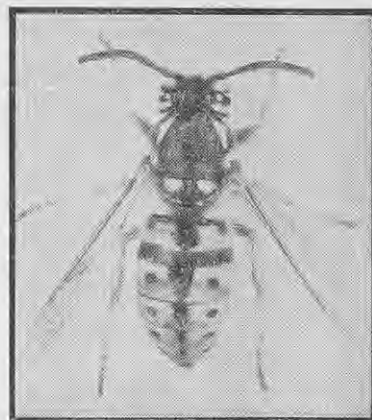


Combating Wasps in New Zealand

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WASPS of the species *Vespula germanica* were first discovered in New Zealand in the Waikato district several years ago. These wasps, which are common in England and European countries, appear to have become permanently established in the central part of the North Island in spite of all measures taken to eradicate them. Their control, however, is desirable, as there will be seasons favourable to their establishment when they may become a nuisance to the public, especially to domestic fruit growers and beekeepers. Every endeavour should be made to locate nests and to destroy them, and to assist in this destruction the Department of Agriculture will issue 10 per cent. D.D.T. powder free on application.



A queen wasp of the *Vespula germanica* species, showing the distinctive markings, which are black on bright yellow body.

EXPERIENCE gained over the last 5 years in a close study of the wasp *Vespula germanica* (previously *Vespa germanica*) has shown that it is practically impossible to eradicate once it has become established in a district. It is also unfortunate that its spread to other districts cannot be controlled because of the many ways hibernating queens may be carried about.

Queens have been found in rain-coats, packing cases, trucks of coal, logs, trucks of timber, wire holes in concrete fencing posts, muslin covering on rolls of bacon, bundles of sacks, and even travelling cases. Flying queens before and after hibernation may also be wind-borne for a considerable distance into new territory.

An effective control can be carried out if the public will destroy all nests discovered and kill any queens that may be found in hibernation or on the wing.

Life History

It is desirable that the life history of the wasp should be understood.

Young queen wasps of the species *Vespula germanica* are raised in autumn, and after mating they hibernate singly or in groups in dark, sheltered corners. With the exception of newly emerged young queens, all the community, including old queens, die in autumn and the old nests are abandoned. However, a small percentage of these nests remain active throughout winter, and it is the

inhabitants of these over-wintered nests that cause a considerable amount of concern to beekeepers.

In spring the young queen awakens and immediately searches for a suitable place (usually a cavity in a dry earth bank) to begin building her nest. The wasps protect their many tiers of brood cells by building a bag of several layers of fragile paper made from wood pulp prepared by their jaws and placed securely in position. Only a few cells made of the papery material are built at first and a single egg is laid in each. When these eggs hatch the resulting grubs are fed by the queen on a diet of masticated insects of all kinds, including flies and caterpillars, which she catches herself. As each grub grows, the queen builds up the cell walls hexagonally and also begins other cells round them in which more eggs are deposited.

Worker Wasps Emerge

About 28 days after the first eggs are laid worker wasps emerge from the cells. The new arrivals enlarge the nest, build additional new combs, and extend the paper walls sufficiently to develop second and subsequent batches of larvae. Worker wasps develop in rapid succession, and soon the queen has a large army of assistants and is relieved of all her earlier duties except that of egg laying. As the nest is enlarged the worker wasps excavate to provide adequate room. This work is done with their mandibles and the bulk of the spoil is carried out and dumped well away from the entrance. All the new arrivals are workers (imperfect females) until late in the season or in early autumn, when numbers of males and young queens are produced.

Surplus Workers

Throughout spring and early summer they feed almost exclusively on other insects, but by February, when the nest has become well established, there are usually more workers than are necessary to maintain the normal economy of the nest. At this



Wasp nest exposed by digging away a bank.