

chylotia stems, *Funaria vesicularis* on wet rocks and *Andropogon hispidus* on the drier rocks on the forest floor, a recently fallen dead branch one remarkable tuft contained no fewer than three masses of comparatively rare occurrence in the area, viz. Neckera *Hymenodonta* already noted, *Portula rubra* only once previously recorded from the Tararua (by Miss Moore), and *Dicelodontium nitidum*, as previously noted at all.

Under beech trees (*Nothofagus solandri* and *N. fusca*) on the ridge summit, the stony ground carried a mossy carpet comprising for the most part golden mats of *Thuidium reviviparum* in early fruit (fruit is ripe in May), dense mats of *Acanthocladium externatum*, and pale yellowish mats of *Tychochloa acicularis*. Also abundant but of less systematic importance were tufts of *Dicranoloma billardieri* in full ripe fruit, and two other species without spores. Amongst these mosses the following, all fruiting freely were scattered: *Bryum truncatum*, *Portella glycina*, *Hypopterygium novae-zeelandiae*, *Stereodon chrysosporum*, *Scapanus* sp., *Campylopus truncatus*, and a tuft of what I believe may be *C. capillatus*, though this requires confirmation. *Breutelia pendula* grows on the side of the track.

On the bark of live beech trees the following epiphytes are gathered: *Cladonia ericoides*, *Dicnemon calycinum* (including a very slender form or variety), *Macromitrium longipes*, *M. weymouthii*, and most interesting of all *Recurvum recurvum*. Dixon states that this moss has been collected only at Kopuaranga in the North Island and one locality in the South Island. This may be the area referred to, as the falls on this stream are known as the Kopuaranga Falls. *Ceratodon purpureus* grows on dry soil where fire had burnt part of the forest, and a form of *Isia* was noted on the clay soil.

Of the sixty or more mosses observed, three are new additions to Zotov's list of Tararua mosses, viz. *Dicelodontium nitidum*, *Macropodium robustum*, and *Macromitrium recurvum*. If two other mosses are correctly identified as *Rhynchostegium tenuifolium* and *Campylopus capillatus* they would be further additions.

W. Martin.

## PROBLEMS, POLITICS, AND THE PARASITIC FUNGUS.

By Dr. I. V. Newman, 20.11.42.

This lecture, based on a book "The Advance of the Fungi" by E. C. Large, emphasized the social relations of science and scientists.

The basic thread-like structure of fungi was described and the wide range of organic matter utilized by various fungi was indicated.

Parasitic fungi often destroy their hosts, and when these are food plants human welfare is affected. The relation between the incidence of potato blight in Ireland and the political events in Britain in the nineteenth century were traced in some detail. The repeal of the Corn Laws had accelerated emigration from Ireland to America were shown to be direct results of rapid growth and spread of *Phytophthora infestans* (causing blight) following a particularly favourable weather cycle.

Not destruction but a reduction in the quantity and quality of the harvest is caused by rust (*Puccinia graminis*) on leaves and stems of wheat. Over-production of wheat occurs periodically, and the size of the crop is sometimes limited by political means. Reducing the damage due to rust is the province of the scientist, the success of whose work in developing rust-resistant strains of wheat may lead to over-production, with its political and social repercussions.

Most of the complicated life history was worked out in the sixties, when it was shown that barberry was the intermediate post-winter host from which the new crop of wheat was infected each year. It was only in 1927 that Canadian workers showed that the cycle is completed only when flies transfer material from a pustule of the one strain to a pustule of the other strain on the leaves of barberry. In the less rigorous winters of the southern hemisphere it appears that wheat rust can overwinter in the summer form on grasses, and the barberry stage is usually eliminated.

The production of varieties of wheat resistant to different strains of rust (there are at least 53 described within *Puccinia graminis tritici*) has developed plant breeders' methods of identifying hybrids between rust strains and the probable future lines of research indicated.

A third type of relationship, illustrated by ergot (*Claviceps purpurea*), was mentioned. Here the infestation is of little importance for its effect on the crop; but the fungus body itself, though poisonous if included in food materials, can yield substances of medicinal value.

Dr I.D. Blair contributed some remarks about the importance of Canadian wheat in the repeal of the Corn Laws and in the subsequent progressive debilitation of agriculture in England. Had plant pathological research been so successfully combated the inroads of wheat rust in Canada, Britain might have faced the present war with a different agricultural background.

NEW ZEALAND SPECIES OF METROSIDEROS.

Cheeseman's Manual (1926)		Revised (Oliver, 1928, Trans. N.Z. Inst., Vol. 29)
Florida (Scarlet rata)	W	<i>M. scandens</i>
Lindia (Southern rata)	W	<i>M. umbellata</i>
albiflora		<i>M. albiflora</i>
Parkinsonii		<i>M. Parkinsonii</i>
Hiffusa (Carmine rata)		<i>M. carminea</i>
aspericifolia (All white-)	W	<i>M. diffusa</i>
Colensoi	W	<i>M. Colensoi</i>
scandens	W	<i>M. perforata</i>
robusta (Northern rata)	W	<i>M. robusta</i>
omentosa (Pohutukawa)	P	<i>M. excelsa</i>
villosa (Kermadec Is., Pohutukawa)	P	<i>M. Kermadecensis</i>

- W - Growing naturally about Wellington.  
P - Planted but not occurring naturally about Wellington.

CORIARIA POTTSIANA.

Mr N. Potts, of Ootiki, who has long had *Coriaria pottsiana* in cultivation, states that he has grown it from seed, and that it comes true, as a good species would.

BUSH FUNGI.

One Saturday in 1942 the Society spent an afternoon in the new reserve on the slopes of Mt Johnson, Karori. Stormy weather had made the path slippery, but it was a fine warm day for the trip. Such conditions, warmth following rain, are ideal for the growth of certain of a group of plants which includes not only some of the most destructive, but also some of the most interesting, useful, and beautiful members of the plant kingdom -- namely, the fungi or mushroom family.

The conspicuous, colourful parts of the plant which we see growing in the bush, or on stale cheese, or in the shops at 5/6 per pound, are the fruiting bodies which produce the millions of tiny spores by which the fungi spread. The plant itself is only a tangle of the finest threads which penetrate deeply into whatever substance the particular fungus chooses for its food.

Some of the fungi are edible, others are used in the making of food, e.g. bread. Yet others cause dread destruction of crops, e.g. potato blight and wheat rust, and some cause disease in man, e.g. ringworm. But those we saw that Saturday grow always in the bush, and though their action is destructive, their presence is necessary and useful in the cycle of forest life. It is only when destructive fungi attack young trees or destroy or disfigure valuable timber that they become an economic menace.

No living thing exists in the same state for ever, and much as we admire the stately forest trees which dominate the bush, we know that while their shade is cast seedlings below struggle and do not reach maturity. Therefore it is a useful purpose served by the fungus which invades the wood of an overmature tree, and gradually causes it to fall, allowing healthy young trees to take its place. Such fungi gradually break down the wood of the great trunk, and so undermine its strength that at a time comes when it falls with a strong gust of wind, or when its branches are weighed down with snow or rain. The work of this type of fungus may be only just beginning when the tree is dead. It continues to spread, and many other fungi, some of which can grow only in dead trees, now attack. Tiny spores lodge in a wound or crack in the bark, and if sufficient moisture is present they spread