

## THE FLORA OF BUTE.

(By JANET F. A. MACLAGAN, B.Sc.).

In this description of the Flora of Bute no attempt is made to give an exhaustive list of the plants which are to be found on the island. The intention is rather to give an account on ecological lines, showing the plants most abundant in the various habitats. In an account of this nature, the climatic conditions and physical features of the island, and the nature of the soil, must be taken into consideration.

The flora presents the same general features as that of the mainland, but although the coast-line is relatively extensive, the maritime flora has only a limited range. The mild, damp, climate is favourable for the growth of vegetation.

The highest altitude attained does not exceed a thousand feet above sea level, so the alpine flora of the Scottish Highlands is not represented.

For convenience of description the island may be divided into three belts, approximately north, central and south, in which the nature of the surface soils, and consequently the predominant types of vegetation, differ. These three belts will be considered separately, and the following main types of vegetation dealt with in each:

|           |                             |
|-----------|-----------------------------|
| Maritime. | Meadows and Arable Land.    |
| Moor.     | Wood and Hedgerow.          |
|           | Marsh and Fresh-Water Loch. |

**North Bute.**

North Bute is here taken as the land lying north of a line drawn from Ardmaleish Point to Kildavanan Point. This area is almost exclusively mica schist, with a shallow layer of acid soil bearing a moorland vegetation. Woods

and cultivated lands are almost unrepresented. Grassland is of limited extent, and is only found near the shore, and where the schist is broken by tertiary dykes, of which the largest is Glenmore.

**MARITIME.**—The seashore vegetation is best studied at Balnakailly Bay on the east, and Kilmichael on the west. *Scutellaria galericulata* (common skullcap) is quite abundant on the shingle at both stations. On the shingle also at Kilmichael occurs *Lycopus europæus* (Gipsywort), a plant which is uncommon on, or absent from, the rest of the island. This plant is abundant in England, but less common in Scotland. It occurs also on the shores of the sea-lochs near Bute, e.g., Loch Goil.

**MOOR.**—The plants typical of the drier part of the moor are *Erica cinerea* and *Calluna vulgaris*; and where there is actual bog, *Sphagnum* and *Parnassia palustris* are abundant.

**WOOD AND HEDGEROW.**—A patch of damp woodland near Kilmichael affords several species of the Orchidaceae. An interesting and varied roadside flora is present between Kilmichael and Ettrick Bay, where *Agrimonia eupatoria* (Common Agrimony) grows in abundance. In this region *Carum verticillatum*, the whorled caraway, is also found.

**Central Bute.**

Central Bute extends from the boundary of the northern belt to the line of the volcanic fault which runs across the island from Rothesay to Scalpsie Bay. It is mainly marine alluvium, and includes the greater part of the cultivated land. The seashore on the east is too near the town of Rothesay to be very interesting botanically; on the west there are considerable stretches of sand. A stretch of moorland runs from Barone Hill in a south-westerly direction almost to Scalpsie Bay.

**MARITIME.**—The sandy shore of Ettrick Bay shows

a well-developed shingle flora, including *Matricaria inodora* (Scentless Mayweed); *Silene maritima* (Bladder campion), and the creeping growth of *Potentilla anserina* (Silverweed). The whole of the west shore is particularly good from the point of view of the botanist. A description of the formation in the neighbourhood of Ardscaipsie Point will suffice as an example of the types of vegetation to be met with.

*Shingle*.—Masses of *Arenaria peploides* (Sea purslane) with a few associated plants of *Sedum acre* (Stonecrop) form dense mats of very considerable extent on the shingle. *Potentilla anserina* and *Atriplex* sp. form similar but less luxuriant carpets. Intermixed with these occur isolated plants of *Matricaria inodora* and *Scutellaria galericulata*.

*Salt Marsh*.—The chief plants of the salt marshes are *Armeria maritima* (Sea Pink), *Glaux maritima* (Sea Milkwort), *Cochlearia officinalis* (Scurvy Grass), and *Plantago maritima* (Sea Plantain).

*Rocks*.—On the rocks are quite luxuriant growths of *Sedum anglica* (English Stonecrop), *Erica cinerea* (Bell Heather), *Teucrium Scorodonia* (Wood-sage), and Juniper, with scattered plants of *Blechnum Spicant* (Hard Fern), *Asplenium adiantum-nigrum* (Black Spleenwort), and *Ligusticum scoticum* (Lovage). The last-named is a northern plant, common enough in Scotland, but not extending further south than the North of England. The Juniper is an extremely low-growing form, spreading out on the rocks as a fairly compact mat.

At one station near Scalpsie Bay *Glaucium flavum*, the Horned Poppy, grows in abundance. The seed pods of this plant may be as much as a foot in length.

*MOOR*.—Besides the usual moorland vegetation two plants of interest may be noted here; *Hypericum elodes*,

the Marsh St. John's Wort, a small hairy plant much less conspicuous than the other British members of this genus, which occurs in very spongy bogs, and *Listera cordata*, the Lesser Twayblade, of which occasional plants are to be found.

*MEADOWS AND ARABLE LAND*.—A weed which occurs in great abundance in the cornfields is *Spergula arvensis* (Corn Spurrey). Spurge, *Chrysanthemum segetum* (Corn Marigold), *Galeopsis tetrahit* (Hemp-nettle), *Fumaria officinalis* (Fumitory), and *Polygonum aviculare* (Knot-grass) are also common. Plants of common occurrence in pastures are *Euphrasia officinalis* (Eyebright), *Prunella vulgaris*, *Plantago lanceolata* (Ribwort Plantain), *Senecio Jacobæa* (Ragwort), and *Potentilla tormentilla*. Of less frequent occurrence is *Sherardia arvensis* (Field Madder).

*WOOD AND HEDGEROW*.—Apart from the coniferous woods on the west side of Loch Fad, there is no extensive piece of wooded country. The most typical woodland association is seen in a small copse near Barone Park Farm. Here, in spring, *Anemone nemorosa* carpets the ground beneath the trees, and gives place to *Mercurialis perennis* (Dog's Mercury) in the clearings. There are occasional plants of *Oxalis acetosella* (Wood Sorrel), *Adoxa Moschatellina* and Primrose. These species are followed later in spring by *Scilla nutans* (Hyacinth), *Stellaria holostea* (Greater Stitchwort), *Lychnis dioica* (Red Campion), and *Asperula odorata* (Woodruff). *Allium ursinum* (Ramsons) is not present in this particular wood, but is frequent in many similar situations throughout the island. *Claytonia sibirica*, with white flowers, a North American plant which is naturalised in various parts of Britain, is well established in the Skipper's Wood, though it appears to be less abundant now than it was a few years ago. *Circaea lutetiana* at Mount Stuart, and *Pyrola minor* at Port-Bannatyne are of rarer occurrence.

Common inhabitants of the hedgerow are *Epilobium montanum* (Broad-leaved Willow-herb), *Adoxa Moschatellina*, *Geranium Robertianum* (Herb Robert), *Ranunculus Ficaria* (Lesser Celandine).

**MARSH AND LOCH.**—The wet land at the north end of Loch Fad affords a very interesting study of marsh vegetation. The flowers range from *Menyanthes trifoliata*, which is actually an aquatic, to *Orchis maculata*, usually an inhabitant of damp meadows. Cotton grass, *Sphagnum*, *Comarum palustre* (Marsh Cinquefoil), and *Viola palustris* (Marsh Violet) also occur here.

The Greenan Loch furnishes a good example of an aquatic flora. *Nymphaea alba*, and *Nuphar lutea* in places almost cover the surface of the water. Fine plants of *Ranunculus aquatilis* (Water Crowfoot) occur near the edge of the loch. There are a few plants of *Alisma plantago-aquatica*.

In damp, healthy situations, *Pinguicula vulgaris*, and *Drosera rotundifolia*, both insectivorous plants, and *Habenaria trifolia* are to be found. *Narthecium ossifragum* (Bog Asphodel) and *Saxifraga aizoides* are frequent where there is slowly-trickling water. *Alisma ranunculoides* occurs in a similar habitat, but is much less common. *Saxifraga aizoides* is much more abundant on Arran than it is on Bute. *Lobelia Dortmanna* occurs in at least one station. This plant is an aquatic which raises only its flowering stems above the water.

In marshy meadows plants of most general occurrence are *Iris Pseudacorus*, *Lychnis Flos-cuculi* (Ragged Robin), *Ranunculus Flammula* (Spearwort), *Stachys palustris* (Marsh Woundwort), *Valeriana officinalis*, and the inconspicuous creeping plants of *Ranunculus hederaceus*. *Chrysosplenium oppositifolium* (Golden Saxifrage) is very common on the banks of streams, and *Nasturtium officinale* (Watercress), and *Veronica Becca-*

*bunga* (Brooklime Speedwell) are frequently found in ditches and sluggish streams. Of particular interest is *Mimulus guttatus*, a N.W. American plant, now naturalised. It occurs on moist ground in a number of places in Bute.

### South Bute.

This includes all ground east of a line from Rothesay to Scalpsie Bay. It is Old Red Sandstone with outcrops of igneous rock. This rock is particularly prominent in the region south of Kilchattan Bay, which constitutes what is commonly called the "South End."

**MARITIME.**—On the eastern shore, from Bogany Point to Kerrycrov, the shingle provides a suitable habitat for *Atriplex*, and on the rocks grow *Cochlearia officinalis*, *Plantago maritima*, *Armeria maritima*, and *Glaux maritima*. Inhabitants of the salt-marshes include *Armeria*, *Cochlearia*, and *Aster Tripolium*. Further south, at Bruchag Point, *Erythraea Centaurium* (Centaury) and *Gentiana campestris* flourish on the dry sandy turf which in places comes down to the edge of the shingle. In salt marshes and brackish water at Dunagoil Bay are found *Samolus Valerandi* (Brookweed) and *Ruppia maritima*.

**MARSH AND LOCH.**—A small pond near Millhole contains numerous plants of *Alisma plantago-aquatica*, and after a period of drought the exposed edges of the pond show a great abundance of *Hydrocotyle vulgaris* (Marsh Pennywort), which flowers freely.

Patches of wet ground, partaking of the nature of moorland bog, are frequent on the raised beaches near Dunagoil. Here *Pinguicula lusitanica* and *Drosera rotundifolia* flourish at a distance of some twenty or thirty yards from the sea, accompanied by *Parnassia palustris* (Grass of Parnassus), *Anagallis tenella* (Bog

Pimpernel), *Ranunculus Flammula*, and, at Kilchattan Bay, *Listera ovata*.

ROCK.—The outcrops of igneous rock afford a suitable habitat particularly for *Cotyledon umbilicus*, the Wall Pennywort. It is accompanied by Ivy, *Teucrium Scrodonia* and Juniper.

PASTURES.—Here flourish Bracken, *Digitalis purpurea* and *Linum catharticum*. *Geranium sanguineum*, a plant not very common in the Clyde area, is found at Garroch Head.



## THE GREAT BARRIER REEF EXPEDITION, 1928-1929.

By SHEINA M. MARSHALL, Marine Station, Millport.

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Coral reefs can be classified into three main types—fringing reefs, barrier reefs and atolls. Of the second type the Great Barrier Reef of Australia is the largest example. It runs along the north east coast of Queensland for over twelve hundred miles, sometimes within ten miles of the shore, at the southern end separated from it by as much as a hundred miles. It is not one continuous reef, but consists of an enormous number of small reefs separated from one another by channels of varying depth. Inside the main series of outer barrier reefs, in the so-called lagoon, are numerous other reefs, some wholly below the surface, some with sand-cays upon them, and some with both sand cay and mangrove swamp. It was on one of the last type, Low Island, that the expedition had its headquarters.

Low Island was actually the first coral island sighted by Captain Cook in June, 1770, in his historic voyage up the east coast of Australia. He did not recognise it as a coral island, however, and sailed on to run upon a reef only a few miles to the north. His ship, the *Endeavour*, was holed, but the worst hole was filled by a piece of coral which had broken off in it, and they managed to drag a sail over the rest and refloat her. Cook's passage up the coast can be traced by the names he has left on it—*Endeavour Reef*, *Cape Tribulation*, *Weary Bay* and *Hope Islands* tell their own tale. Finally Cook managed to get his boat ashore at the place which now bears his name, and there she was repaired. There, too, Cook climbed the hill behind the bay and saw, to his horror, the huge extent of reefs stretching both north and south. It is a long time