Plant Diseases Division, Plant Research Bureau

Biology of Anobium punctatum.—Erection of a timber insectary during the past year made possible an extension of work on the flight period of this destructive borer insect. Some fifteen thousand beetles were bred, mated, and sexed. A technique for mass breeding has now been developed, providing necessary numbers for therapeutant testing. Long-term experiments have been laid down to ascertain the life-cycle of borer in various timbers, and their susceptibility to its attack. Published results cover an account of the flight period of the species in Auckland, and a paper on its biology is in the press.

In collaboration with the National Film Unit, a cinematograph film was prepared of the Division's work on this insect and shown throughout the picture-theatres of the Dominion.

Timber-preservative Investigations.—Work has been mainly on developing methods for testing chemicals which protect timber against borer and fungous attack. Two processes are now being employed in testing effects of preservatives uniformly distributed through test timbers. They make possible the assessment of the toxicities of various chemicals and their approximate toxic level. Six products widely used as timber-preservatives are being tested; results should be available in six months.

An experimental pressure plant is being installed and should be operating in two month's time. By its aid it will be possible to treat samples of timbers used in building-construction by all known methods of pressure treatment and thus ascertain the most suitable process for use with any specific therapeutant and species of timber.

In collaboration with the New Zealand Standards Institute an emergency specification has been drawn to cover dip treatment of certain species of timbers to be used in housing-construction.

State Advances Corporation

The State Advances Corporation has, as in the past, concentrated on the field investigation of timber-infesting insects and fungi, the application of measures of control of foreign termites, and the field application with preservatives.

Termite Control.—The legal authority for carrying out termite-control work is found in the Termites Act, 1940, and its regulations. The field-work this year has confirmed the previous observations, in that the removal of termite nests, although poisoned or in some cases unpoisoned, did not result in the entire removal of the infestation. A special inspection is being made of all areas where termite nests have previously been removed. The number of active termite infestations in Auckland is decreasing, although, unfortunately, new infestations are still being recorded from some areas. The new technique of dusting the insects themselves rather than dusting the runways is still being used and gives good results. The infestation in the Waikohu County (some seventeen miles from Gisborne) appears to be under control, no further insects having been found since the original control measures taken in 1943.

Probably the most serious difficulty facing the termite-control campaign is the lack of a suitably effective method of dealing with infested utility poles. These poles are scattered throughout every infested area and the methods which can be applied in order to combat termites attacking the poles are limited. These methods are sometimes quite effective in that no insects are discovered for a number of seasons, but there is a strong tendency for the poles to become reinfected. Similarly, tramway sleepers are a permanent source of danger, and in Auckland and New Plymouth the infested areas are all situated along or near to tramway systems. Nevertheless, the termite-control campaign is proceeding satisfactorily, but it is obvious that the secret of success in this work lies in its continuity. Some areas will have to be kept under investigation and control measures applied where necessary for several years to come.

Other Wood-boring Insects.—The incidence of native termites and the large native longhorn (*Ambeodontus tristis*) is still high, although control measures against the former are proving successful. It has, however, been necessary in cases where native termites occur to reblock the houses in many cases, using concrete instead of wooden blocks. The wooden blocks so often used in the past have been of puriri, and this timber is particularly liable to infestation by native termites.

Fungi.—Occurrences on an extensive scale of wood-rotting fungi in houses are rare. Where fungous infestation occurs it is often confined to verandas which are exposed to the weather or base weatherboards in contact with the ground. More extensive infestations may be found on heavy clay sites where inadequate ventilation of the foundation is present. The matter of mould infestation in houses is dealt with under a separate heading.

Wood-preservation.—The application of wood-preservatives on a field scale is still proceeding and a very considerable step forward has been made during the past year. It will be recalled from the 1943–44 report that a selection of native and exotic timbers was sent to the Forest Products Laboratory, Princes Risborough, England, where they were experimentally pressure treated with a water-soluble wood-preservative. The results were so encouraging that one firm has lately conducted some test runs on a commercial scale using New-Zealand-grown *Pinus radiata*. This firm has also carried out some tests with native species in shorter lengths using an experimental pressure plant. The preservative used in these tests was Wolman salts. The results of the tests are still being analysed and are not available at the present time.

MOULD IN HOUSES

Mould in Houses Research Committee.—Mr. L. E. Brooker (Chairman), Dr. G. H. Cunningham, Dr. E. R. Cooper, Mr. A. S. Mitchell, Mr. L. R. L. Dunn, Mr. A. F. Clark (Secretary).

Research on this problem was continued through the year by the Plant Diseases Division, the Dominion Physical Laboratory, and the State Advances Corporation.

Plant Diseases Division

Detailed results of investigations were published during the year (*New Zealand Journal of Science and Technology*) covering work on cause and control of moulds in houses. Investigations showed that discoloration of distempered ceilings and wallpapers of modern houses was caused by several species of fungi growing upon the glue size used for surface treating plasterboard preparatory