

The Vegetation of Molesworth Run

The story of Molesworth is probably well known by now. Some ten years ago the land had reached such a state of denudation that the run was taken over by the Lands and Survey Department and all sheep removed. At the present day cattle are grazed rotationally on different parts of the run. The original tussock cover in this low rainfall area had been in parts greatly altered, in parts altogether lost in the first ninety years of use. In her talk to the Society on October 18, Miss Moore of the Botany Division gave members an insight into the state of the vegetation at the present time.

Molesworth Run, some 239,000 acres in extent, is situated at the junction of the provinces of Canterbury, Nelson and Marlborough, and includes the headwaters of three big rivers: the Wairau, the Awatere and the Clarence. With an average annual rainfall ranging from 20 to 34 inches in different parts of the run, it lies almost entirely east of the forested areas of the main alps; apart from small clumps, mountain beech occurs only in the vicinity of the Wairau where the rainfall is highest. The land is for the most part high, ranging from about 1,500 feet above sea level up to 6,500 feet.

The flatter land is moderately well covered with tussock and some of the introduced grasses. Many of the steeper sides, on the other hand, are now almost devoid of tussock, except in places on the lower slopes and particularly on those with a southerly aspect where hard tussock (*Festuca novae-zealandiae*) grows openly spaced. Silver tussock (*Poa caespitosa*) is only found in the damper parts but the smaller *Poa colensoi* appears to be a very important native grass. On the higher parts there are remnants of snow tussock (*Danthonia flavescens*) but it has been greatly reduced during European occupation.

The two most important factors influencing the growth of plants are the low rainfall and the continual upheaval of the soil by the countless pillars of ice formed in the ground during every frost. Once the original plants have gone it becomes very difficult for seedlings to establish. Plants that will grow and spread under such conditions naturally play an important part in recovering the bare ground. Some of those mentioned were the well-known scabweed (*Raoulia lutescens*), another raoulia (*R. australis*), pipiripi (*Acaena microphylla*) with bright crimson spines without barbs, and its variety *inermis* (which is spineless) and the common sorrel (*Rumex acetosella*). From observations on marked plants over a number of years, most tussock seedlings on scabweed do not develop beyond a certain stage; thus regeneration of tussock by that means is of little importance.

Of the introduced grasses by far the most important are Kentucky blue-grass (*Poa pratensis*) and Yorkshire fog (*Holcus lanatus*) which seem to be able to withstand frost action and grazing fairly well.

Remnants of scrub are found by the rivers and in gullies, but scrub is nowhere extensive. Manuka is most abundant on the lower country. Other scrub-forming plants mentioned were cassinia, coprosma, a cassinia-like senecio (*S. cassinoides*) and of course wild-irishman (*Discaria toumatou*).

Naturalized plants play an important part in the new vegetation that is developing on this type of country. Whether we like it or not the original, age-old natural vegetation has for the most part gone for ever on Molesworth and what the cover will be like in hundreds of years to come no one can tell. Some of the plants that have already made their appearance were mentioned. Sorrel was everywhere and was often the only plant growing on bare shingly ground. Other weeds widely spread were sweet briar (*Rosa eglanteria*) two species of mullein and thistles. Gorse was limited to a small area near the homestead, but St. John's wort (*Hypericum perforatum*) appeared to be spreading in a few places. The distribution of wild gooseberry was interesting—it formed a dense growth underneath wild-irishman trees, the seed having been carried there by birds.

But it is desirable to get better plants naturalized and at the present time plants from various parts of the world are being tried out at Molesworth in experimental plots. If suitable plants are found, they may one day be expected to recover some of the bare mountain sides so common on Molesworth today.

Animals other than cattle, are always a pest on Molesworth and much time has to be spent in keeping their numbers down. Rabbits are number one enemy and if unchecked would entirely prevent improvement or even maintenance of the present vegetation. Goats, deer and pigs were also mentioned as undesirable animals that need to be checked.

In concluding, Miss Moore spoke of the need of trees for shelter and particularly for firewood, where homestead and rabbiters' camps depend on willow logs for cooking and for heating. Few trees will grow, but willows spread naturally on the Awatere riverbed and are regularly cut for firewood.

Members were treated to a very interesting exhibit of herbarium specimens and live plants recently brought back from Molesworth: *Coprosma petriei* in flower, four species of *Raoulia* (*R. australis*, *R. lutescens*, *R. subsericea*, *R. monroi*), *Clematis a'oliata* in flower, *Isoetes alpinus*, *Ewartia sinclairii*, the rare *Pilularia novae-zealandiae*, and many others.

A.P.D.

MEMBERS' EVENING

The annual evening devoted to members' exhibits was held on December 20. A number of interesting plants were shown, including a handsome *Epilobium* brought along by Mr. Brockie, a bowl of small plants from Waikanae estuary by Dr. Cone, and a collection of lichens from Waipoua by Mrs. Samson. Prior to the meeting members heard Dr. C. Skottsberg's recorded talk "Paradise Lost," at the 2YA studios.