

would be most likely to damage the pest, and consequently a thorough knowledge of the life-history of *Xanthorhoe* would be required.

In the Manawatu swamps the river, and to a less extent drains, form an impregnable barrier to the advance of the larvæ of *Xanthorhoe*, but of course would hardly check the distribution of the moth. The fact that two areas such as the Moutoa and Makerua, so closely placed—being only separated by a river—should differ so much as regards the attacks of the larvæ points to a probable local difference, such as a more palatable leaf in the Makerua than the leaf of the Moutoa. This might be caused by some latent element in the plant-food of the soil made available by the heavy draining of the Makerua—the peat sinking, becoming more compact and undergoing decomposition in contact with the atmosphere. The lack of this element may account for certain patches of the Makerua being almost free from the attacks of the larvæ, though surrounded by badly affected leaf.

Not only is the Moutoa Swamp free from serious grub-attacks, but also the other areas—the Lockwood Swamp—on the same side of the river. That the river should separate two classes of soil seems very probable; but none of the areas on the Moutoa side of the river have been so severely drained as the Makerua. Again, the heavy draining of the latter swamp, combined with the peculiarity of the soil, may present some favourable condition for the pupation of the insect, affording perhaps greater warmth and protection to the pupa. But the large flax areas in the Bay of Plenty have also been well drained, and the peaty portions have sunk considerably, as in the Makerua, yet *Xanthorhoe* is practically absent in the former locality. However, though the one condition may occur in both localities, they may differ in certain other features necessary for the increase of the insect. Or, again, in the Makerua the environment may have been so changed that some parasite or predaceous enemy has found the new conditions unfavourable.

It is apparent that *Xanthorhoe* does not abound on hill country except where some rubbish or decaying matter affords a suitable protection. But here, again, the succulent parts of the leaf may be found unpalatable to the larvæ, as it is well known that it takes less leaf of the hill flax to obtain a ton of fibre than is required for the same amount of the swamp flax, the former taking much longer to mature than the latter, and apparently having less edible tissue and more fibre.

Before any definite conclusions can be arrived at as regards pupation, it is necessary to know whether the insect pupates in