

FLORA OF CALDEY ISLAND, PEMBROKESHIRE

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

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

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

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

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

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

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

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

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

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

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

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

Abbreviations used in the list:

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

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

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

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

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

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

- from the opposite island of Caldey, although precisely similar habitats exist there. Its range on the mainland has apparently extended with the increase of the sand hills". It is not surprising that Pugsley overlooked this plant in spite of its local abundance on Caldey, for during the summer the area is covered by impenetrable thicket and the rose only grows there to a maximum of 1 ft. It was not until my second visit in late spring that I found it. (H)
- R. CANINA L. sens. lat. Only a few plants were seen, near the situation of the last species. There were still some late flowers (July). (H)
- MALUS SYLVESTRIS Mill. (*M. pumila* Mill.). In the Park, probably planted. Also in the wood.
- CRATAEGUS MONOGYNA Jacq. Common in the scrub areas. (H)
- SAXIFRAGA TRIDACTYLITES L. Common on the dunes and old wall tops. (H)
- UMBILICUS RUPESTRIS (Salisb.) Dandy (*U. pendulinus* DC.). A plant characteristic of the oceanic element of the flora and common all over Caldey in dry, stony places and on walls.
- SEDUM ANGLICUM Huds. Abundant all round the coasts. (H)
- †S. ALBUM L. Scarce, on a wall near the Guest House. (H)
- S. ACRE L. Common on walls and fixed dunes. (H)
- CALLITRICHE STAGNALIS Scop. In Sandtop pond.
- CHAMAENERION ANGUSTIFOLIUM (L.) Scop. In the stream wood. (H)
- EPILOBIUM HIRSUTUM L. By the stream in the wood.
- E. PARVIFLORUM Schreb. Growing with the last. (H)
- E. MONTANUM L. Generally common.
- E. PALUSTRE L. By the stream and Sandtop pond. (H)
- †OENOTHERA sp. Naturalised on the fixed dunes; unfortunately not collected.
- †FUCHSIA MAGELLANICA Lam. Used as a hedging plant, hardly naturalised.
- BRYONIA DIOICA Jacq. Recorded by Pugsley (1924).
- ERYNGIUM MARITIMUM L. Common on both the Priory Bay and Sandtop Bay dunes.
- CONIUM MACULATUM L. A little at the edge of the garden, also plentiful in the farmyard. (H)
- APIUM NODIFLORUM (L.) Reichb. f. In plenty in the marsh by the Carp pond. (H)
- A. INUNDATUM (L.) Reichb. f. Confined to the Sandtop Pond but quite plentiful in that station. (H)
- AEGOPIDIUM PODAGRARIA L. A large patch in front of the shop.
- CONOPODIUM MAJUS (Gouan) Loret. Frequent in the High Cliff area.
- CRITHMUM MARITIMUM L. Occasional around the coast. Allen's "Guide to Tenby" (c. 1890) states that "the cliffs abound in samphire" and continues "it is gathered to make delicious pickle" on Caldey.
- OENANTHE CROCATATA L. Massive plants in the marsh by the Carp pond.
- HERACLEUM SPHONDYLIIUM L. Common.
- DAUCUS CAROTA L. Frequent at the edges of fields, etc.
- HEDERA HELIX L. Covers a large area of fixed and mobile dunes at Priory Bay where it is heavily infested by *Orobanche hederae*.

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

- CIRSIIUM VULGARE (Savi) Ten. Generally common. One large white-flowered specimen was found on the cliff top near the Lighthouse.
- SERRATULA TINCTORIA L. A few plants were seen (at that time in bud) at the bottom of Drinkim Bay cliffs. (H)
- CENTAUREA NIGRA L. Frequent.
- C. SCABIOSA L. Common and particularly magnificent on the limestone. Three entire-leaved plants were seen in bud on Eel Point in 1950; a thorough search in the same area in 1952 failed to find one. On comparing the specimen collected with material in Herb. Mus. Brit., it was found to match var. *succisifolia* E. S. Marshall from Sutherland, in the long entire leaves and green portion of the phyllaries hidden by appendages. It does not match material from Gower Peninsula which would appear to be the form *cretacea* (Woerlein) Hyde & Wade.
- [CICHORIUM INTYBUS L. Rees (1950) reports it for Caldey but "nowhere permanent"; needs confirmation.]
- LAPSANA COMMUNIS L. Occasional. (H)
- CREPIS CAPILLARIS (L.) Wallr. Abundant on Priory Bay dunes. (H)
- LEONTODON TARAXACOIDES (Vill.) Mérat (*L. leysseri* G. Beck). Common on Priory Bay dunes. (H)
- HIERACIUM PILOSELLA L. On the dunes. (H)
- H. EUSTOMON (E. F. & W. R. Linton) Roffey. Only 3 plants seen in 1952 on ledges of the quarry, High Cliff. The specimen collected appears to be a poorly developed plant, but the species is known from cliffs at Tenby and a few places in S. Wales. Det. C. West and P. D. Sell. (H)
- TARAXACUM spp. Generally common.
- SONCHUS OLERACEUS L. Common. (H)
- S. ASPER (L.) Hill. A superficial enquiry into the distribution of this and the last species over the island showed that both species seemed to be equally abundant. *S. asper* occurred quite frequently on the dunes. (H)
- S. ARVENSIS L. Common.
- TRAGOPOGON PRATENSIS L. Occasional in the fields near the farm.
- JASIONE MONTANA L. Frequent on cliff ledges of the south and west coasts.
- ERICA CINEREA L. Common on the dry turf of the southern sandstone cliff tops and northern limestone cliff tops. (H)
- LIMONIUM BINERVOSUM (G. E. Sm.) C. E. Salmon. Scattered around the coast on the cliffs. Det. N. Y. Sandwith. (H)
- ARMERIA MARITIMA (Mill.) Willd. A common coastal species.
- PRIMULA VULGARIS L. Common in most rough areas.
- P. VERIS L. Frequent in northern fields. A hybrid with the last was seen.
- †LYSIMACHIA VULGARIS L. Introduced recently into the stream wood.
- †L. NUMMULARIA L. In the stream wood, presumably introduced.

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

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

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

- does not record it for Caldey, but about its Pembrokeshire distribution she writes: "The haunts of this orchid are so systematically raided that its ultimate survival is doubtful". (H)
- IRIS FOETIDISSIMA L. Frequent in the woods.
- I. PSEUDACORUS L. In one of the ponds in the wood; central dew pond.
- TAMUS COMMUNIS L. Frequent in the High Cliff scrub.
- [ASPARAGUS MARITIMUS (L.) Mill. Rees (1950) states it is "a weed on Caldey where it was once cultivated"; needs confirmation.]
- SCILLA VERNA Huds. An abundant and characteristic plant of the Caldey Cliff tops. Rees (1950) reports it as "common on the headlands of Pembrokeshire, also on the islands of Caldey, Skokholm and Skomer". (H)
- ENDYMION NON-SCRIPTUS (L.) Garcke (*Scilla non-scripta* (L.) Hoffmanns. & Link). In the wood.
- JUNCUS BUFONIUS L. In the marshy ground by the stream. (H)
- J. EFFUSUS L. Frequent in damp places. (H)
- J. ARTICULATUS L. By Sandtop pond. (H)
- LUZULA CAMPESTRIS (L.) DC. Common. (H)
- TYPHA LATIFOLIA L. Plentiful, and locally dominant in the Carp pond marsh.
- SPARGANIUM ERECTUM L. In the Sandtop pond.
- ARUM MACULATUM L. Common in the High Cliff area and rather surprisingly close to the sea on the semi-fixed dunes in Priory Bay.
- LEMNA MINOR L. Abundant on still water. (H)
- BALDELLIA RANUNCULOIDES (L.) Parl. Limited to the Sandtop pond. (H)
- POTAMOGETON POLYGONIFOLIUS Pourr. In the Sandtop pond. Det. J. E. Dandy. (Herb. Mus. Brit.)
- ELEOCHARIS PALUSTRIS (L.) Roem. & Schult. In the Sandtop pond.
- SCIRPUS CERNUUS Vahl. At the bottom of Drinkim Bay cliffs. (H)
- CAREX ARENARIA L. Common on the sand dunes. Det. E. Nelmes. (H)
- *C. POLYPHYLLA Kar. & Kir. Only in the High Cliff area near the "Park" plantation. Of these specimens Mr. Nelmes writes that they "are in my opinion *Carex polyphylla*. The length of the inflorescence in this sp. varies from about 3-7 cm. so that in these specimens it is at the lowest point of its range, causing it to resemble that of *C. muricata* L. whose similar inflorescence is at the highest point of its range at c. 3 cm. The lowest spike in Mr. Hepper's specimens is often compound as is usual in *C. polyphylla*, that of *C. muricata* being simple. The utricles are longer than those of *C. muricata*". The only other records for Wales are from Glamorgan, v.c. 41, and Denbigh, v.c. 50. (H)
- C. FLACCA Schreb. Frequent. Det. E. Nelmes. (H)
- C. PENDULA L. Occasional in the stream wood. Det. E. Nelmes. (H)
- C. PUNCTATA Gaudin. On the east coast. An interesting find and limited, as far as I know, to this one locality. Pugsley (1924) also recorded it for Caldey. Rees (1950) records the species from Waterwynch in Pembrokeshire and continues: "This is the only locality where I have found this rare sedge . . ." Det. E. Nelmes. (H)

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

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

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