

NOTES ON TERRESTRIAL ECOLOGY

The main organized ecological work of this season has been botanical.

(1) P. Gabbutt, during three weeks from August 16th to September 9th, worked on a detailed comparison of two sidings, the one above Brazen Ward and facing east, the other above Jenny's Cove on the west coast. He examined the frequency and distribution of the characteristic plants on each slope, and analysed the differences between the two floras in relation to the topography, exposure to weather and nature of the soil. Briefly, he found that the soil of both areas was acid, but that at Jenny's Cove was the less so, and this was attributed to the action of sea salt from the spray blown in by the prevailing westerly winds. The vegetation of the two sidings differs strikingly. On the east side bracken, *Pteridium aquilinum*, is dominant, forming a canopy over the whole region. Beneath it occur a number of species, some of which are common to both areas, others however being absent from Jenny's Cove, or so sparse there as to escape sampling, for instance, bramble, *Rubus* spp., ragwort, *Senecio jacobaea*, ox-eye daisy, *Chrysanthemum leucanthemum*, and honeysuckle, *Lonicera periclymenum*. Of those species which occur at both sites, some, like dog violet, *Viola canina*, flourish far more luxuriantly at Brazen Ward, while others show the reverse preference being better suited by the much more open community of Jenny's Cove. These include the hawksbit, *Leontodon leysleri*, stoncrop, *Sedum anglicum*, Yorkshire Fog, *Holcus lanatus*, heather, *Calluna vulgaris*, yarrow, *Achillea millefolia*, bell heather, *Erica cinerea* and the sedge, *Carex ovalis*. Within each area also some species show gradients up and down the slopes. For instance, centaury, *Centaureium umbellatum*, occurs only over the lower slopes of Brazen Ward, while *Calluna*, medick, *Medicago*, thyme, *Thymus serpyllum*, sweet vernal grass, *Anthoxanthum odoratum*, *Erica* and bird's foot trefoil, *Lotus corniculatus*, tended always to be restricted to the upper half of the siding.

It seems possible that the differences may be related to varying degrees of resistance to desiccation by wind, the force of this being mitigated by such factors as topographic shelter (on the east side), shelter by shading beneath the canopy, compensation by increased water supplies in the soil (this being correlated with the depth and acidity of the soil) and also by reduction of transpiration by decrease of the leaf area exposed. Preliminary investigation of the importance of these factors was undertaken in relation to the bracken. The height of the fronds was measured in different situations, the density of plants per square metre estimated, and the degree to which the ground was shaded and covered calculated, all these measurements being correlated with the depth of the soil. It was found that the number of plants per square metre was approximately the same in both regions, namely, 47 at Jenny's Cove and 51 at

Brazen Ward. But the height of frond on the east side, 72.9 cms, was nearly three times that on the west, 25.4 cms, while the coverage exhibited was 98.7 per cent at Brazen Ward as opposed to only 60 per cent at Jenny's Cove. The depth of soil was much the greater at Brazen Ward, 33.1 cms, as against only 13.1 on the west. On the other hand, where a deep soil could be found on the west side (33 cms), the height of the bracken cover was much greater, namely 53.1 cms, but still fell markedly short of that in the shelter of the east sidings.

Other differences of distribution and development were found, all pointing in the same direction, and it seems well worth while to attempt a fuller investigation of the problem when time permits next summer.

(2) Mr and Mrs Harvey devoted a month in August and September to commencing a survey of the vegetation patterns of the island, this being designed to provide a basic map to which other records may then be related. A strip 150 metres wide, extending westwards from the telegraph line was mapped from the North End as far as the Old Light, and southward from here the whole width of the top of the island as far as the west wall of the hayfield, was mapped. The method adopted was to take out a line for the 150 metres at points every 25 metres along the base-line, commencing at the northernmost pole on the top of the island, and finishing ultimately on the crest of the sidings immediately south of the Rocket Pole. The completion of the survey will involve a similar series along the eastern half of the top of the island, at least as far as the farm, and another series on the sidings. Along each line a $\frac{1}{2}$ metre square was put down at 5 metre intervals and the presence of a selected group of indicator species was recorded, the results being graphed in the evening. Space does not permit the presentation of all the data acquired, nor would they mean very much in their present unfinished state. It is hoped however that, once the survey has been completed a copy of it can be lodged at the Old Light. Interesting points which may be noted in passing are:—

(a) the distribution of thrift, *Armeria maritima*, on the top of the island shows a series of advances and retreats relative to the west coast. The topography of the sidings suggests that at the heads of sloping gullies the plant is able to extend much further inland than it can elsewhere. Presumably this is governed by the fact that the westerly winds tend to be funnelled up such gullies, as a result of which they are exposed to its force to a greater extent than is the rest of the island top. It may be also that more sea salt is deposited here. The explanation of this peculiar distribution is however still to be sought, and we hope that Peter Gabbutt may be able to give it some attention next summer.

(b) Perennial Rye Grass, *Lolium perenne*, is still quite an important constituent of the old seeded pastures of Middle Park and the area between the Old Light and the Rocket Pole, despite their having

had little attention for many years now. This is a very valuable pasture grass, which is included in most seeds mixtures, and its persistence for so long suggests that it would be quite feasible to improve the grazing on these areas should it at any time become desirable.

(3) H. Bowen during a week's stay in early July made a systematic survey of the flora of Lundy, recording some new species and confirming and extending other earlier records. Since then he has been preparing a new total flora for the island, compiled from all known earlier references and from his own notes. A copy of this has been promised and will be kept at the Old Light for the guidance of later visitors whose interests may be botanical.

CASUAL NOTES AND RECORDS

Most of these notes refer to butterflies and moths seen in the course of their other work by various observers. A few moths were however taken by David Hunt at Sugar by night.

Painted Lady, *Vanessa cardui*, first seen March 27th, latest record September 2nd. It was not very frequent this season.

Clouded Yellow, *Colias croceus*, only on two days, August 17th and 18th.

Cream-Spot Tiger, *Arctia villica*, several, June and July.

Muslin Moth, *Cycnia mendica*, (D. Hunt), September 9th.

Antler Moth, *Charaëas graminis*, (D. Hunt), September 11th.

Large Yellow Underwing, *Triphaena pronuba*, common during August.

Setaceous Hebrew Character, *Amathes c-nigrum*, September 7th.

Rosy Rustic, *Hydraecia micacea*, (D. Hunt), September 9th.

Yellow Shell, *Euphyia bilineata*, August 20th.

Clouded Silver, *Bapta punctata*, June 27th.

Silver-Ground Carpet, *Xanthorhoe montanata*, June 27th.

Treble-Bar, *Amaites plagiata*, June 28th.

Narrow-Winged Pug, *Eupithecia nanata*, larva on heather, August 19th.

The only new Hymenopteran recorded was a full-grown larva of the skullcap sawfly, *Athalia scutellariae*, on Greater Skullcap in Gannet's Combe, August 21st.

Finally, Mr and Mrs Harvey were able to confirm W. B. Alexander's 1949 record of Autumn Lady's Tresses, *Spiranthes spiralis*, near the Rocket Pole. A small, but vigorous colony of about two or three dozen plants of this beautiful little orchid was seen in September.