPLE MARSH O. L, U. Frequent in calcareous or slightly brackish marshy places on the coast. Meadows by R. Glaslyn, nr. Minffordd. Morfa Harlech. Morfa Dyffryn, abundant. Below Talybont Halt, probably extinct (locality now caravan site). Nr. Llanelltyd, *Miss Elizabeth Jones*. Arthog Bog. Aberdovey links.

Frequent also in calcareous hill-bogs of the Dolgellau district—nr. Cefn Maclan, shown to us by the *Misses E. and M. Morgan*; nr. Rhydymain in two places; Bryncoedifor; Brithdir in two places; nr. Cross Foxes at 1,000 ft. alt.;

Aran Glen ; nr. Tai-newyddion. Also in a similar habitat nr. Rhosygwaliau, Bala.

The Morfa Dyffryn plants are very variable, and are often markedly atypical in such characters as stout habit with flower spike up to 15 cm. long, rather light-purple flowers, and broader, more distinctly 3-lobed labella. Some of the Aberdovey plants have pale-lilac flowers but are not otherwise atypical. For a study of the Morfa Dyffryn and Brithdir colonies, see Roberts, R. H. (1961) in *Watsonia*, 5, 23-36.

NOTE.—*Dactylorhiza* hybrids are listed together alphabetically for convenience.

**D. fuchsii** × **incarnata**. Very rare, with the parents. Morfa Harlech, 1 plant 1962.

**D. fuchsii** × **purpurella**. Local, but locally common with the parents. Morfa Harlech. Brithdir.

**D. incarnata** × **maculata**. Very rare, with the parents. Calcareous bog nr. Cross Foxes, 1 plant 1956.

**D. incarnata** × **purpurella**. 1 locality only, with the parents. Morfa Dyffryn, frequent but only as odd individuals (not a swarm), and apparently only the ssp. *incarnata* of *D. incarnata* is hybridising (not the ssp. *coccinea* and *pulchella* though they grow in the same spot). *D. incarnata* × *purpurella* has not been found in any of the other localities where the parent spp. grow together, sometimes in quantity.

**D. maculata** × **praetermissa**. Very rare. Morfa Harlech, 1 plant, det. J. Heslop-Harrison.

**D. maculata** × **purpurella**. Frequent ; probably always to be found where the parent spp. grow together. Below Talybont Halt, probably extinct. Dolgellau district—nr. Cefn Maellan ; nr. Drwsynant ; Brithdir ; nr. Cross Foxes. Arthog Bog, 1 plant 1961.

**D. praetermissa** × **purpurella**. 1 locality only, but there frequent with the parents. Morfa Harlech.

**D. maculata** × **Gymnadenia conopsea**. Very rare, with the parents. Nr. Cross Foxes, 1 plant 1948.

**Anacamptis pyramidalis** (L.) Rich. PYRAMIDAL O. C. 2 localities only, in calcareous dune grassland. Morfa Harlech, frequent. Morfa Dyffryn, 1 plant 1958, 2 plants 1959, 1 plant 1960, ? 1961.

**Arum maculatum** L. LORDS-AND-LADIES, CUCKOO-PINT. L. Common, woods, shady roadsides with damp rich humus. Leaves spotted or not.

**Lemna minor** L. LESSER DUCKWEED. L. Common in lowland ponds, swamps and ditches. Flowering in ponds on Morfa Harlech ; otherwise barren.

**Sparganium erectum** L. (*S. ramosum* Huds.). BRANCHED BUR-REED. L. Frequent in swamps and ditches. By R. Glaslyn, Minffordd. Llyn Mair. Nr. Llandecwyn Halt. Mochras. Below Dyffryn Stn. Mouth of R. Ysgethin. Mouth of Egryn stream. Llanelltyd. Nr. Dr. Williams' School, Dolgellau. Nr. Plas Isaf, Corwen. Arthog Bog. Nr. Fairbourne Stn. Abergynolwyn, Mrs. A. G. Side.

**S. emersum** Rehm. (*S. simplex* Huds. p.p.). UNBRANCHED B. Chiefly L. Frequent in swamps and ditches ; often floating and barren. Nr. Llandecwyn Halt. Below Ystumgwern, Dyffryn. Mouth of R. Ysgethin. Mouth of Egryn stream. Farchynys, Bontddu. Coed and nr. Dr. Williams' School, Dolgellau. Nant-y-gwyrddail, Islawrdref. Arthog Bog. Nr. Fairbourne Stn. Tonfanau, probably destroyed.

**S. angustifolium** Michx. FLOATING B. U. Local, in base-poor mountain lakes ; usually barren. Llyn Cynwch. Llyn Aran. Llyn Cyri.

**Typha latifolia** L. GREAT REED-MACE, BULRUSH. L. Frequent in lowland swamps. Mochras. Mouth of R. Ysgethin. Btwn. Talybont and Llanaber. Nr. Bontddu. Reservoir in Aran Glen, Dolgellau. Btwn. Penmaenpool and Dolgellau. Arthog Bog. Gogarth Bog.

**Eriophorum angustifolium** Honck. COMMON COTTON-GRASS. L, U, H. Very common in bogs.

**E. vaginatum** L. HARE'S-TAIL C. L, U, H. Common on hill-moors. 2 localities only nr. sea-level—Arthog Bog ; Gogarth Bog.

**Trichophorum cespitosum** (L.) Hartm. ssp. **germanicum** (Palla) Hegi. DEER-GRASS. **L, U, H.** Abundant, often dominant, on the hill-moors. 2 localities only nr. sea-level—Arthog Bog; Gogarth Bog.

**Scirpus maritimus** L. SEA CLUB-RUSH. **C.** Common in tidal pools and ditches. **R.** Glaslyn nr. Minffordd. Artro estuary. Mouth of **R. Ysgethin.** Shore btwn. Talybont and Llanaber. Mawddach estuary as at Bodowen, Penmaenpool, and Arthog. Dysynni Broadwater. Dovey estuary nr. Gogarth.

**Schoenoplectus lacustris** (L.) Palla. 'BULRUSH'. **U.** Rather local, in the mountain lakes; apparently quite absent from the lowland swamps. Hafod-y-llyn. Llyn Cynwch. Llyn Gwernan. Pool on Bryn Brith. Talylynn Lake.

**S. tabernaemontani** (C. C. Gmel.) Palla. **C.** Common nr. sea, in brackish marshes and ditches. **Nr. R. Glaslyn, Minffordd. Morfa Harlech. Mochras.** Mouth of **R. Ysgethin.** Shore btwn. Talybont and Llanaber. Mawddach estuary as at Bontddu, Llanelltyd, Penmaenpool, Arthog, and Fairbourne. Dysynni Broadwater. **Nr. Dovey Junction.**

**Isolepis setacea** (L.) R. Br. BRISTLE **C. L, U.** Frequent nr. springs and roadside ditches. **Morfa Harlech. Mochras.** Fields below Talybont Halt. Barmouth district—Dinas Oleu; Aberamffra; nr. Glandwr bridge (with *I. cernua*); Caerdeon. Dolgellau district—Maes-y-bryner; Nannau; Bwlch Coch. Drwsynant. Valley above Llangower. **W. of Corwen. Glyndyfrdwy, Miss V. Gordon.** **Nr. the Crogenen Lakes, Arthog, Arthog Bog. Nr. Barmouth Junction Stn. Nr. Dysynni Broadwater. Gogarth Bog.**

**I. cernua** (Vahl) R. & S. SLENDER **C. C.** Local, nr. sea in wet sandy places periodically inundated by the tide. Traeth Bach. Mochras estuary. Mouth of **R. Ysgethin** (probably destroyed when river was dredged). Shore btwn. Talybont and Llanaber. Mawddach estuary—nr. Glandwr Bridge; Abergwynant; nr. Arthog. **R. Dysynni nr. Bryn-crug.**

**Eleogiton fluitans** (L.) Link. FLOATING **C. L, U.** Frequent in shallow lakes, pools, and ditches. Ditch nr. Llandecwyn Halt. Llyn Tecwyn Isaf. Swamp on **Morfa Harlech. R. Nantcol nr. Pen-isa'r-cwm. Mochras. Cors Sarnau, btwn. Corwen and Bala.** Pool nr. Llandderfel. Llyn Cynwch, in great quantity. Bog nr. Tyddyn Bach, Dolgellau. Pool at Tabor. **Nr. the Crogenen Lakes. Bog nr. Hafod-y-gareg, Arthog.**

**Eleocharis parvula** (R. & S.) B. N. & S. DWARF **C. C.** 1-2 localities only, on muddy shores of tidal rivers. Never flowering? **R. Glaslyn, nr. Minffordd.** [N. shore of Morfa Harlech, 1 patch 1953-8, now disappeared.]

**E. acicularis** (L.) R. & S. NEEDLE **C. L.** Local, on shores of rivers. Never flowering? **R. Glaslyn nr. Minffordd. R. Dysynni nr. Bryn-crug,** shown to us by *Miss C. M. Goodman.*

**E. quinqueflora** (F. X. Hartm.) Schwarz (*E. pauciflora* (Lightf.) Link). FEW-FLOWERED **C. C, U.** Local, in turfy places subject to tidal flooding and in dune slacks. **Morfa Harlech. Mochras.** Mouth of **R. Ysgethin,** probably destroyed (locality now caravan site). **Arthog.**

Very local in calcareous hill-bogs. Dolgellau district—nr. Cross Foxes; Bwlch Coch; Cwm Aran, *E. R. S. Winter.*

**E. multicaulis** (Sm.) Sm. MANY-STALKED **C. L, U.** Frequent in wet bogs, peaty pools, and shallow lake-margins. Llyn Tecwyn Isaf. Llyn Cwnbychan, *F. Rose.* Pen-isa'r-cwm, Cwm Nantcol. **Nr. Cae Fadog, Barmouth. Pandy Bach, Llyn Cynwch, and Pwll-y-gele, all nr. Dolgellau. Nr. the Crogenen Lakes, in great abundance. Arthog Bog. Llyn Barfog, A. O. Chater. Gogarth Bog. Map p. 57.**

**E. palustris** (L.) R. & S. ssp. **vulgaris** Walters. MARSH **C. L, U.** Common in marshes, ponds, and lakes.

**E. uniglumis** (Link) Schult. **C.** Common in less saline parts of salt-marshes; occasionally in dune slacks. By **R. Glaslyn, Minffordd. Morfa Harlech. Artro estuary. Mouth of R. Ysgethin. Shore btwn. Talybont and Llanaber. Barmouth sand-dunes. Mawddach estuary as at Bodowen, Penmaenpool, and Arthog. Dysynni Broadwater. Aberdovey golf-links. Nr. Dovey Junction.**



**Blysmus rufus** (Huds.) Link. NARROW BLYSMUS. C. Very local, in upper parts of salt-marshes. N. end of Morfa Harlech, 1 small patch. Mochras estuary, sparingly. Mouth of R. Ysgethin, last seen 1955, probably destroyed (locality now caravan site).

*Schoenus nigricans* L., Black Cord-rush, in *Nature in Wales*, 7, 160 (1961) is now thought to be an error.

**Rhynchospora alba** (L.) Vahl. WHITE BEAK-SEDGE. L, U. Local, in bogs (esp. raised bogs, with *Drosera intermedia*). Nr. Llyn Cwmbychan, *F. Rose*. Nr. Tabor, Dolgellau. Nr. the Crogenen Lakes. Arthog Bog. Nr. Llyn Barfog, *A. O. Chater*. Gogarth Bog.

**Carex laevigata** Sm. SMOOTH-STALKED SEDGE. Chiefly L. In marshy woods in many places but always sparingly. Nr. Llechwedd-du-bach, Harlech. Coleg Harlech. Talybont Wood. Glandwr Hall, Barmouth. Dolgellau district—Ganllwyd; Caerynwch; Torrent Road; Abergwynant woods. Valley above Llangower. Fridd Gate, nr Machynlleth. Gogarth, in fair quantity in raised bog—a curious habitat.

**C. distans** L. DISTANT-SPIKED S. C. Common in salt-marshes. Morfa Harlech. Arthro estuary. Mouth of R. Ysgethin. Mawddach estuary as at Bodowen and Arthog. Dysynni Broadwater. Nr. Dovey Junction.

**C. distans** × **extensa**. Very rare, with the parents amongst *Juncus maritimus*. N. end of Morfa Harlech, 1959 (2 plants). Arthro estuary, persistent since 1948 (c. 10 plants). For an account of the Mochras hybrid, see Nelmes, E. (1952) in *Watsonia*, 2, 148-150.

**C. punctata** Gaud. DOTTED S. C. Local, nr. sea. In upper parts of sandy salt-marshes—Talsarnau; Morfa Harlech; nr. Gogarth. On wet rocks—nr. Portmeirion, *A. O. Chater* and *Miss A. P. Conolly*; nr. Barmouth in 2 places, very fine; Arthog.

**C. hostiana** DC. TAWNY S. U. Frequent in Dolgellau district, very local elsewhere; in hill-bogs esp. if calcareous. († = hybridising with *C. demissa*.) †Cwm Nantcol. Bala district—†above Rhosygwaliau; and †Cwm Tylo, Parc. Dolgellau district—Rhubell Fawr; †nr. Rhydymain; Pwll-y-gele; †Brithdir; †nr. Cefn Maellan; †Aran Glen; †nr. Cross Foxes; †Cwm Geugraig; †nr. Llyn Gafr; above Ty Nant. Nr. Pant-llan, Arthog.

**C. binervis** Sm. GREEN-RIBBED S. L, U, H. Common on peaty soils.

**C. binervis** × **punctata**. Very rare, with parents. Rocks nr. Barmouth, persistent since 1954 (1 large and 2 small plants). This hybrid has not so far been found anywhere else in or out of Merioneth; for an account of it, see Benoit, P. M. (1958) in *Watsonia*, 4, 122-124.

**C. demissa** Hornem. COMMON YELLOW S. L, U, H. Common in bogs.

**C. demissa** × **hostiana**. Usually to be found where the parent spp. grow together. For localities, see *C. hostiana*.

**C. serotina** Mérat. SMALL-FRUITED YELLOW S. C. Local, in wet sandy places nr. sea (esp. dune slacks). Minffordd, 1940, *J. A. Whellan, WFP*, 177. Morfa Harlech, in quantity. Morfa Dyffryn. Aberdovey golf-links. *Map p. 57*.

**C. extensa** Good. LONG-BRACTED S. C. Rather common in salt-marshes. Morfa Harlech. Mochras estuary. Mouth of R. Ysgethin. Mawddach estuary as at Bodowen, Penmaenpool, and Arthog.

**C. sylvatica** Huds. WOOD S. Chiefly L. Frequent in the Dolgellau district, very local elsewhere, in woods with rich humus esp. in calcareous places. Nr. Llechwedd-du-bach, Harlech. Glyndyfrdwy, *Miss V. Gordon*. Nr. Cynwyd. Dolgellau district—nr. Drwsynant at 1,000 ft. alt.; Nannau; Dolserau; Caerynwch; Aran Glen; Pandyrobyn. Nr. Pegla Fawr, Arthog.

**C. rostrata** Stokes. BOTTLE S. L, U. Rather common in swampy places: esp. peaty pools, streams and lake-margins of the hill-country. Llyn Tecwyn Isaf. Morfa Harlech and Mochras, both at sea-level. Cwmbychan, *F. Rose*. Craig y Saeth. Hafod-y-llyn. Cwm Nantcol. S.W. shore of Trawsfynydd reservoir. Cors Sarnau, btwn. Corwen and Bala. Llyn Caer Euni, *B.S.B.I. excursion*. Pool nr. Llandderfel. Nr. Llanfor. Shore of Bala Lake. At 2,000 ft. on Aran Benllyn, *J. H. Salter*, in *Wilson, A.* (1949), *Alt. Range Br. Pl.*, 2nd ed.

Dolgellau district—Pwll-y-gele ; Coed ; reservoir in Aran Glen ; Mynydd y Gader ; Llyn Gwernan, *Miss L. W. Frost* ; Nant-y-gwyrdail ; nr. the Crogenen Lakes.

*C. vesicaria* L. **BLADDER S. L.** Very local. Swamp by Bala Lake, with *C. aquatilis*, *C. acuta*, and *C. rostrata*, formerly in some quantity and very fine, now dying out (cf. *C. aquatilis*).

*C. riparia* Curt. **GREAT POND S. L.** 1 locality only. Swamp btwn. Towyn and Aberdovey. (Also just outside the county boundary in a ditch nr. Glandyfi Stn., Cards., v.c. 46.)

*C. pallescens* L. **PALE S. L, U.** Frequent. Cwm Nantcol, in bogs. Caerdeon, on roadside. Creigiau Bychain, in wet meadow. Cwm Tylo, Parc, nr. Bala, in bog. Valley above Llangower, on roadside. Dolgellau district—nr. Rhydymain, in bogs ; Pwll-y-gele, in bog ; nr. Dolserau, on roadsides ; Brithdir, in bogs ; Caerynwch and Cross Foxes, on roadsides ; nr. Llyn Gwernan, on roadside. Arthog Falls, on streambank. Arthog Bog, Aberdovey.

*C. panicea* L. **CARNATION S. L, U.** Common in boggy places.

*C. flacca* Schreb. **GLAUCOUS S. L, U.** Common in damp places in dune-lands. Morfa Harlech. Morfa Dyffryn. Barmouth dunes. Barmouth Junction. Fairbourne ? Aberdovey links.

Local in hill-bogs (esp. calcareous), but inadequately recorded. Dolgellau district—nr. Drwsynant ; Pwll-y-gele ; Brithdir ; Aran Glen.

*C. hirta* L. **HAMMER S. L.** Frequent, often in 'artificial' habitats. Wet places in the Harlech duneland, looking 'native' (var. *hirtiformis* Pers.). Roadside at Llanfair. Side of road to sea from Dyffryn Stn. Waste duneland below Llanddwywe and Talybont. Rly. bank at Llanaber. Waste dunes at Barmouth. Wet field nr. Hendre Mynach, Barmouth. Aberdovey—waste field nr. Trefeddian and roadside nr. stn.

*C. lasiocarpa* Ehrh. **SLENDER-LEAVED S. U.** Very local. Nr. the Crogenen Lakes, Arthog, in peat-pools.

*C. pilulifera* L. **PILL S. L, U.** Common, pastures, drier parts of bogs.

*C. caryophyllea* Latour. **VERNAL S. L, U.** Common in dry pastures.

*C. acuta* L. **SLENDER-SPIKED S. L.** Very local. Glyndyfrdwy, *Miss V. Gordon*. Swamp by Bala Lake, sparingly with *C. aquatilis*, *C. vesicaria*, and *C. rostrata*, probably now died out (cf. *C. aquatilis*). For notes on the Bala Lake plant, see *B.E.C. Rept.* 1891, 348, and 1935, 112.

*C. aquatilis* Wahl. **WATER S. L.** 2 localities only. Swamp nr. Llandderfel. Swamp by Bala Lake, formerly in some quantity, now dying out through draining of the locality when the level of the lake was lowered in connection with flood-control work ; has often been considered erroneous, apparently because of confusion between the *C. aquatilis* and *C. acuta* which grows with it. *Map p. 57.*

*C. nigra* (L.) Reichard. **COMMON S. L, U, H.** Abundant in boggy places.

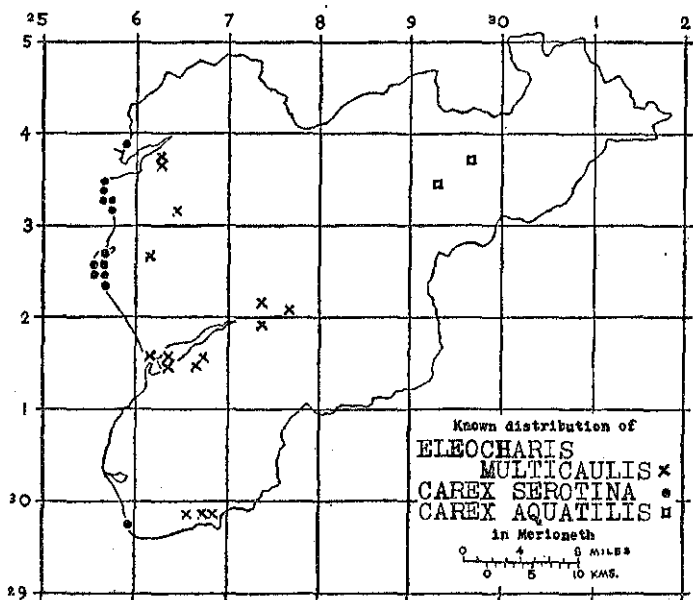
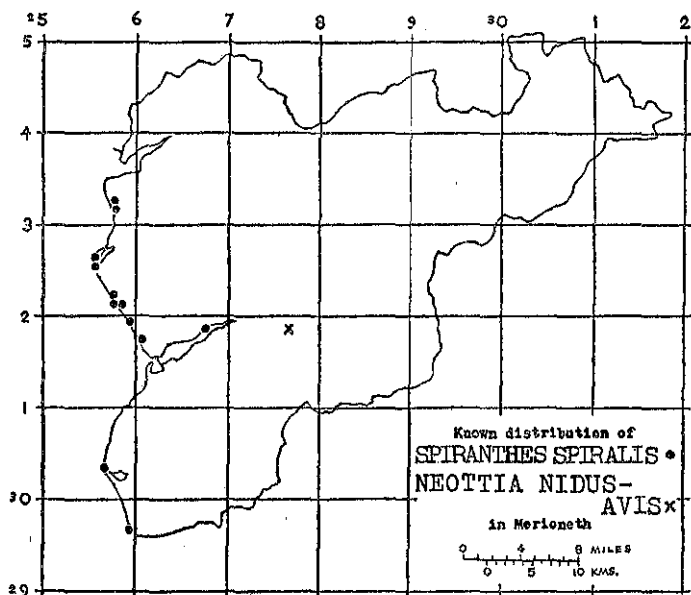
*C. paniculata* L. **GREAT PANICLED S.** Chiefly **L.** Rather local, in swamps and fenny places ; often abundant and very fine where it does occur. Hafod-y-llyn. Btwn. Talybont and Llanaber. Cors Sarnau, btwn. Corwen and Bala. Shore of Bala Lake nr. its E. end, 1 plant 1959. Cwm Tylo, Parc, nr. Bala, in calcareous bog at 1,300 ft. alt. Brithdir, *E. Milne-Redhead*. Arthog Bog. Btwn. Towyn and Aberdovey.

*C. otrubae* Podp. Fox **S. C.** Frequent nr. sea in brackish marshes. Morfa Harlech. Arthro estuary. Mouth of R. Ysgethin. Btwn. Talybont and Llanaber. Mawddach estuary as at Bodowen, Penmaenpool, Arthog. Dysynni Broadwater. Gogarth.

*C. otrubae* × *remota*. Bodowen, nr. Barmouth, 1 plant with the parents 1961.

*C. arenaria* L. **SAND S. C.** Abundant on dunes. Nr. Llandecwyn Halt. Morfa Harlech. Morfa Dyffryn. Barmouth. Barmouth Junction. Fairbourne. Morfa Towyn. Btwn. Towyn and Aberdovey.

\**C. divulsa* Stokes. **L.** Very rare. Roadside nr. Caerynwch, Dolgellau, 1950 ; now disappeared.



(The maps show the 10-km. squares of the Ordnance Survey National Grid. Each symbol represents a 1-km. square for which there is a record.)

**C. spicata** Huds. (*C. contigua* Hoppe). PRICKLY S. L. Very local. Calcareous laneside bank nr. Corwen, sparingly.

**C. muricata** L. (*C. pairaei* F. W. Schultz). L. Frequent on lanesides in W. of county; not seen elsewhere. Nr. Penrhyndeudraeth Stn., *A. O. Chater*. About Talybont in quantity. [Tyn-y-ffynon, Barmouth, 1 plant, now disappeared.] "Dolgelley", *B.S.B.J. excursion*. Nr. Barmouth Junction Stn. Tonfanau-Rhoslefain in quantity. Nr. Craig yr Aderyn, *E. K. Horwood*. Nr. Aberdovey Golf Club House.

**C. echinata** Murr. STAR-HEADED S. L, U, H. Common in bogs.

**C. remota** L. REMOTE S. L. Frequent, wet woods and shady stream-sides. Nr. Penrhyndeudraeth Stn., *A. O. Chater*. Nr. Victoria Hotel, Llanbedr. Roadsides at Llanddwywe, Talybont, and Hengwm. Talybont wood. Ditch nr. mouth of R. Ysgethin. Nr. Bodowen, Barmouth. Glyndyfrdwy, *Miss V. Gordon*. Nr. Cynwyd. Aber Rhiwlech, nr. Llanymawddwy, *A. O. Chater*. Dolgellau district—Pwll-y-gele; Nannau; Ganllwyd; Torrent Road; Caerwynwch; Aran Glen. Roadside at Arthog. Nr. Craig yr Aderyn, Towyn.

**C. curta** Good. GREY S. L, U. Rather local, in bogs. Hafod-y-llyn. S.W. shore of Trawsfynydd Lake. Crawcwellt. Nr. Llandderfel. At 2,000 ft. on Aran Benllyn, *J. H. Salter* in Wilson, A. (1949), *Alt. Range Br. Pl.*, 2nd ed. Llaethnant and nr. Llanymawddwy, *A. O. Chater*. Cwm Cowarch. Rhobell Fawr. Dolgellau district—Pwll-y-gele, and nr. Cross Foxes in several places. Arthog Bog.

**C. ovalis** Good. OVAL S. L, U. Common in wet meadows.

**C. pulicaris** L. FLEA S. L, U, H. Frequent in bogs. Mochras. Fields nr. sea below Talybont Halt, probably extinct. Btwn. Llanaber and Bwlch-y-Llan. Glyndyfrdwy, *Miss V. Gordon*. Llaethnant. Dolgellau district—Rhobell Fawr; nr. Rhydymain; Pwll-y-gele; Brithdir; nr. Cross Foxes; Bwlch Coch; Cwm Geugraig; Cwm Aran; nr. Llyn Gafr; above Bryn-rhug. Arthog Bog. Nr. Barmouth Junction Stn. Friog hill, on roadside.

**C. dioica** L. DIOECIOUS S. U, H. Frequent in the Dolgellau district, rare elsewhere; in hill-bogs, esp. if base-rich. By Cell-fawr, and by road up to Goetre, nr. Barmouth. Cwm Tylo, Parc, nr. Bala. Dolgellau district—nr. Llanfachreth; nr. Cross Foxes; nr. Gwerngraig; Aran Glen; nr. Llyn Gafr. Nr. Hafod-y-gareg, Arthog.

**Phragmites communis** Trin. REED. L, U. Abundant, often dominant over a considerable area, in swamps and ditches in lowlands, esp. if brackish. Local in the lakes of the hill-country.

**Molinia caerulea** (L.) Moench. PURPLE MOOR-GRASS. L, U. Abundant, often dominant, on wet peat.

**Sieglingia decumbens** (L.) Bernh. HEATH G. L, U. Common in rough acid grassland. Regularly with spreading inflorescences and chasmogamous florets in dune slacks on Morfa Harlech, and in Arthog Bog.

**Glyceria fluitans** (L.) R. Br. FLOTE G. Chiefly L. Common in swamps, ditches, and ponds.

**G. fluitans** × **plicata** Fries. L. 1 locality only. Ditches nr. shore at Talybont, in quantity 1955-6, still extant? Although this hybrid was growing mixed with *G. fluitans* and *G. declinata* and we do not know of a reliable Merioneth record of *G. plicata*, *Martin Borrill* found  $2n = 40$  in the hybrid, indicating that it was *G. fluitans* × *plicata*, not *G. fluitans* × *declinata* in which  $2n = 30$ . (Merioneth '*G. plicata*' is apparently all *G. declinata* recorded when *declinata* was not distinguished from, or distinguished only as a var. of, *plicata*.)

**G. declinata** Bréb. L, U. Common about muddy pools and ditches, esp. if trampled and manured by cattle; often with *Juncus bufonius*, *Polygonum hydro-piper*, *Gnaphalium uliginosum*, and *Callitriche stagnalis*. Morfa Harlech. Btwn. Llanbedr and Gwynfryn. Nr. Talwrn Bach Halt. Mochras. Talybont. Bont-ddu. S.W. shore of Trawsfynydd lake. Y Marian, Dolgellau. Brithdir. Nr. Drwsynant. Rhosygwaliau, Bala. Arthog Bog. Pont Dysynni, Bryn-crug. N. side of Dysynni Broadwater. Btwn. Towyn and Aberdovey. Gogarth Bog.

\***Festuca pratensis** Huds. MEADOW FESCUE. L. Rare casual from sown

hayfields. Roadside nr. Talwrn Bach Halt, a few plants with *F. arundinacea*. Side of footpath nr. Arthog P.O., 1 plant 1956.

**F. arundinacea** Schreb. REED F. C. Rather local, in the upper parts of salt-marshes with *Juncus maritimus*. Bank of R. Artro, nr. Pensarn. Mouth of R. Ysgethin. Shore btwn. Talybont and Llanaber. Nr. Glandwr bridge, Barmouth. Nr. Arthog Stn. All round the Dysynni Broadwater. (Nr. Dovey Junction Stn. in Mont., v.c. 47, and probably in Merioneth.) Also on roadside by Llanuwchllyn Stn.; undoubtedly introduced.

**F. gigantea** (L.) Vill. TALL BROME. L. Locally common in shady places with damp rich humus. Llechwedd Wood, Harlech. Aberartro Woods, Llanbedr. Roadsides at Llanddwywe and Talybont. Talybont Wood. Orierton Woods and track nr. Glandwr bridge, Barmouth. Calcareous wood nr. Corwen. Dolgellau district—Glasdir bridge; Torrent Walk; banks of R. Wnion; side of main road btwn. Dolgellau and Arthog in quantity. Woods at Arthog. Roadside nr. Pont Dysynni, Brynucrug.

**F. rubra** L. ssp. **rubra**. RED F. L, U, H. Abundant, often dominant, in grassland. Extremely variable.

**F. ovina** L. SHEEP'S F. L, U, H. Abundant, usually co-dominant with *Agrostis tenuis*, in dry pastures from sea-level to the tops of the highest mountains. On dry peaty hummocks in Arthog Bog, slender with very fine leaves and small spikelets; specimens of this type with densely hairy spikelets have been determined as var. *hispidula* Hack. At high altitudes, as on Cader Idris, often with proliferating inflorescences ('*F. vivipara* (L.) Sm.').

**F. rubra** × **Vulpia membranacea**. [Harlech dunes, with parents, 1 plant 1957-8, since died out.]

**F. rubra** × **V. myuros**. Roadside nr. Mawddach Crescent, Arthog, with parents, 1 plant 1957-8, since maintained in cultivation. This hybrid has not so far been found anywhere else in or out of Merioneth.

**Lolium perenne** L. RYE G. L, U. Abundant, meadows, roadsides, and waste ground; often sown for hay.

+\***L. multiflorum** Lam. ITALIAN RYE G. L, U. Sown for hay, and a frequent casual of field borders, farm tracks, and waste ground.

*L. multiflorum* × *perenne* is sown and may also arise naturally where the parent spp. grow together: a casual about field borders and farm tracks.

+**Vulpia membranacea** (L.) Dum. ONE-GLUMED FESCUE. C. 1 locality only, on 'white' *Ammophila*-dunes. Morfa Harlech in some quantity, shown to us by Miss A. P. Conolly.

**V. bromoides** (L.) Gray. SQUIRREL-TAIL F. L, U. Common in dry pastures and stony places.

\***V. myuros** (L.) C.C. Gmel. RAT'S-TAIL F. L. Common rly. weed, rapidly spreading. *Date is year of discovery*. Bala Junction Stn. (1959). Llanuwchllyn Stn. (1957). Bontnewydd Stn. (1957). Dolgellau Stn. (1961). Penmaenpool Stn. (1948). Arthog Stn. (1957). Barmouth Junction Stn. (1951). Fairbourne Stn. (1960). Aberdovey Stn. (1960).

Occasional in other habitats. Wall-top at E. end of Portmadoc embankment (1957). Quarry works nr. Minffordd, A. O. Chater and Miss A. P. Conolly (1961). Wall-top nr. Bryntirion, Dyffryn (1961). Roadsides by Mawddach Crescent, Arthog (1955). Wall-top at Pennal, A. O. Chater (1958).

**Puccinellia maritima** (Huds.) Parl. SEA MEADOW GRASS. C. Common, locally dominant, on the lower parts of mudflats. Traeth Bach. Artro estuary. Mouth of R. Ysgethin. Shore btwn. Talybont and Llanaber. Mawddach estuary as at Bodowen, Penmaenpool, Arthog, and Fairbourne. Dysynni Broadwater. Nr. Dovey Junction.

**Catapodium rigidum** (L.) C. E. Hubb. (*Desmazeria rigida* (L.) Tutin). HARD FESCUE. C. Local as a native, on bare sand in dune slacks; very small. Morfa Harlech. Morfa Dyffryn.

L. Occasional as an alien about rlys. Wall at E. end of Portmadoc embankment. Rly. sidings at Minffordd Stn., Miss A. P. Conolly. Rly. ballast at Harlech Stn., very fine, with *C. marinum*. Wall-top at Pensarn Stn. Rly. ballast at Aberdovey Stn., with *C. marinum*.

**C. marinum** (L.) C. E. Hubb. (*D. marina* (L.) Druce). DARNEL F. C. Rather local, nr. sea. Bare sandy places in Harlech duneland. Rly. ballast at Harlech Stn., with *C. rigidum*. Rly. wall btwn. Harlech and Llandanwg. Waste duneland at Llanaber. Rocks at N. end of, and footway over, the viaduct, Barmouth. Fairbourne beach. Rly. ballast by Aberdovey Stn., with *C. rigidum*.

**C. marinum** × **rigidum**. Rly ballast by Aberdovey Stn., with parents, 1 plant 1960. This hybrid has not so far been found anywhere else in or out of Merioneth; for an account of it, see Benoit, P. M. (1961) in *Proc. B.S.B.I.*, 4, 276.

**Poa annua** L. ANNUAL MEADOW-GRASS. L, U, H. A very common weed from sea level to the highest mountain summits.

**P. nemoralis** L. WOOD M. L. Frequent on roadside wall-tops. Btwn. Llanbedr and Gwynfryn. Barmouth—Plas Mynach (in dry wood); Handlith Terrace; Aberamffra (dry wood and wall-top); btwn. Glandwr and Caerdeon. Dolgellau—btwn. Borthwnog and Llanelltyd; nr. Dr. Williams' School; Pandryodryd; Bontnewydd. Aber Rhiwlech, nr. Llanymawddwy. Llandderfel. By the School and War Memorial, Arthog.

Often sending up fresh culms continually until the winter; and extremely variable in size and in the development of the panicle.

\***P. compressa** L. FLATTENED M. L. Local, on roadside wall-tops. Quarry works nr. Penrhyndeudraeth, A. O. Chater and Miss A. P. Conolly. [Gwynfryn, Llanbedr, 1953 but not since.] Mount Argus, Barmouth. Nr. Dr. Williams' School, Dolgellau. Nr. Trefeddiann, Aberdovey. Pennal, A.O.G. [Also on bare stony ground in quarry on Torrent Road, Dolgellau, 1952 but not since; and on track by Mawddach Crescent, Arthog, 1956 but not since.]

**P. pratensis** L. SMOOTH M.

Ssp. *pratensis*. L, U. Abundant, meadows, pastures, roadsides.

+\***Ssp. angustifolia** (L.) Gaud. L. 1 locality only. Rly. bank at Dolgellau Stn., 1 patch. (Just outside the county boundary on rly. bank at Glandyfi Stn., Cards., v.c. 46.)

Ssp. *subcaerulea* (Sm.) Tutin. Chiefly G. Abundant, often dominant, in duneland. Morfa Harlech. Morfa Dyffryn. Barmouth dunes. Fairbourne Spit. Aberdovey links. Less common in pastures inland.

**P. trivialis** L. ROUGH M. L, U. Abundant, meadows, marshy places, ditches, roadsides.

+\***P. palustris** L. SWAMP M. L. 1 locality only. Marshy ground by R. Glaslyn nr. Minffordd, D. I. Hughes and G. Wesson, conf. C. E. Hubbard.

*Catabrosa aquatica* (L.) Beauv., Water Whorl-grass, was recorded by one of us (P.M.B.) in 1950 from a ditch below Ystungwern, Dyffryn. But no specimen was taken, and although the locality was thoroughly searched in 1952 and 1961 the plant has not been found again. This record (the only one for the county) is therefore best regarded as doubtful.

**Dactylis glomerata** L. COCKSFOOT. L, U. Abundant, meadows, roadsides.

**Cynosurus cristatus** L. CRESTED DOG'S-TAIL. L, U. Common, pastures, meadows, roadsides.

**Briza media** L. QUAKING GRASS. L, U. Local in calcareous dune grassland. Morfa Harlech. Morfa Dyffryn. [Below Talybont Halt, now extinct (locality now caravan site).]

Local also in calcareous hill-bogs. Moel y Calch, Llandderfel. Nr. Rhosygwaliau. Dolgellau district—nr. Drwsynant; Llanfachreth; Maes-y-bryner; Brithdir; nr. Cross Foxes; Aran Glen; Ty Nant, on roadside and Pony Track to Cader.

**Melica uniflora** Retz. WOOD MELIC. L, U. Frequent in woods with rich humus. Maentwrog, Miss V. Gordon. Ceunant Llenyrch, F. Rose. Nr. Minffordd, Penrhyndeudraeth. Nr. Talsarnau, F.R. Aberartro, Llanbedr, F.R. Talybont Wood. Nr. Allt-fawr and Hafod-y-glyn, Barmouth. Glydyfrdwy, Miss V. G. Nr. Cynwyd. Dolgellau district—nr. Rhydymain; Bontnewydd; Caerynwch; Aran Glen. Arthog. Abergynolwyn, Mrs. A. G. Side. Aberdovey (reported).

**M. nutans** L. MOUNTAIN M. U, H. 2 localities only and there very rare, on calcareous mountain rocks. Nr. Drwsynant. E. end of Cader Idris range.

\***Zerna erecta** (Huds.) Gray. UPRIGHT BROME. L. Very rare alien. Roadside btwn. Arthog and Fairbourne, 2 plants only, in different places.

**Z. ramosa** (Huds.) Lindm. HAIRY B. L. Very local, chiefly on calcareous soils. Nr. Mount Argus, Barmouth, 1 plant 1958 but not since. Glyn-dyfrdwy, Miss V. Gordon. Calcareous laneside bank nr. Corwen. (Probably elsewhere on roadsides in far east of county.) Rocky wood at Arthog, sparingly.

+\***Z. inermis** (Leys.) Lindm. L. 1 locality only. Sandy ground nr. Llanfihangel-y-Traethau, discovered 1958 by E. Milne-Redhead.

**Anisantha sterilis** (L.) Nevski. BARREN B. L. Common, roadsides, waste places, rly. yards.

+\***A. diandra** (Roth) Tutin (*Bromus gussonii* Parl.). L. 2 localities only but there in some quantity, on rly. ballast. E. end of Portmadoc embankment. Nr. Aberdovey Stn.

**Bromus mollis** L. SOFT B. L, U. Very common, duneland, meadows, roadsides, waste places. Extremely variable in size.

Intermediates between, and growing with, *B. mollis* and *B. thominii*, as on Fairbourne Spit, are probably (fertile) hybrids.

**B. thominii** Hard. Chiefly C. Common on duneland frequented by rabbits. Morfa Harlech. Morfa Dyffryn. Barmouth sand-dunes. Fairbourne Spit.

Also an occasional casual on roadsides. Nr. E. end of Portmadoc embankment, 1956. Penrhyndeudraeth Stn., 1961, Mrs. M. D. G. Jones. Llanuwchllyn Stn., 1957. Dolgellau Stn., 1961. Tal-y-gareg, nr. Tonfanau, 1954.

\***B. lepidus** Holmb. L. Occasional; always sparingly and probably originating from sown hayfields. Harlech duneland, 1953, 1955. Derelict sandy field on Mochras, 1958. Roadsides at Dyffryn and Talybont, most years (some plants collected at Talybont in 1953 were var. *micromollis* (Krosche) C. E. Hubbard). Dolgellau district—Llanfachreth, 1948, B.S.B.I. excursion; hayfield at Braich-y-fedw, 1956; rly. siding at Bontnewydd Stn., 1956; hayfield at Ty-glas, Brithdir, 1953.

\***B. racemosus** L. SMOOTH B. L. Rare casual of road- and track-sides. Nr. Talsarnau Stn., 1956. Nr. Arthog P.O., 1954. Nr. St. Mary's Terrace, Arthog, 1956. Bwlch-gwyn, nr. Fairbourne, 1957.

+\***B. arvensis** L. FIELD B. L. Very local. Harlech golf-links, a number of plants 1957, probably sown.

**Brachypodium sylvaticum** (Huds.) Beauv. WOOD FALSE-BROME. L, U. Very common in woods.

**Roegneria canina** (L.) Nevski (*Agropyron caninum* (L.) Beauv.). BEARDED COUGH. L, U. Local, in shady places with rich humus, usually sparingly. Nr. Llechwedd-du-bach, Harlech. Panorama Road, Barmouth. Btwn. Llanelltyd and Dolgellau. Bank of R. Wnion, Dolgellau. Nr. Rhydymain in some quantity. Nr. Llandderfel bridge. Nr. Cynwyd in some quantity. Arthog.

**Elytrigia repens** (L.) Nevski (*A. repens* (L.) Beauv.). COMMON C. L. Rather common (a) as a native in the upper parts of salt-marshes, a plant with rather stiff glabrous leaves (not to be confused with *E. pungens* and the sterile *E. pungens* × *repens*, both of which have yet stiffer, glaucous leaves with fewer thicker ribs); and (b) as an alien in waste places, a plant with flaccid leaves having long hairs on the ventral surface.

**E. pungens** (Pers.) Tutin (*A. pungens* (Pers.) R. & S.). SEA C. C. Very local, on sandy shores. E. end of Portmadoc embankment. S. shore of the Traeth Bach. Arthro estuary.

**E. pungens** × **repens**. Very local. Shore of Dysynni Broadwater, in quantity without either parent, conf. C. E. Hubbard. Possibly elsewhere.

**E. junceaiformis** A. & D. Löve (*A. junceaiformis* (A. & D. Löve) A. & D. Löve). SAND C. C. Common on sandy shores. E. end of Portmadoc embankment. Morfa Harlech. Morfa Dyffryn. Btwn. Talybont and Llanaber. Barmouth. Barmouth Junction. Fairbourne links. Btwn. Towyn and Aberdovey.

**E. junceiformis** × **pungens**. Very local, on sandy shores with parents. E. end of Portmadoc embankment, in great quantity, shown to us by Miss A. P. Conolly. S. shore of the Traeth Bach. Arthro estuary.

**E. junceiformis** × **repens**. Local, on sandy shores with the parents. E. end of Portmadoc embankment, 1 plant. Harlech golf-links, 1 small patch. Shore btwn. Talybont and Llanaber, in quantity. Waste ground, Jubilee Road, Barmouth, 1 small patch.

**Elymus arenarius** L. LYME-GRASS. C. Very local, on sandy shores. Morfa Harlech, 1 small patch 1961. Barmouth, a good patch persistent since 1954 but liable to be washed away by the tide. Nr. Aberdovey Stn.

\***Hordeum murinum** L. WALL BARLEY. L. Local, on waste ground. Nr. Harlech Stn. Common at Barmouth. By Aberdovey Stn.

**Trisetum flavescens** (L.) Beauv. YELLOW OAT-GRASS. L. Very local, in calcareous dune grassland. Morfa Harlech, a few plants in 2 spots. Aberdovey links, sparingly. Also nr. Cynwyd, very sparingly in a field probably sown.

\***Avena strigosa** Schreb. BLACK OAT. L, U. Rare casual. Mochras, 1948, *B.S.B.I. excursion*. Tyddyn Angharad, Corwen, 1961, *Mrs. Goodman* (spec.). Shingle of R. Wnion, Dolgellau, 1 plant 1951. Roadside at Arthog, 1 plant 1961.

**Helictotrichon pubescens** (Huds.) Pilg. HAIRY OAT-GRASS. L. Frequent in rough grassland nr. sea (esp. if calcareous). Harlech duneland in great quantity; co-dominant with *Festuca rubra* over considerable area. Duneland below Talybont Halt. Mouth of Egryn stream. Duneland at Llanaber. Ceil-wart Uchaf, Llanaber, 1 plant. Penrallt and Cae-newydd, Barmouth. Roadside btwn. Barmouth Junction and Fairbourne, occasional. Nr. rly. bridge at Friog. Nr. Llwyngwrl Stn. Golf-links and rly. bank at Aberdovey.

**Arrhenatherum elatius** (L.) Beauv. ex. J. & C. Presl. FALSE OAT. L. Abundant, roadsides, waste places.

**Holcus lanatus** L. YORKSHIRE FOG. L. Abundant, fields, roadsides.

**H. mollis** L. CREEPING SOFT-GRASS. L. Common, shady places, ditches.

**Deschampsia cespitosa** (L.) Beauv. TUFTED HAIR-GRASS. L, U. Common in rough boggy fields and wet woods.

**D. flexuosa** (L.) Trin. WAVY H. L, U, H. Common, dry acid woods, rocks.

**Aira praecox** L. EARLY H. L, U. Common on bare dry acid ground.

**A. caryophylla** L. SILVERY H. L, H. Rather frequent on bare acid ground; usually with, but less common than, *A. praecox*.

**Ammophila arenaria** (L.) Link. MARRAM-GRASS. C. Abundant in the dunelands; the dominant sp. of 'white' mobile dunes.

**Agrostis canina** L. BROWN BENT. L, U, H. Common in acid grassland. The plants of wet and dry habitats respectively appear to be ssp. *canina* and ssp. *montana* Hartm., but further investigation is needed.

**A. tenuis** Sibth. COMMON B. L, U, H. Abundant, usually dominant, or co-dominant with *Festuca ovina*, in acid pastures from sea-level to the tops of the highest mountains. Probably the commonest grass in the county.

+\***A. gigantea** Roth. BLACK B. L. 1 locality only. Rly. yard at Penrhynudraeth Stn., 1961, *Mrs. M. D. G. Jones* conf. *C. E. Hubbard*.

**A. stolonifera** L. CREEPING B. L. Abundant in marshy places.

**A. stolonifera** × **tenuis**. Local, with parents. Duneland of Morfa Harlech and Morfa Dyffryn, common. Roadside nr. Barmouth Junction Stn., 1 plant 1957.

**Phleum bertolonii** DC. (*P. nodosum* auct). C. Very local, in dune grassland. Morfa Harlech. Btwn. Llanaber and Barmouth.

\***P. pratense** L. TIMOTHY-GRASS. L. Rare casual of disturbed ground and roadsides. Abundant on sown roadside verge at Llanaber, 1954.

**P. arenarium** L. SAND CAT'S-TAIL. C. Common on the dunes. Morfa Harlech. Morfa Dyffryn. Btwn. Llanaber and Barmouth. Fairbourne? Towyn and Aberdovey.

**Alopecurus pratensis** L. MEADOW FOX-TAIL. L. Very local as an apparent native. Marshy meadows W. of Dolgellau, in some quantity. Frequent as a casual alien about roadsides and sown fields.



**A. geniculatus** L. MARSH F. L. Frequent, wet meadows, marshy edges of pools. Nr. R. Glaslyn, Minffordd. Morfa Harlech. Morfa Dyffryn. Nr. shore at Talybont. Duneland btwn. Llanaber and Barmouth. Nr. Llanelltyd, Miss L. W. Frost. Cefn-gallt-y-cwm, Trawsfynydd. Marshy meadows W. of Dolgellau. Cwm Cowarch. Nr. Plas Isaf, Corwen. Nr. Arthog Church. Nr. Barmouth Junction Stn. Fairbourne, on golf-links and in ditch nr. stn. Nr. Pont Dysynni, Bryn-crug. Marshes btwn. Towyn and Aberdovey.

+ **A. aequalis** Sobol. ORANGE F. L. 1 locality only, in marshy place. Mochras.

**Milium effusum** L. WOOD MILLET. L. Very local, in woods with damp rich humus. Talybont wood, rare. Btwn. Llanelltyd and Dolgellau, 2 plants seen. Arthog, in 2 places, shown to us by Miss V. Gordon. Nr. Fairbourne.

**Anthoxanthum odoratum** L. SWEET VERNAL GRASS. L, U, H. Abundant, meadows, pastures, roadsides.

**Phalaris arundinacea** L. L. Rather common, locally dominant, in lowland swamps and ditches. Llanfihangel-y-traethau. Nr. Talwrn Bach Halt. Nr. Dyffryn Stn. Btwn. Talybont and Llanaber. Plas Isaf, Corwen. Nr. Llanderfel. Nr. Bala Junction Stn. and Fachddeiliog. Bank of R. Wnion nr. Dolgellau. Nr. Barmouth Junction Stn. Btwn. Towyn and Aberdovey.

*P. canariensis* L., Canary-grass, was a casual on the town refuse-tip, Aberdovey, in 1955.

**Parapholis strigosa** (Dum.) C. E. Hubb. SEA HARD-GRASS. C. Very local, in the upper parts of sandy salt-marshes. Nr. Minffordd, Penrhyn-deudraeth, 1957, Miss A. P. Conolly. S. shore of the Traeth Bach, 1953. Arthro estuary, regularly. Mouth of R. Ysgethin, 1961, Mrs. M. D. G. Jones. Barmouth Junction, 1 plant 1949.

**Nardus stricta** L. MAT GRASS. L, U, H. Abundant in rough acid pastures of hill-country; often dominant in drier parts of high moorlands. Local nr. sea-level—Morfa Harlech; Morfa Dyffryn; Arthog Bog; Aberdovey golf-links.

\***Spartina alterniflora** Lois. × **maritima** (Curt.) Fern. C. Very local, in wet muddy salt-marshes. Btwn. Barmouth Junction and Fairbourne, several patches with the next.

\***S. townsendii** auct. non H. & J. Groves. SPARTINA. C. Abundant, locally dominant, in wet muddy salt-marshes; rapidly spreading and a serious threat to natural vegetation in this habitat. Glaslyn estuary nr. Portmadoc embankment. S. shore of the Traeth Bach. Arthro estuary. Mouth of R. Ysgethin, Mrs. M. D. G. Jones. Mawddach estuary—Bodowen, a few clumps first noted 1949, now dominant and indeed the only plant over a large area; nr. Arthog; btwn. Barmouth Junction and Fairbourne, also dominant over a large area. Dovey estuary btwn. Abertafol and Gogarth.

## ADDENDA

*Adiantum capillus-veneris* L., Maidenhair Fern, in *Journ. Ecol.*, 20, 37 (1932) and 32, 176 (1945) later proved to be *Asplenium trichomanes* sporelings.

**Dryopteris borreri** × **filix-mas**. Roadside at Arthog, 1 plant with the parents ("identification . . . seems to me quite correct. I would regard this as the hybrid between *Dryopteris filix-mas* and *Dryopteris borreri*"—I. Manion). Although the parent species are both common and often grow together in Merioneth, we have not found any other plants that we suspect to be this hybrid.

**Juniperus communis** L. ssp. **nana** Syme (*J. sibirica* Burgsd.). DWARF JUNIPER. H. Apparently 1 bush only, on mountain cliff. Cwm Aran, *J. Griffith*, see Ellis, T. P. (1928), *The Story of Two Parishes Dolgellau and Llanelltyd*, 147, and *Journ. Ecol.*, 32, 177 (1945); again 1961–2, Miss V. Paish et al.

+\***Papaver lecoqii** Lamotte. LECOQ'S POPPY. L. 1 locality only. Waste ground nr. the viaduct, Barmouth, persistent since 1951, det. F. H. Perring.

**Cardaminopsis petraea** (L.) Hiit. NORTHERN ROCK-CRESS. H. Very local, on basic mountain cliffs. Moelwyn, nr. Ffestiniog, D. Lloyd in Ray, J. (1960), *Synopsis*, 1st ed., 117; again 1962, W. M. Condry.

**Hypericum montanum** L., Mountain St. John's-wort, in *Journ. Ecol.*, 32, 174 (1945) is an error for *H. pulchrum*.

\***Medicago sativa** L. LUCERNE. L. Very local. [Rly. siding at Barmouth Junction, 1 plant c. 1945, now destroyed.] Dunes on S. side of mouth of R. Ysgethin, probably sown (locality a caravan site; plant in quantity 1961, yet never noticed there before).

\***M. arabica** (L.) Huds. SPOTTED MEDICK. L. Very local. Waste ground nr. Aberdovey Stn.

**Melilotus officinalis** (L.) Pall. (*M. arvensis* Wallr.), Field Melilot, in *Nature in Wales*, 7, 63 (1961) is an error for *M. altissima* Thuill., Common M. (The record is given correctly on p. 19 of this volume.)

**Potentilla erecta** × **reptans**. Local. Wall of the Barmouth road just outside Dolgellau, 1 patch. Sides of the Bala road btwn. Dolgellau and Bontnewydd, in quantity.

**Myriophyllum spicatum** L., Spiked Water Milfoil, has been recorded, but probably in error for the frequent *M. alterniflorum*. We do not know of any specimens or certainly reliable records of *M. spicatum* from Merioneth.

**Bupleurum tenuissimum** L., Slender Hare's-ear, in *Nature in Wales*, 4, 596 (1958), is an error, probably for *Filago minima*.

**Polygonum minus** Huds. SLENDER PERSICARIA. L. Very local. Mochras, in marsh sparingly with *P. persicaria* and *P. hydrophiper*.

**Betula pendula** × **pubescens** in *Journ. Ecol.*, 20, 50 (1932) as 'alba (verrucosa) × pubescens', is the prevalent subglabrous form of *B. pubescens*, not this hybrid.

**Salix herbacea** L. LEAST WILLOW. H. 2 localities only, on the highest mountains. Nr. summit of Aran Mawddwy, 1 plant 1962, A. O. Chater. Nr. summit of Cader Idris, 1922, D. A. Jones, spec. Hb. NMW, and see Ellis, T. P. (1928), *The Story of Two Parishes Dolgelly and Llanelltyd*, 147, and *N.W. Nat.*, 4, 136 (1929), and *WFF*, 153; again 1960, I. Gill et al. and 1961, D. A. Ratcliffe.

**Limonium humile** × **vulgare**. Occasional with the parents. Nr. Arthog, c. 6 plants.

**Calystegia sepium** × **silvatica** in *Nature in Wales*, 7, 169 (1961) appears to be normal *C. silvatica*, not this hybrid.

\***Mentha longifolia** (L.) Huds. HORSE MINT. L. Rare garden throw-out. Barmouth town refuse tip, Mrs. M. D. G. Jones. Glasdir lower bridge nr. Dolgellau. A plant on a rubbish heap nr. Talwrn Bach, Llanbedr, has been determined as 'M. longifolia var. horridula Briq.'; it is similar to *M. spicata* L. but is hairy and has included stamens with sterile anthers; it is probably a hybrid of garden origin.

\***M. longifolia** × **rotundifolia** (M. × **niliaca** Juss. ex Jacq.). L. Rare garden escape or throw-out. By Harlech Castle, Mrs. M. D. G. Jones det. R. M. Harley (*M. × niliaca* var. **alopeuroides** (Hull) Briq.).

**Saussurea alpina** (L.) DC. ALPINE SAW-WORT. H. Very local, on basic mountain cliffs. Cwm Aran, 1877, J. Backhouse, see *Bot. Loc. Rec. Club. Rept.* 1877, 217 and 239 (1878) and *Journ. Ecol.*, 32, 176 (1945); again 1960, 1962, S. C. Clark.

**Hieracium scotostictum** Hyl. L. Wall and grassland at Penmaen-ucha, nr. Dolgellau, 1956, Mrs. M. Richards det. P. D. Sell.

**H. sublepidoides** (Zahn) Druce. L. Local. Btwn. Friog and Llwyn-gwrl, in quantity on roadside mortared wall, 1962, P. M. Benoit det. P. D. Sell.

**H. maculatum** Sm. L. Local. Btwn. Friog and Llwyn-gwrl, sparingly on roadside, 1962, P. M. Benoit det. P. D. Sell.

**Zostera marina** L., Grass Wrack, Eel-grass. A fragment was found washed up on the shore at the mouth of the R. Ysgethin in 1957, but this species has not been seen *in situ* in Merioneth. (The only other record from the county is of a piece washed up at Harlech in 1933. A. Wilson.)

+**Potamogeton alpinus** Balb. REDDISH PONDWEED. U? 1 locality only, in base-poor mountain lake. Llyn Gwernan.

**P. perfoliatus** L. PERFOLIATE P. L. Very local, in lakes and rivers. Talylyn Lake, 1874, spec. Hb. J. Backhouse, and 1898, *T. Ruddy*, spec. Hb. NMW and *WFP*, 170; again 1956, *I. A. Williams*.

+**Rhynchospora fusca** (L.) Ait. f. BROWN BEAK-SEDGE. L. 1 locality only, in wet acid bog, Nr. Barmouth, a small patch.

+**Carex paupercula** Michx. U. 1 locality only, in wet acid bog. Nr. Trawsfynydd, shown to us by *Martin Wenham*.

**Carex bigelowii** Torr. ex Schwein. RIGID SEDGE. H. Very local, in barren stony pastures on the highest mountains. Nr. summit of Aran Benlyn, 1962, *A. O. Chater*. Nr. summit of Aran Mawddwy, *J. H. Salter* in *N.W.Nat.* suppt., 81 (1931); again 1962, abundant, *A. O. Chater*. Nr. summit of Cader Idris, 1875, *A. Ley*, spec. Hb. ABS and see *Bot. Loc. Rec. Club Rept.* 1875, 146 (1876); *J. H. Salter* in *N.W.Nat.*, 4, 136 (1929) and *N.W.Nat.* suppt., 81 (1931); again 1961, *R. K. Brummit*.

*Koeleria gracilis* Pers., Slender Hair-grass, in *Proc. B.S.B.I.*, 1, 183 (1954) is an error.

Page 19, line 26. After **Trifolium ornithopodioides** L. add (*Trigonella ornithopodioides* (L.) DC.)

Page 21, line 19 up. After **Rosa pimpinellifolia** L. add (*R. spinosissima* L.)

Page 29, line 17 up. After **Betula pendula** Roth add (*B. verrucosa* Ehrh.)

Page 33, line 15 up. After \***Misopates orontium** (L.) Raf. add (*Antirrhinum orontium* L.)

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