

Colonisation of New Ground.

Where the full force of the wind strikes, the plant-covering may be quite killed, and bare hollows are formed, where water lies after rain. Such are soon repopulated from the neighbouring meadow. First, if wet enough, comes *Liparophyllum Gunnii*; then *Ehrharta Thomsoni* appears, this being followed by *Donatia*, *Carpha*, and *Dracophyllum politum*, when typical "meadow" is soon reinstated.

5. Bog.

Where shallow water lies all the year round, and alongside water-holes and lagoons, are bogs. Their plants differ little from those of the boggy meadow, *Ehrharta Thomsoni*, *Donatia novae-zelandiae*, *Dracophyllum politum*, *Carpha alpina*, *Astelia linearis*, *Oreobolus strictus*, and *O. pectinatus* being common. On the muddy surface subject to frequent submersion are colonies of *Liparophyllum Gunnii*, making dark-green patches, relieved in January by the numerous pretty starlike flowers. *Actinotus novae-zelandiae* is in the wettest parts: it is in full bloom in November. *Drosera stenopetala*, *D. Arcturi*, and *D. spathulata* are always more or less common.

Where open spaces occur in the subalpine scrub, and water lies, will be an abundance of *Carpha alpina*, *Lycopodium ramulosum*, *Gleichenia dicarpa*, creeping *Leptospermum scoparium*, *Astelia linearis*, and species of *Drosera*.

6. ROCK VEGETATION.

Almost any of the subalpine plants may be found growing on rocks. This is not because they are specially adapted for such a position, but because masses of peat are readily formed in the mountain climate on flat rock surfaces or in crevices, and because where rain is very frequent the rocks never become too dry for the ordinary bog-xerophytes. Similarly certain true rock plants can also live in bogs.

The following are the only special rock plants: (Filices) *Polypodium pumilum*; (Umbelliferae) *Aciphylla flabellata*; (Compositae) *Raoulia Goyeni* and *Helichrysum grandiceps*.

On Mount Anglem the much broken cliff-face (see Photo No. 11), from the summit to the glacial tarn below, contains a considerable plant-covering; but I had no chance to examine what should be an interesting spot.

The moraine on Mount Anglem, built up of huge blocks of granite (see Photo No. 1), is covered with low subalpine scrub, containing plenty of *Dracophyllum Menziesii* (see Photo No. 7). On the summit, where the wind is felt in all its force, the scrub is reduced to stunted plants, and there is plenty of open space for other growths. Here the great feature is the extraordinary brown cushions everywhere and of all sizes of *Dracophyllum politum*, large globe-shaped examples measuring 20 in. in height and a yard in length and breadth (see Photo No. 13). Very often the wind has blown away the peaty soil from their bases, and nothing remains but the stout, naked branches, betraying the shrubby character of this remarkable growth. Everywhere are the tussocks of *Danthonia crassiuscula* more than 2 ft. tall, the bright-green coriaceous leaves, brown and dead at their extremities, waving in the breeze. *Astelia montana* forms large masses. Growing on the most exposed parts of the moraine are many white hard cushions of the Stewart Island vegetable-sheep (*Raoulia Goyeni*), pressed close to the stones, and held firmly in position by the woody tap root. Growing on or with it is much silvery *Celmisia argentea*.

On Mount Anglem the following were noted on the face of a rock not far from the summit: *Raoulia Goyeni*, *Helichrysum grandiceps*, *Dracophyllum politum*, *Celmisia argentea*, *Phyllachne Colensoi*, *Gaultheria antipoda*, *Senecio Lyallii*, *S. bellidioides*, *Poa Colensoi*, and sheets of *Polypodium pumilum*.

On Table Hill the final slope to the summit has the schist rock exposed, and the ground is covered with flat, weathered slabs of stone. In places gravel lies above the slabs. Most of the ordinary boggy meadow plants are present, but not crowded or even touching. The stony slope is silvery and red in places,* owing to the abundance of *Raoulia Goyeni* and *Dracophyllum politum*, and growing through them are the stiff leaves of *Danthonia pungens*.

On rocks on the summit of Table Hill (2,347 ft.) the following were noted: *Abrotanella muscosa* (also on summit of Rakiahua), *Raoulia Goyeni*, *Danthonia pungens*, *Celmisia argentea*, *Aciphylla Traillii*, *Senecio bellidioides*, *Colobanthus Billardieri*, *Drapetes Dieffenbachii*, *Polypodium pumilum*, *Gaultheria antipoda*, and *Aciphylla aromatica*. Where soil occurs on the rocks are virtually all the meadow plants; even *Carpha alpina* occurs in the rock-chinks.

The bare steep granite cliffs and smooth rocks of the Frazer Peaks offer only footing for plants in their cracks and crannies. *Aciphylla flabellata* is in every crack in some places, its long roots penetrating far into the rock. Other plants are the two coastal ferns (*Blechnum durum* and *Asplenium obtusatum*), *Celmisia linearis*, *Leptospermum scoparium*, *Ehrharta Colensoi*, *Astelia linearis*, *Drapetes Dieffenbachii*, and *Dracophyllum politum*.

PART IV.—HISTORY OF THE FLORA.

1. GENERAL.

Stewart Island, usually considered as a floral province equal in value to the other provinces, seems to me better included as a well-marked district of the southern floristic province, which latter extends northwards through the South Island of New Zealand to latitude 42° S. With the Stewart Island district must be included Ruapuke, Dog Island, Centre Island, the various mutton-bird islands, and

* In winter so red are the mountain meadows that the colour effect of those of Mount Anglem can be seen from the sea.