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G. A. GIGAUULT

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the wheat plant are impossible. However, as the greater proportion of the larvae leave the ears and burrow into the soil a few inches to complete their transformations, something may be done in the way of surface dressing immediately after the crop is carried. Mr. C. Whitehead in his second report to the British Agricultural Department, says: "The sole practical means of prevention is to cultivate the wheat stubble, directly the wheat is carried, so as to bury the larvae deep in the ground. A dressing of hot lime might be applied with good results, but in this case the land should be very lightly scarified with one of Coleman's lightest scarifiers, in order to bring the lime into close contact with the larvae. After some days the land should be deeply ploughed to bury them and effectually prevent further transformation, at least to the imago form. Couch grass must be eradicated (this grass is, botanically, closely allied with the wheat plant and the Midge is known to go through its transformations in it as well as in wheat). Hedge sides and outsides of fields should be carefully brushed. It should be remarked here that brushing hedge-sides and all outsides, grassy roads, waste corners, and headlands should be done systematically, twice if possible, once early before grasses go to seed and the insects hatch out, and again in the autumn when insects are hibernating upon grasses and hedge-side rubbish, either as perfect insects or in the egg state. And it is not of much use merely to brush, the rubbish should be burnt or carried away to be mixed."

It is further suggested that in years of bad attack all chaff or rubbish, after threshing, should be burnt, put in a mixen, or under cattle in yards.

Sometimes a large proportion of the larvae remain in the ears until after the grain is carried, and when threshed fall down with the chaff, dust, and rubbish, in sufficient numbers to make the ground quite red. Mr. Meech, of Meech's Lake, Chelsea, Que., informs me that, a few years ago, this was the case in the Ottawa district. These larvae should, of course, have been most carefully swept up and destroyed.

In many parts of Canada it has been found necessary to give up putting in fall wheat altogether, and then by changing the time of planting in the spring, endeavour to get the wheat into ear at a time when the Midge is not abundant. The great number of different varieties of wheat, some early and some late, largely assist the farmer in this direction, but he must constantly watch for the time of appearance of the Midge in his own locality, and then sow or choose varieties of wheat which are not coming into ear just at this time. It is claimed by some farmers that when they get a so-called Midge-proof wheat that after a time the Midge changes its habits and appears earlier or later, as the case may be, to correspond with the season of the wheat coming into ear. With regard to this question I think it is more probable that the change takes place gradually in the wheat plant; and if, upon observation, this be found to be the case, the difficulty might be obviated by frequently procuring seed-wheat from a distance. From time to time we hear of certain varieties being proof against the attacks of the Midge, and there is no doubt here a field for investigation, the results of which are of enormous importance to the country at large. Wherever Democrat wheat has been grown, it is, in every case reported upon, stated to be free from attack. Mr. Casey, M.P., informs me that, even when grown in the same field with other varieties, it is exempt from attack when they are destroyed. There are also other varieties which have almost the same reputation. It is probable, however, that the same variety which will answer in one district will not be successful in another, and the most suitable for each must be decided by experience.

#### The Rocky Mountain Locust (*Melanoplus spretus*, Uhler.)

In parts of the North-West there are rumours of injuries by the Rocky Mountain Locust (*Melanoplus spretus*, Uhler), and doubtless considerable injury has been wrought in certain restricted localities; but none of the specimens which have been submitted to me have been the true Rocky Mountain Locust; nevertheless, of course, part of the North-West lies within the region where that species breeds, and it is advisable for